

South Carolina Department of Natural Resources

Board Meeting Agenda and Materials and Monthly Division Reports



DNR

**Board Meeting Scheduled
for**

Rembert C. Dennis Building
1000 Assembly Street, RM 325
Columbia, SC 29201

May 20, 2021 10:00 AM

Quick Tips and Logistics

Logistics for SC DNR Board Meetings

The conference room has been rearranged to promote social distancing. Keeping this in mind, the maximum capacity for the room is 13. With the room being at near capacity (with 10) staff are encouraged to attend remotely. It is recommended that presenters, who wish to present in-person, queue in the hallway near the rear door of the conference room. Presenters will enter through the rear door, make their presentation and exit through the rear door. Presenters who wish to present remotely may do so through WebEx.

Board members and staff attending in person should self-screen the day of the meeting for symptoms (see questions below). If any of these symptoms are present you should not attend in person. If you have had a positive test or someone you've been in contact with has had a positive test within the last 14 days then you should attend by WebEx.

Are you currently experiencing any of the following potential COVID-19 symptoms select all that apply)?

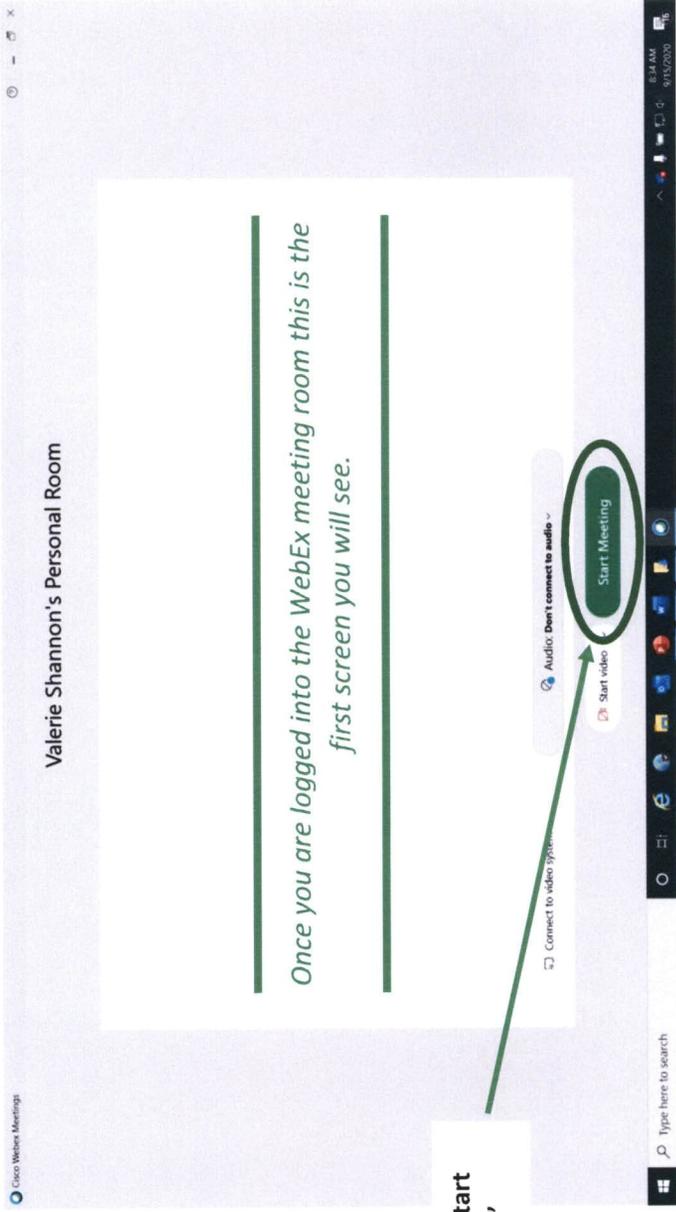
- Fever over 100.4 F
- Chills
- Cough
- Sore Throat
- New Loss of Smell or Taste
- Shortness of Breath or Difficult Breathing
- Fatigue
- Muscle or body aches
- Headache
- Congestion or runny nose
- Nausea or vomiting
- Diarrhea



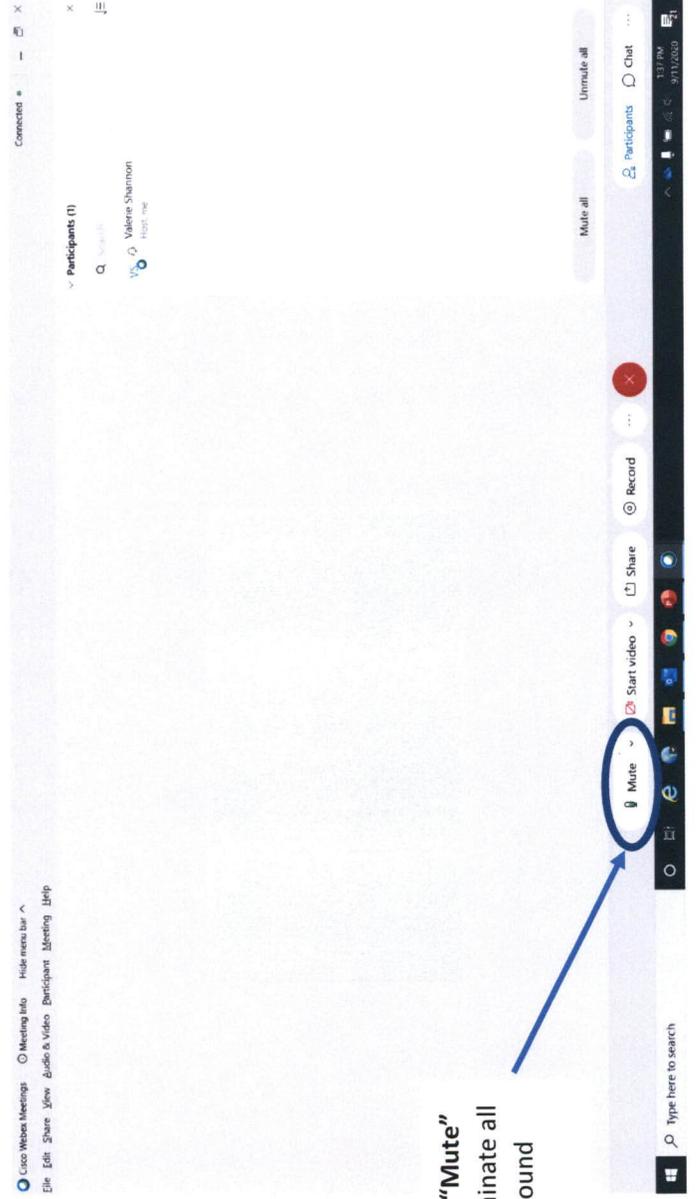
WebEX

Video Conferencing

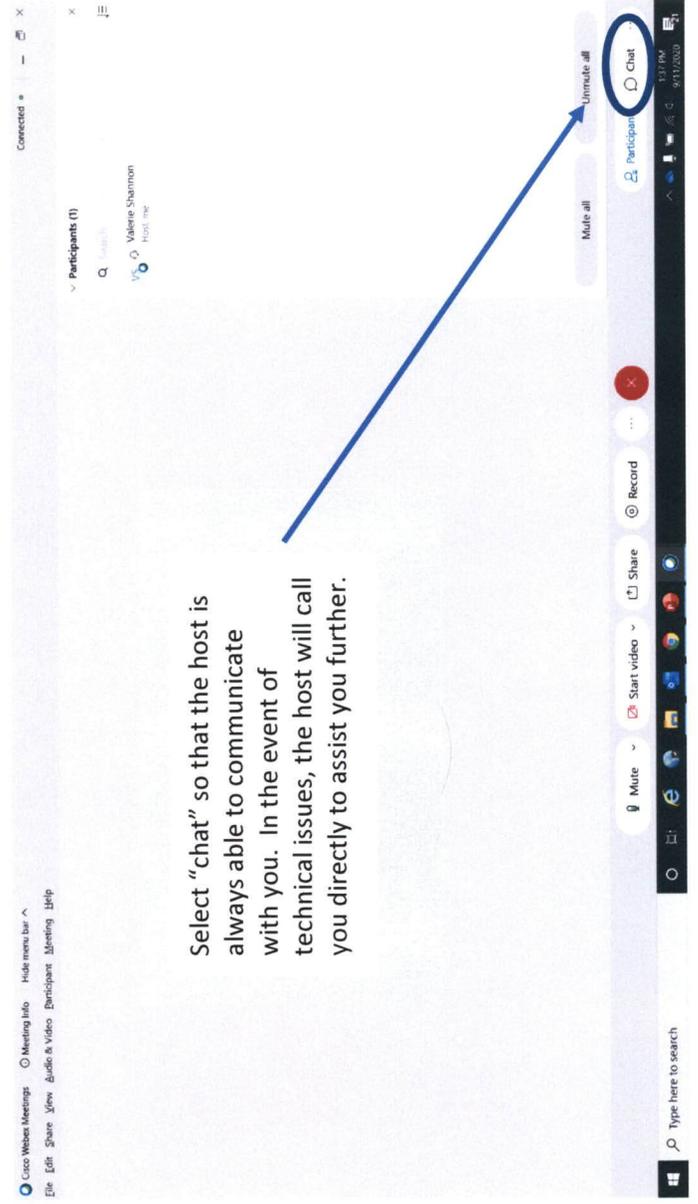
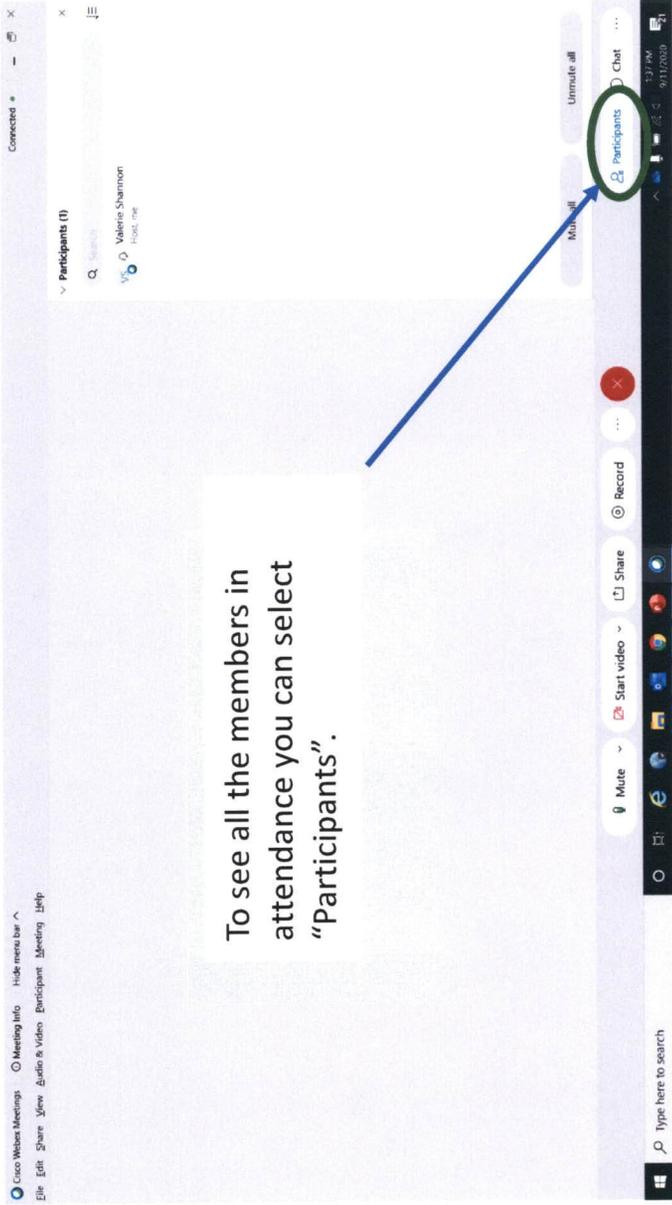
Quick Tips



Select "Start Meeting"



Select "Mute" to eliminate all background noise.



Agenda

AGENDA
SC DEPARTMENT OF NATURAL RESOURCES BOARD

Rembert C. Dennis Building
1000 Assembly Street, RM 325
Columbia, SC 29201
May 20, 2021 10:00 AM

Members of the public may only participate virtually.

<https://scdnr2.webex.com/scdnr2/j.php?MTID=m56ef50eb569f256d8f473cc6544540cd>

Meeting number (access code): 132 946 5678

Telephone: 1-844-992-4726
Access Code: 132 946 5678##

- I. Call to Order..... Norman Pulliam, Chairman, SC DNR Board
- II. Videoconference Guidelines..... Valerie Shannon, Facilitator
- III. Invocation
- IV. Pledge of Allegiance..... Mike Hutchins, Vice Chairman, SC DNR Board
- V. Chairman's Comments
- VI. Introduction of Guests COL Chisolm Frampton, Deputy Director for Law Enforcement
- VII. Constituent Comments (Comments are limited to 5 minutes)..... COL Chisolm Frampton
- VIII. Approval of Minutes from March 18, 2021 meeting and April 22, 2021 workshop
- IX. Presentations/Commendations
- X. Advisory Committee Reports
 - A. Marine Duane Swygert, Chairman
 - B. Law EnforcementNorman Pulliam, DNR Board Representative/COL Chisolm Frampton
 - C. Heritage Trust..... Jake Rasor, Jr., DNR Board Representative
 - D. Land, Water and Conservation Dr. Mark Hartley, DNR Board Representative
 - E. Saltwater Recreational Fisheries Jerry Lee, DNR Board Representative
- XI. Item(s) for Board Information
 - Climate Update Hope Mizzell, Land, Water and Conservation Division
- XII. Director's Briefings
 - A. Executive OfficeRobert H. Boyles, Jr., Director
 - 1. Legislative Report..... Kevin R. Ryan, Director, Government Affairs
 - 2. Environmental Report..... Lorianne Riggin, Director, Office of Environmental Programs
 - B. Deputy Directors' Reports
 - 1. Law Enforcement..... COL Chisolm Frampton
 - 2. Marine Resources.....Phil Maier
 - 3. Administration.....Angie Cassella
 - 4. Land, Water and Conservation Ken Rentiers
 - 5. Wildlife and Freshwater Fisheries Emily Cope

XIII. Item(s) for Board Action

- A. Approval of Governor’s Cup Billfishing Series 2020 Annual ReportPhil Maier
- B. Approval of Comprehensive Permanent Improvement Plan..... Scott Speares
Asst. Deputy Director, Administration
- C. Amended Contract for Sale of Waterline Easement at Lewis Ocean Bay
Heritage PreserveKen Prosser, Asst. Deputy Director, Wildlife and Freshwater Fisheries
- D. Use of Wildlife Endowment Fund.....Angie Cassella
- E. Property Acquisition in Lancaster CountyLorianne Riggan
- F. Property Acquisition in Lancaster CountyLorianne Riggan
- G. CCEHBR Outbuilding Ground Lease.....Phil Maier
- H. Potential Property Acquisition in Edgefield County Sean Taylor
Land, Water and Conservation Division
- I. Potential Property Acquisition in Beaufort County..... Sean Taylor
- J. Ft. Frederick Heritage Preserve – New License for Beaufort County and
Town of Port Royal Sean Taylor
- K. Property Acquisition in Greenville County..... Ken Prosser
- L. Property Acquisition in Colleton County..... Ken Prosser
- M. Potential Property Acquisition in Horry County Adjoining Waccamaw River
Heritage Preserve..... Ken Prosser
- N. Potential Property Acquisition in Jasper County Ken Prosser
- O. Potential Property Acquisition in Charleston County Ken Prosser

XIV. Executive Session (if necessary)

XV. Comments..... Board Members

XVI. Time and Location of Next Board Meeting..... Board Members

XVII. Adjournment

Minutes

Minutes
Board of the South Carolina Department of Natural Resources
Videoconference Meeting
March 18, 2021 10:00 AM

The regular meeting of the Board of the South Carolina Department of Natural Resources was held by videoconference at 10:00 a.m., March 18, 2021. Notice of the date, time and place of the meeting was posted and mailed to the news media. Chairman Norman Pulliam presided at the meeting. Board members present included Dr. Mark Hartley, Mike Hutchins, Jerry Lee, Carlisle Oxner, Jake Rasor, Jr. and Duane Swygert. Director Boyles and staff members of the Department of Natural Resources were present at the meeting.

I. Call to Order

Chairman Norman Pulliam called the meeting to order and welcomed everyone to the meeting.

II. Invocation

Chaplain Dave Tafaoa, SC Law Enforcement Assistance Program (SC LEAP), offered the invocation.

III. Pledge of Allegiance

Mr. Hutchins led the group in the Pledge of Allegiance.

IV. Chairman's Comments

Chairman Pulliam welcomed and thanked Board members for being present. Chairman Pulliam expressed his appreciation to Director Boyles and staff for keeping business going during this difficult time.

V. Introduction of Guests

Emily Cope, Deputy Director for Wildlife and Freshwater Fisheries, introduced Wendell Reilly, Dewees Island; Jimmy Smith, Dewees Island; Alex Kliros, Dewees Island; Jason Brown, Dewees Island; Scott Whitaker, Coastal Conservation Association; and Austin Smallwood, SC Realtors Association.

VI. Constituent Comments

Mrs. Cope informed the Board that Jason Brown, Alex Kliros, Jimmy Smith, Brett Bower and Bryan Hann have requested to make comments to the Board. All comments were regarding the Dewees Island Short Term Rental Framework Proposal.

VII. Items for Board Information

Dewees Island Short Term Rental Framework Proposal

Mr. Reilly reviewed the Dewees Island Short Term Rental Framework Proposal along with the results of the recently conducted straw poll.

VIII. Executive Session

Mr. Hutchins made a motion that the DNR Board go into executive session pursuant to SC Code Section 30-4-70(A)(2) to discuss contractual matters related to Items for Board Action (A). Mr. Rasor seconded the motion and the motion carried unanimously.

IX. Open Session

Mr. Hutchins made a motion that the DNR Board return to open session, noting that no action was taken during executive session. Mr. Swygert seconded the motion and the motion carried unanimously.

X. Item for Board Action

A. Deweese Island

Shannon Bobertz, General Counsel, read a draft resolution.

Dr. Hartley made a motion that the DNR Board accept and approve the resolution as read. Mr. Lee seconded the motion and the motion carried unanimously. Approved resolution attached to the minutes.

XI. Approval of Minutes

Chairman Pulliam asked if there were any additions, deletions or corrections to the February 18, 2021 meeting minutes. *Mr. Rasor made a motion that the Board approve the minutes of the February 18, 2021 meeting be approved as revised on March 15, 2021. Mr. Hutchins seconded the motion and the motion carried unanimously.*

XII. Presentations/Commendations

A. Director Boyles commended Lorianne Riggan, Director of Environmental Programs, on serving on the Board of Directors of Sustain SC which launched on March 9, 2021, with a mission to connect the sustainability goals of business in South Carolina with local natural resource solutions for the benefit of our economy, environment, and people.

B. Director Boyles commended Dr. Hope Mizzell and Melissa Griffin of the Office of State Climatologist, Land, Water & Conservation Division, for coordinating Governor McMaster's Proclamation proclaiming March 14-20, 2021, as South Carolina Citizen Weather Observer Week throughout the state and encouraging all South Carolinians to join him in celebrating the volunteers for their efforts in contributing data that stands as the cornerstone of our state and nation's weather history.

C. Director Boyles commended Ryan Tyler of the Wildlife and Freshwater Fisheries Division on his selection as their 2020 Wildlife Section Technician of the Year. Ryan Tyler works at Bonneau Ferry in Berkeley County and with the challenges presented with COVID-19, Ryan and his colleagues stepped up to have a productive summer and fall planting season and conducted public lottery hunts with the highest degree of professionalism while following COVID protocols. Fall 2020 was one of the best deer seasons for Bonneau Ferry in many years, thanks to Ryan's working magic with the tractor around all the challenging weather conditions.

D. Director Boyles commended Jessica Kinsella and Matt King of the Marine Resources Division for starting up a prescribed fire program within the MRD, and Andrew Hook of the Wildlife and Freshwater Fisheries Division for significant assistance with planning and on-the-ground oversight. This will increase our capacity to manage habitats on South Fenwick and potentially other islands in the future.

- E. Director Boyles commended Law Enforcement Dive Team members LCPL Josh Walters, LCPL Matt Owen, INV Daniel Lynch, and INV Dwayne Rogers and K9Team LCPL Blake Baxley and K9 Arya. The SC DNR Dive Team was called out to assist the West Columbia Police Department on the Saluda River. The Police Department was requesting the dive team's help to try and recover any evidence. The SC DNR K9 Team received a call to search the area adjacent to the river to try and locate any evidence helpful in the case. The SC DNR Dive Team arrived on scene and began preparing for their search. The K9 Team arrived shortly after and K9 Arya began the search of the land adjacent to the river. It took K9 Arya seven minutes to locate a single shell casing under the root ball of a tree along the side of the riverbank. The location of the shell casing led the dive team to believe the handgun had to be in the water. The dive team began searching the area using metal detectors. The water was about four feet deep in that area. The dive team was able to locate the handgun. This was a great example of the expertise of each of these DNR teams working together to assist another agency.
- F. Director Boyles commended Law Enforcement staff in the Horry/Georgetown units for their hard work regarding the flooding issues in their area.

XIII. Advisory Committee Reports

A. Governor's Cup Billfishing Series

Phil Maier, Deputy Director for Marine Resources, reported that the Governor's Cup Billfishing Series Advisory Board met virtually on February 23, 2021. The Advisory Board received a report from the Tournament Committee, a fundraising update on the Highway 21 Bridge Project. The Advisory Board approved the 2021 proposed expenditures and the 2020 Annual Report, as presented by staff.

B. Wildlife and Freshwater Fisheries

Mr. Hutchins reported that the Wildlife and Freshwater Fisheries Advisory Committee met March 4, 2021 in Columbia. The Advisory Committee approved the 2021-2022 Migratory Bird Season as recommended by staff. The Advisory Committee received a presentation on the protection and enhancement of the habitat of Gopher tortoise on Aiken Gopher Tortoise Heritage Preserve; an overview of DNR's Hatchery infrastructure and needed improvements; an update on Sunday hunting and legislation.

XIV. Items for Board Information

A. Climate Update

Hope Mizzell, Land, Water and Conservation Division, spoke of the possible severe weather forecasted for today. Dr. Mizzell provided rainfall totals, precipitation percentiles, streamflow, lake levels, groundwater monitoring wells around the state, precipitation forecast and temperature forecast.

B. Use of Prescribed Fire on DNR Properties

Johnny Stowe, Wildlife and Freshwater Fisheries Division, gave the Board a brief presentation on the Use of Prescribed Fire on SC DNR Properties. The presentation included the history and benefits of prescribed fire, as well as the areas receiving prescribed burning from 2017-2020.

C. Overview of Category 1 Waterfowl Management Activities

Mrs. Cope gave the Board a brief overview of Category 1 Waterfowl Management Activities. The presentation included the 2020 Accomplishments for Broad River, Clemson, Bear Island, Wateree, Beaverdam, Sandy Beach, Santee Coastal Reserve, Murphy Island and Cedar Island. Mrs. Cope reviewed renovations and accomplishments at Santee Delta, Samworth, Lower Middleton and Upper Middleton.

XV. Director's Briefings

Director Boyles reminded the Board that their Statement of Economic Interest form is due to the Ethics Commission by March 30, 2021.

Director Boyles reported that staff will be returning to work in the office.

Director Boyles inquired of the Board's interest in participating in Adaptive Management training along with staff.

Director Boyles informed the Board that the ribbon cutting of the Horry County Licensing and Boat Titling and Registration Office, located in Aynor, will be held on April 5, 2021.

Director Boyles reviewed the status of the FY 2022 budget request, as sent to the Board on March 16, 2021.

XVI. Legislative Report

Kevin Ryan, Director of Government Affairs, reported that the Senate is working remotely, and the House has adjourned for the day. Mr. Ryan informed the Board that the House will begin working on the budget next week. Mr. Ryan reported on the boater education bill, hunting of bears over bait in Game Zone 4 and flounder.

XVII. Environmental Report

Lorianne Riggan, Director, Office of Environmental Programs, gave the Board an update on Crab Bank restoration, Horry County Rezoning (Lewis Ocean Bay) and Haile Gold Mine Expansion.

XVIII. Deputy Directors' Reports

A. Wildlife and Freshwater Fisheries

Mrs. Cope reported on zebra mussels.

B. Law Enforcement

COL Chisolm Frampton, Deputy Director for Law Enforcement, reported that background checks are being completed on the new class of officers.

C. Marine Resources

Mr. Maier informed the Board that a ground lease will be presented for action at the next meeting.

D. Administration

Angie Cassella, Deputy Director for Administration, extended an invitation to Board Members to attend the Ribbon Cutting Ceremony at the Horry County Licensing and Boat titling and Registration Office.

E. Land, Water and Conservation

No further report.

XIX. Item(s) for Board Action

B. Migratory Bird Season Recommendations

Billy Dukes, Wildlife and Freshwater Fisheries Division, briefly reviewed the Proposed Migratory Bird Season Recommendations. *Mr. Hutchins made a motion that upon the recommendation of DNR Staff the DNR Board approve the Migratory Bird Season Recommendations, as presented. Mr. Swygert seconded the motion and the motion carried unanimously.*

XX. Executive Session

Mr. Hutchins made a motion that the DNR Board go into executive session pursuant to SC Code Section 30-4-70(A)(1) and (A)(2) to discuss appointments to advisory committees related to Items for Board Action (C) and to discuss contractual matters related to Items for Board Action (D, E and F). Mr. Swygert seconded the motion and the motion carried unanimously.

XXI. Open Session

Mr. Hutchins made a motion that the DNR Board return to open session, noting that no action was taken during executive session. Mr. Swygert seconded the motion and the motion carried unanimously.

XXII. Item(s) for Board Action

C. Conservation District Commissioner Appointments/Reappointments

Mr. Lee made a motion that upon the approval and recommendation of the Land, Water and Conservation Advisory Committee, the DNR Board approve the following Conservation District Commissioner appointments:

Daniel Baxley, Dillon – 3/18/21 – 1/31/24
Julie Davis, McCormick – 3/18/21 – 1/31/23
Jan Figueria, Greenwood – 3/18/21 – 1/31/24
Kevin Yon, Saluda – 3/18/21 – 2/27/22
Frazier D. Riley Jr., Saluda – 3/18/21 – 1/31/24

Dr. Hartley seconded the motion and the motion carried unanimously.

D. Property Acquisition in Colleton County

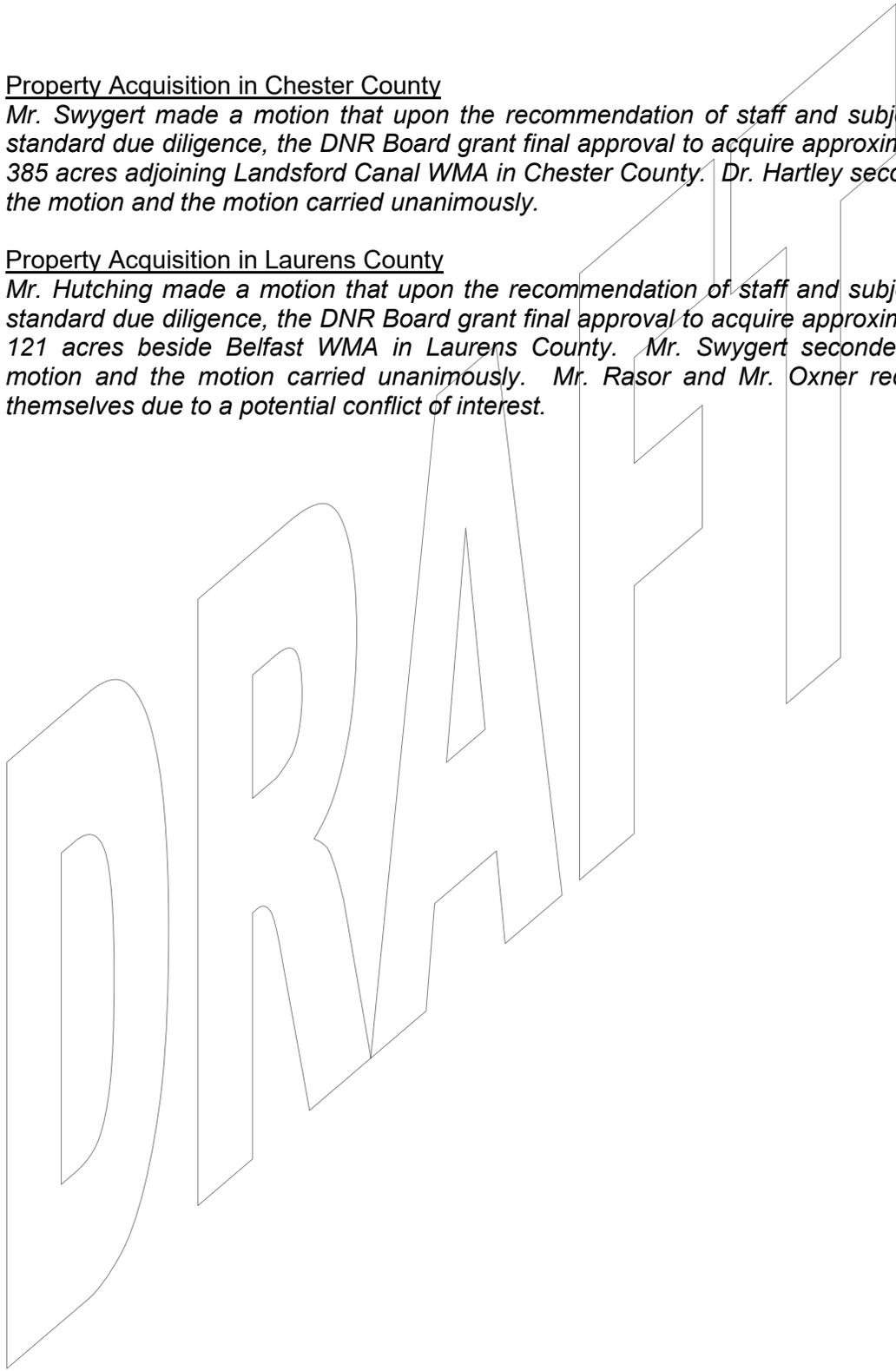
Mr. Oxner made a motion that upon the recommendation of staff and subject to standard due diligence, the DNR Board grant final approval to purchase approximately 148 acres beside the Edisto River WMA in Colleton County. Mr. Swygert seconded the motion and the motion carried unanimously.

E. Property Acquisition in Chester County

Mr. Swygert made a motion that upon the recommendation of staff and subject to standard due diligence, the DNR Board grant final approval to acquire approximately 385 acres adjoining Landsford Canal WMA in Chester County. Dr. Hartley seconded the motion and the motion carried unanimously.

F. Property Acquisition in Laurens County

Mr. Hutching made a motion that upon the recommendation of staff and subject to standard due diligence, the DNR Board grant final approval to acquire approximately 121 acres beside Belfast WMA in Laurens County. Mr. Swygert seconded the motion and the motion carried unanimously. Mr. Rasor and Mr. Oxner recused themselves due to a potential conflict of interest.



South Carolina Department of Natural



DNR

DISCLOSURE OF ACTUAL OR POTENTIAL CONFLICT OF INTEREST

Pursuant to S.C. Code Section 8-13-700 (1976 & Supp. 2019), I make this disclosure as a member of the SCDNR Board to the Chairman of the SCDNR Board and request to be excused from any votes, deliberations, and other actions on this matter on which the actual or potential conflict of interest exists. Furthermore, I ask that this statement be incorporated in the minutes to reflect my disclosure, recusal, and the reasons for it.

Matter requiring action or decision:

March 18, 2021 SCDNR Board Meeting

Agenda Item XIII. Items for Board Action: F. Property Acquisition in Laurens County

Nature of my actual or potential conflict of interest:

It is my understanding that this agenda item concerns the acquisition of real property by SCDNR that is located in close proximity to property in which I have an ownership interest.

I disclose this potential conflict of interest in an abundance of caution.

Respectfully submitted:

J. Carlisle Oxnard

Date: March 18, 2021

Name: J. Carlisle Oxnard III

South Carolina Department of
Natural



DNR

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I disclose this potential conflict of interest in an abundance of caution.

Respectfully submitted:


Name: NAME REASON, etc

Date: March 18, 2021

XXIII. Time and Location of Next Board Meeting

The Board will hold a workshop on April 22, 2021.

XXIV. Adjournment

Mr. Hutchins made a motion that the meeting be adjourned. Mr. Oxner seconded the motion and the motion carried unanimously.

DRAFT

SCDNR Board Resolution
March 18, 2021

WHEREAS:

The Department of Natural Resources' primary mission is to protect the State's natural resources and is charged with enforcing the protections and safeguards set forth in the Dewees Island 1975 Conservation Easement; and

WHEREAS:

The Department by letter of April 25, 2019, directed the Dewees Island Property Owners Association ("POA") and other concerned individuals and stakeholders to meet to formulate an appropriate and reasonable framework for restricting, if not eliminating over time, commercialized rental activity and restoring residential and lodging activity consistent with the Conservation Easement and the Dewees Island Land Use Plan within 60 days thereof; and

WHEREAS:

To date, the POA has not been able to deliver such an approved framework; and

WHEREAS:

The Department remains concerned that unrestrained and unregulated commercial activity on Dewees Island associated with short-term rentals, as defined by Charleston County ordinance, would have detrimental impacts on the State's natural resources on and around Dewees Island, and hence would constitute violations of the Conservation Easement if continued unabated.

NOW THEREFORE BE IT RESOLVED:

The Department will continue to monitor Dewees Island under the 1975 Conservation Easement and enforce it as necessary to preserve the conservation values and natural resources protected under the Conservation Easement;

The Department will enforce the Conservation Easement should it feel that the Conservation Easement has been violated, or determines the conservation values and natural resources protected by the Conservation Easement are threatened by commercial activity, including short-term rentals; and

Unless and until the Department is presented with a duly approved framework consistent with the Department's letter of April 25, 2019 addressing unregulated and unrestrained commercial activity on Dewees Island associated with short-term rentals, no short-term rentals, as defined by Charleston County ordinance, on Dewees Island will be approved by the Department, other than owner-to-owner rentals.

Minutes
Board of the South Carolina Department of Natural Resources
Workshop
C. F. Evans
125 Regional Parkway
Orangeburg, SC
April 22, 2021 10:00 AM

The Board of the South Carolina Department of Natural Resources held a workshop at 10:00 am, April 22, 2021 at C. F. Evans, 125 Regional Parkway, Orangeburg, SC. Notice of the date, time and place of the workshop was posted and mailed to the news media. Members present included Chairman Norman Pulliam, Dr. Mark Hartley, Mike Hutchins, Jerry Lee, Carlisle Oxner, and Duane Swygert. Jake Razor was absent. Director Boyles and staff members of the Department of Natural Resources were present at the workshop.

The Board received presentations or reports on the following items: SC Natural Heritage Data – Leveraging new GIS tech to improve the ways we collect, share and protect information about species of concern in SC, State Water Plan Overview and Update, Capital/Permanent Improvement Plan, FY 2023 State Budget Timeline and Strategy and Legislation.

Time and Location of Next Board Meeting

The next meeting will be held on May 20, 2021.

Item(s) for Action

SOUTH CAROLINA
GOVERNOR'S CUP BILLFISHING SERIES
2020 ANNUAL REPORT

Report Prepared by

Wallace Jenkins and Amy Whitaker Dukes

**Office of Fisheries Management
Division of Marine Resources
SC Department of Natural Resources**

March 2021



INTRODUCTION

South Carolina's Governor's Cup Billfishing Series (SCGCBS) began in 1989 as a concept of the late Governor Carroll A. Campbell, Jr., an avid saltwater sport fisherman and a leader in billfish conservation. He believed a program that would serve to expand coastal tourism through the promotion of saltwater sportfishing could also serve to increase the conservation of our fishery resources by recreational anglers. Governor Campbell envisioned using sportfishing as an opportunity for marine fisheries research through the scientific tagging of billfish and believed that the money required for such research and conservation efforts would be readily provided by those involved in the sport and related industries. To accomplish these goals, Governor Campbell appointed an Advisory Board of Directors and a Tournament Committee for the Cup made up of tournament representatives, sportfishing industry leaders and prominent sport fishermen (2020 members found in Tables 1 and 2). These groups support the Series by providing fundraising assistance, coordinating tournaments, and offering feedback from the fishing community.

OBJECTIVES

The South Carolina Governor's Cup is designed to stimulate coastal economic growth and tourism through the sportfishing industry, while encouraging the conservation of our state's marine fisheries. By promoting a succession of billfishing tournaments throughout the state, the Series creates awareness for both sport fishermen as well as the public of South Carolina's great fishing opportunities. Fishermen from around the nation are drawn to the Palmetto State to enjoy saltwater fishing, thereby increasing coastal tourism, and consequently economic growth to local communities through the commerce of sportfishing. In addition to the growth of the saltwater fishing industry and economic stimulation, a strong conservation objective is conveyed to both the fishermen and attendees of Series events. Due to the point structure enforced by the Series, a greater reward is usually granted for the release of a billfish rather than the landing of one. This supports the concept that a successful fishing day is not necessarily governed by a dead fish being brought back to the docks. This program constantly reinforces the true essence of the angling experience: the challenge of the fight, the successful release of the catch, and the opportunity to take on the fish another day. Through the SC Governor's Cup and other sportfishing programs, the conservation principle has become embraced and practiced by sport fishermen and women across the state and beyond. In 2019 the SC Governor's Cup Billfishing Series became an official Advisory Committee of the SC Department of Natural Resources and subject to all rules and procedure of the agency.

The 32nd Annual South Carolina Governor's Cup Billfishing Series was originally scheduled to include four billfish tournaments. The four events included the annual events held at the Bohicket and Georgetown Marinas, the Carolina Billfish Classic at Charleston Harbor Resort and Marina in Mount Pleasant and the Edisto Invitational Billfish Tournament hosted at The Marina at Edisto Beach. These tournaments were scheduled to span the period of May 6 - July 18, 2020. This report serves to document the activities of the Program and the results of the Series for calendar year 2020.

PROGRAM OPERATION

Board and Committee Activities

Advisory Board

The Advisory Board of Directors held five meetings in 2020:

February	28	Charleston, SC
April	03	Web Conference/Go to Meeting
April	13	Web Conference/Go to Meeting
August	11	Web Conference/Go to Meeting
December	01	Web Conference/Go to Meeting

A Governor's Cup Advisory Board member's term of service is three years, and members are eligible to serve two consecutive terms (Table 1). Advisory Board members are required to attend a minimum of 75% of the meetings annually (this was increased from 50%, approved during the February 2019 meeting) and to provide support, both financially and logistically, for the Program. The 2020 Tournament Committee membership is outlined in Table 2.

Each year a contract is developed and co-signed between each tournament and SCDNR to ratify the relationship between the Governor's Cup Program and the individual participating Series tournaments. These documents are intended to clearly outline the roles and responsibilities of each party to ensure a streamlined and lucid groundwork for the summer's events. It is the intent of the Governor's Cup Advisory Board that the tournaments be responsible for the official awarding of points earned for landed and released fish for each boat participating in their event. In 2020, four tournaments were eligible for contracts. However, as discussed more fully below, due to the effects of the Corona virus (Covid) pandemic, only the Carolina Billfish Classic was signed to a ratified agreement in early May (Table 3).

Under an agreement with the Harry Hampton Memorial Wildlife Fund (Appendix 1), the Series typically assists with funding the annual Harry Hampton Marine Banquet and Auction, although due to the Covid pandemic no banquet was held during 2020. The Advisory Board made a direct contribution of \$1,000 from Series accounts in support of the Fund. Additionally, the Harry Hampton Fund planned a second annual Wildlife Ball, to be held in Columbia, SC in March 2020, which had to be cancelled.

The Advisory Board of Directors, with particular thanks to Stephen R. Leasure for the conceptualization and fundraising efforts, in accordance with SCDNR Marine Artificial Reef Program, permitted (through the US Army Corps of Engineers) an area off Charleston's coast approximately 24 square miles in size as a Type II Marine Protected Area (MPA). This MPA was named the Charleston Deep Reef and/or the SC Memorial Reef, and it is the first of its kind off the Atlantic Coast. This Reef project was conceptualized to memorialize those in the fishing community who have passed by creating a special place of honor in the environment they so loved. Further details of the Memorial Reef operations, funding and project development are outlined in the 2020 Series Accomplishments section of this report.

Table 1. SC Governor’s Cup Billfishing Series Advisory Board members 2020.

<p>Mr. Steve Mungo – Chairman (2) 12/23 1830 Maybank Highway Charleston, SC 29412 (803) 227-8420 (C) (803) 513-5888 (O) swmungo@mungo.com “Home Run”</p>	<p>Mr. Frederick S. Bergen – Vice Chairman (2) 12/22 1914 Marsh Oak Lane Seabrook Island, SC 29455 912-233-6600 (C) 912-898-0478 (O) fsbbergenlaws@aol.com “Legal Holiday”</p>
<p>Mr. John A. Hill (2) 12/23 2015 Allandale Plantation Road Wadmalaw Island, SC 29487 (203) 625-2503 (C) (843) 559-1984 (O) jhill@firstreserve.com “El Tejano”</p>	<p>Mr. M. Stokely Holder (2) 12/23 140 Augusta Court Greenville, SC 29605 843-884-9919 stokelyholder@gmail.com “Miss Wy”</p>
<p>Mr. William Justin Kohl (1) 12/21 434 Belle Isle Road Georgetown, SC 29440 (855) 216-5560 (C) (843) 325-5665 (O) justink@southeasternjanitorial.com “Nauti Girl”</p>	<p>Mr. Robert McClam (1) 12/21 1642 Holy Trinity Church Road Little Mountain, SC 29075 (843) 345-9194 rcm@mcclam.net “Mister Pete”</p>
<p>Mr. Chad Sanders (1) 12/21 2265 Clements Ferry Road, Unit 212 Charleston, SC 29492 (843) 553-7576 chad.sanders@qualityelectric-inc.com “Electric Bill”</p>	<p>Mrs. Holly McAlhany (1) 12/22 1140 Cainhoy Village Road Wando, SC 29492 (843) 442-0038 hmcalthany@unitsstorage.com</p>
<p>Mr. Tim Gredick (1) 12/22 HMY Yacht Sales, Inc. 17 Lockwood Drive Charleston, SC 29401 - (843) 607-7256 (C) (843) 577-3470 (O) tgredick@hmy.com</p>	<p>Mr. Billy Gressette (1) 12/22 P.O. Box 1967 Summerville, SC 29484 (843) 200-9406 Bgressette@gressette.net “Man Cave”</p>
<p>Mr. Victor “Bubba” Roof (2) 12/20 245 Brown Road North, SC 29112 803-600-5580 bubba@seahuntboats.com “Game On”</p>	<p>Mr. James Reed – <u>ex officio, Corporate Sponsor</u> Western Branch Diesel (Superior Diesel, Inc.) 6881 Bulldog Drive Charleston, SC 29406 (843) 442-6943 jreed@dieseloutboardsolutions.com</p>
<p>Mr. Jerry Ives, <u>ex officio</u> SC Dept of Parks, Recreation & Tourism 4401 South Kings Hwy. Myrtle Beach, SC 29575 (843) 238-5325 gives@scprt.com</p>	<p>Mr. James Carlisle Oxner, III <u>DNR Board Chair-Liaison</u> P.O. Box 769 Union, SC 29379 (864) 427-1213 coxner@arthurstatebank.com</p>
<p>Mr. Phil Maier – MRD Deputy Director, <u>ex officio</u> SC Department of Natural Resources P. O. Box 12559 Charleston, SC 29422 (843) 953-9001 maierp@dnr.sc.gov</p>	<p>Mr. Robert H. Boyles, Jr. – SCDNR Director, <u>ex officio</u> SC Department of Natural Resources P. O. Box 12559, Charleston, SC 29422 (843) 953-9304, boylesr@dnr.sc.gov</p>

Table 2. SC Governor’s Cup Billfishing Series Tournament Committee members 2020.

<p>Mr. Robert S. Garmany – Chairman 925 N. Shem Drive Mt. Pleasant, SC 29464 843-881-7862, (C) 843-343-7862 garmanvb@gmail.com</p>	<p>Mr. Reid Bost 1360 Old Rosebud Trail Awendaw, SC 29429 843 607-0226 Rbost88@gmail.com</p>
<p>Mr. Buddy Aimar 2306 McKee Court Charleston, SC 29414 843-571-7471, (C) 843-870-7364, budaimar@gmail.com</p>	<p>Mr. Jim Goller 36 E. River Drive Beaufort, SC 29907 803-600-1570 goller.jim@gmail.com</p>
<p>Mr. Thomas DuPré 492 Lackland Court Mt. Pleasant, SC 29464 843-849-8420 tommeri1128@knology.net</p>	<p>Mr. Dale R. Lackey 765 Edmonds Drive Charleston, SC 29412 843-343-1102, FAX 843-406-9314 lackeydr@bellsouth.net</p>
<p>Mr. Bennett Griffin 687 Goodlet Circle Charleston, SC 29412 843-813-9686 captbennettgriffin@yahoo.com</p>	<p>Mrs. Shannon Smoak 1051 Five Oaks Drive Charleston, SC 29412 843-270-0003 shannonsmoak@gmail.com</p>
<p>Mr. Trey McMillan 10 Parkwood Avenue Charleston, SC 29403 843-696-6109 trey McMILLAN3@gmail.com</p>	<p>Mr. Dan Woody 110 Friend Street Mt. Pleasant, SC 29464 843-729-9753 danwoody58@gmail.com</p>
<p>Mr. Bryan Richardson 1994 Vestry Drive Charleston, SC 29414 843-696-0033 jbrvanrichardson@gmail.com</p>	<p>Mr. Nick Macpherson, Bohicket Marina 1880 Andell Bluff Boulevard Johns Island, SC 29455 843-768-1280 Nicolasmacpherson85@gmail.com</p>
<p>Mr. Ed Keelin, Georgetown Landing Marina P. O. Box 1704 Georgetown, SC 29442 843-546-1776, FAX 843-546-7832, (C) 843-543-5126 ed@georgetownlandingmarina.com</p>	<p>Mrs. Deidre Menefee, Carolina Billfish Classic 6119 Bear’s Bluff Road Wadmalaw Island, SC 29487 843-345-0369 dm@fishcbc.com</p>
<p>Mr. Robbie Freeman, MegaDock Charleston City Marina P. O. Box 759 Charleston, SC 29402 843-577-7702, FAX 843-577-7704 rfreeman@megadock.us</p>	<p>Mr. Brian Bell, Edisto Marina 3702 Docksite Road Edisto Island, SC 29438 843-631-5055 Bkbell1@bellsouth.net</p>

Table 3. 2020 SC Governor's Cup Billfish Series Proposed Tournament Schedule.

May 6 – 9	Bohicket Marina Invitational Billfish Tournament Contact: Beau Anderson 1880 Andell Bluff Blvd Johns Island, SC 29455 (843) 768-1280 marinamanager@bohicket.com
May 20 – 23	52 nd Annual Georgetown Blue Marlin Tournament Contact: Ed Keelin P. O. Box 1704 Georgetown, SC 29442 (843) 546-1776, FAX (843) 546-7832 ed@georgetownlandingmarina.com
June 17 – 20	Carolina Billfish Classic Contact: Deidre Menefee 20 Patriots Point Road Mt. Pleasant, SC 29464 (843) 345-0369 dm@fishcbc.com
July 15 – 18	Edisto Invitational Billfish Tournament Contact: Brian Bell 3702 Docksite Road Edisto Beach, SC, 29438 (843) 631-5055, FAX (843) 631-5065 Bkbell1@bellsouth.net

* The Megadock was scheduled to be under construction during the summer of 2020 and thus unable to host a tournament. Megadock plans to return to the Series in 2021. *

Tournament Committee

The Tournament Committee held two meetings in 2020.

January	28	Charleston, SC
July	29	Web Conference/Go To Meeting

Format Modifications

Format modifications and rule changes, applied to the Series Fishing Guidelines, are routinely made based on results and circumstances from the previous year's events, in attempt to elucidate the rules and clarify any confusion that may have occurred. It is the goal of the Series that the Fishing Guidelines provide clear direction to determine ruling outcomes in the case of any discrepancy. There were two guideline changes made for the 2020 season. The first change was

adding language to require every individual on a boat to have a valid SC saltwater recreational fishing license in their possession as part of rule number 1. The second was a new rule number 2 which clarified language as it relates to knowingly fishing on a Fish Aggregating Device during a Series event. The final 2020 Fishing Guidelines are listed below, with the above changes highlighted in yellow.

2020 Series Fishing Guidelines:

1. All fish must be caught in accordance with all South Carolina and federal laws, and under IGFA Rules with the exception of passing rod to qualify to earn S.C. Governor's Cup points/awards. **In addition, every individual (age 16 and above) aboard the vessel must have a valid official S.C Saltwater Recreational Fishing License in their possession.** After a fish strikes, the rod may be passed to one angler one time as soon as possible. All anglers may have the rod passed one time to them. After the rod has been passed, only the angler is allowed to touch the rod/reel/mainline. Once the leader is brought within the grasp of the crew member or is wound to the rod tip, then the angler may have assistance to catch and release or boat the fish. Series points will accrue towards Series awards for these fish. Vessels may provide assistance to other vessels for boating fish. **Violations of state or federal law will lead to the disqualification of all fish caught on that fishing day, and the day will be counted as an eligible fish day for the tournament.**

2. **Knowingly fishing on a Fish Aggregating Device (FAD - is defined by NOAA as a floating object(s) that are designed and strategically placed to attract pelagic fish) during a Series tournament is prohibited and will lead to disqualification. Burden of proof falls upon the protesting vessel, and compelling evidence must be provided by the protesting vessel to the individual Tournament Rules Committee and shall be determined at their sole discretion.**

3. White marlin, sailfish, and spearfish are catch and release only. Tagging is optional and not required for points. The minimum size for Series points or awards consideration for landed blue marlin is 105 inches measured in a curved line along the body from the fork of the tail to the tip of the lower jaw (LJFL). **Federal regulation dictates: 635.21 (a) All Atlantic HMS fishing gears. (1) An Atlantic HMS harvested from its management unit that is not retained must be released in a manner that will ensure maximum probability of survival, but without removing the fish from the water. (2) If a billfish is caught by a hook and not retained, the fish must be released by cutting the line near the hook or by using a dehooking device, in either case without removing the fish from the water.**

Note: 105 inches exceeds the federally mandated minimum size limit. Should the federal size limit be increased, the minimum size for blue marlin eligible for weighing in S.C. Governor's Cup Series tournaments will be increased automatically to exceed the new minimum size by two (2) inches if required.

4. A penalty of 600 points will be assessed against a boat for each blue marlin brought to the dock not meeting the minimum South Carolina Governor's Cup Series size requirements.

5. Boats guilty of wanton waste of fish taken in a Series event will be disqualified from earning points in that event.

6. All landed fish are to be iced or refrigerated until such time as the edible tissue can be processed and the carcass disposed of. Boats landing blue marlin will have a maximum of three hours to complete this task after the fish is released by Series staff or Tournament officials.

7. Scoring for eligible blue marlin weighed-in is based solely on those points officially awarded each boat by each tournament. Boats earn one point per pound and fraction of a pound for their single heaviest blue marlin weighed in at each tournament. No points are awarded for additional blue marlin weighed in at any one tournament.

8. Only blue marlin, white marlin, sailfish, and spearfish are eligible for billfish catch and release points. Tagging is optional and not required for points. Billfish boated for any reason will not qualify for release points. Scoring for billfish caught and released in good condition is as follows:

Blue Marlin	600 points
White Marlin/Spearfish	300 points
Sailfish	200 points

9. To qualify for catch and release points, a billfish must be fought to the boat according to program guidelines. A billfish is considered caught and points will be awarded when all of the following has occurred: 1) the leader is grasped by the crew or the leader is wound to the rod tip (a leader may be no longer than 30 feet); 2) the billfish is positively identified to species through digital photography/videography (if species cannot be determined yet it is identified as a billfish, 200 points will be awarded); and 3) the fish is released in a healthy condition and the fish is no longer attached to the boat/line. Boats should attempt to remove the hook or to sever the leader as close as possible to the hook.

10. Billfish may not be brought into the boat unless it is to be brought to the dock for weighing. A penalty of 600 points will be assessed against a boat for each billfish if it is determined that the fish was boated and subsequently released.

11. Any billfish gaffed, harpooned or otherwise injured in an attempt to boat the fish will not qualify for catch and release points. Additionally, if the gaff crosses the vertical plane of the boat in an attempt to land a blue marlin yet it is unsuccessful, the boat will not qualify for catch and release points.

12. For a vessel to qualify any billfish for points, every person aboard the vessel 18 years of age or older must sign an official Governor's Cup Released/Tagged and Released Billfish Affidavit or Landed Billfish Affidavit swearing that all rules and regulations were observed in reference to the described fish. Failure of any person to sign the affidavit, for any reason, disqualifies that fish. In addition, all released billfish must be clearly digitally photographed or videoed (preferable image would include a visible dorsal fin) at time of release by each vessel using a digital/video camera provided by the vessel. The image must include a date and time stamp that corresponds to the date and time of release recorded by the designated tournament committee boats. Photos/videos must be provided on a removable storage device and will be used to confirm species identification and release information and will be used to resolve potential conflicts or formal protests.

13. Affidavits must be completed the day the catch and release or landing occurs, except when a medical emergency involving the boat's crew prohibits completion of the form or when a mechanically disabled boat cannot return within the prescribed weigh-in period. In these instances, the forms must be completed and returned within ten (10) days of the catch and release. If applicable by the individual tournaments, boats fishing out of other marinas or ports must fax or hand-deliver the completed official Governor's Cup Released/Tagged and Released Billfish Affidavit and email digital images to tournament headquarters or Series staff (DukesA@dnr.sc.gov) prior to the close of the weighing scales on the day of catch with the exception as noted above.

14. Boats will be awarded 25 participation points for each Series tournament entered, up to a maximum of three events. A boat's points total will include participation points as indicated along with points for landed or caught and released billfish from all tournaments fished. Points will count toward aggregate point totals for Outstanding Billfish Boat and Outstanding Billfish Conservationist. Points cannot be transferred from one boat to another, except when a boat(s) makes a written request for special permission and the request is approved by the Advisory Board of Directors.

15. Boats must fish a minimum of two Series tournaments to qualify for Outstanding Billfish Boat and Outstanding Billfish Conservationist. Vessels fishing only one tournament qualify for Outstanding Billfish, Blue Water Conservation, Youth Angler, Lady Angler, and Outstanding Dolphin/Wahoo/Tuna Series awards.

16. Boat points are awarded at the time of release or landing (boated). Ties between points are broken by the time of release/landing. The date of the release/landing is based on the boat's fishing day (day 1 or 2) as opposed to the tournament fishing day (day 1-2-3).

17. Tournament awards will be presented for the heaviest tuna (eligible species include yellowfin, blackfin, bluefin, and bigeye tuna), dolphin, and wahoo caught by boats participating in the Series and for 1st, 2nd and 3rd place Youth Anglers (under sixteen years of age on April 1 of current tournament year) and Outstanding Lady Anglers (female over sixteen years of age on April 1 of current tournament year). The tournament awards for Youth and Lady Anglers will be awarded for the heaviest tuna, dolphin or wahoo if no Youth or Lady Angler has landed or caught and released a legal billfish. Billfish caught by Youth or Lady Anglers will earn regular Series points for the species.

18. A Blue Water Conservation award will be presented to the boat accumulating the most points tagging dolphin (50 points), eligible tuna (100 points) and/or wahoo (150 points). All fish must be caught on legal Series tournament fishing days and tagged using official tags supplied by the Marine Resources Division's Marine Gamefish Tagging Program. Completed tagging reports will serve as official entry forms and must be submitted to Series staff working the tournament or the weighmaster on the same day the fish was tagged. A minimum of 24 fish must be tagged in order to qualify for this award.

19. Creel limits for dolphin are 10 per angler per day with a limit of 60 per boat per day, with a minimum legal-size limit of 20 inches fork length. Creel limits for yellowfin tuna are 3 per angler per day with a minimum legal size of 27 inches curved body fork length; see current federal size and creel limits for other tuna species. Creel limit for wahoo is 2 per person per day.

Note: Size or creel limits will automatically be changed in S.C. Governor's Cup Billfishing Series tournaments to reflect changes in federal or state laws.

20. All awards are presented to the boat. Invitations to the annual Governor's Cup Awards Reception are limited to winning boat crews and to boat owners whose boats fish two or more yearly Series events.

21. It is the intent of the S.C. Governor's Cup to encourage the release of healthy billfish, therefore the use of 130 lb. class line is allowed.

22. Series participants, at the completion of a tournament fishing day, are subject to a biological creel survey by SCDNR staff and/or an interview by SCDNR Law Enforcement.

23. A boat owner may request an official ruling from the S.C. Governor's Cup Series. The request for a ruling must be submitted in writing to a member of the Tournament Committee. The Tournament Committee shall rule on the request within seven (7) days. Any ruling of the Tournament Committee may be appealed by writing to the Advisory Board of Directors within forty-eight (48) hours, excluding weekends and holidays. The Board shall render results of an appeal, in writing, to the appellant within thirty (30) days. All decisions of the Board are final. Voting individuals representing either the Tournament Committee or the Advisory Board of Directors will recuse themselves from the decision if there is a conflict of interest. All rulings will focus solely on compliance with S.C. Governor's Cup Series rules, not individual tournament rules.

W. F. Pate Marine Fisheries Conservation Fund

At the inception of the Governor's Cup, a special marine fisheries conservation fund was established to receive donations dedicated to financing marine fisheries research and conservation work beyond the scope of the Governor's Cup Program. In 1993, this fund was officially named the Wallace F. Pate Memorial Marine Fisheries Conservation Fund. Mr. Pate was one of the early pioneers in the sport of billfishing in SC, and he founded the first blue marlin tournament in South Carolina. Not only was he an avid sport fisherman, but he was also a passionate conservationist, and encouraged the live release of billfish long before most realized the crucial need for conserving their dwindling populations, as well as populations of other offshore species. This fund is intended to provide monies to scientific institutions to support needed marine fisheries research, education and conservation projects which benefit marine sport fisheries in South Carolina. This endowment is administered through a revenue account within the SCDNR. Tournaments participating in the Series are required to donate a fee of \$75 for each boat registered in their respective events to this special fund. The one tournament that was held in 2020 the Carolina Billfish Classic contributed a total of \$3,525 to the Wallace Pate Fund from their registrants. Donations specifically allocated for this funding source are also received from individuals and businesses.

During the 2020 season, the Advisory Board again provided financial assistance to the SCDNR Pelagic Tournament Surveys. In addition, staff continued to work with the Harry Hampton Wildlife Memorial Fund/Wallace F. Pate Scholarship, which is given annually to a student pursuing a degree in wildlife, fisheries, forestry, biology, zoology, or marine or environmental sciences. Announcements, criteria, and applications are distributed yearly to high school guidance counselors across the state in October and made available to view on the Hampton website www.HamptonWildlifeFund.org. Unfortunately, the individual selected for this Scholarship in 2020 chose to pursue their studies outside SC and thus became ineligible to receive it. The \$2,500 donated by the Series for this award will therefore be awarded in 2021.

Financial Review

The Governor's Cup Program continued to manage three financial accounts. The W.F. Pate Conservation Fund was maintained for the Governor's Cup through the comptroller's office of the Marine Resources Division of SCDNR. Expenditures from this account follow all state regulations for purchasing and salary compensation. The second account, managed by the Harry Hampton Memorial Wildlife Fund, receives contributions to the Series and holds monies in reserve for reimbursement to SCDNR for expenses including travel, salaries, awards, promotional items, and the awards ceremony. The third account, also managed by the Harry Hampton Memorial Wildlife Fund, is for the South Carolina Memorial Reef and the funds raised in support of reef expansion to the Charleston Deep Reef. The 2020 expenditures in support of the Governor's Cup Program amounted to a total of \$54,909.79.

A total of \$68,025 was raised in support of the Series during calendar year 2020 even though Covid 19 concerns and restrictions virtually wiped out the season and only one tournament occurred. Three Corporate sponsors (\$10,000) supported the Series in 2020: AIRESERVE, Climate Professionals LLC, Martech Research Marine Products, LLC and Western Branch Diesel/COX/Volvo Penta Inc. Benefactor sponsors (\$5,000) included APEX Automotive Group, HMY Yachts, Sea Hunt Boat Company, Inc., and W.W.Williams in conjunction with MTU.

Southern Lumber and Millwork, Corp. continued their support as in-kind Benefactor Sponsors. Patron sponsors were as follows: Founders Hall at Charles Towne Landing, McClam and Associates, Palmetto State Armory, the Pate Foundation and QEI Security and Technology, each donating \$2,000 to the Series. These companies were recognized in all promotions and advertising as primary sponsors in the 2020 Governor's Cup. Other donations and sponsorship levels provided additional financial support for this year's Series. Legal Holiday fishing team donated \$1,500 plus the Newsletter Sponsors including Fairway Ford; Holder Padgett, Littlejohn and Prickett, LLC; Mungo Homes and Spencer Yachts each donated \$1,000. These sponsorships supported the cost of producing the newsletters. As mentioned above, tournament contributions from the only event that was held in 2020, to the Wallace Pate Fund raised \$3,525 (Appendix 2). As of January 1, 2021, the Program had an ending balance of \$279, 403.37 remaining in the various Series accounts (Appendix 3).

Series Promotion

Although only one tournament was held in 2020, Cameron Rhodes, the Series' Public Information Specialist, continued to manage many aspects of Series promotion and social media coverage and kept people engaged. The Series' Facebook and Instagram pages continued to be the primary tools used to help increase the Governor's Cup social media presence, and Ms. Rhodes continued to post pictures and updates to these sites throughout the year. On the Series' Facebook page and website were embedded links that followers could use to view real-time updates via Google Sheets. These documents could be viewed by the public to gather fishing activity information and a live scoring feed. As of the publication of this report, the Series' Facebook page has over 9,300 followers and reached over 16,000 people, and Instagram is currently being viewed by nearly 14,000 followers.

As mentioned above, Cameron Rhodes attended the Carolina Billfish Classic and provided pictures and videos of weigh-ins, activity on the docks and, with the help of Jim Reed with Western Branch Diesel, action shots of boats running in from their fishing days. Committee boats used their own devices during this tournament to report nearly real-time catch and release information. These updates were translated to a Google Sheet which was shared on the website and social media, with pictures of each vessel attached to their respective releases. Release information was shared as soon as Series staff received updates from committee boats to provide as real-time data as possible.

The Governor's Cup website, <http://govcup.dnr.sc.gov/>, was also updated throughout the year to provide an overview of Series events, including the revised schedule, Advisory Board and Tournament Committee members, Advisory Board meeting agendas and minutes, sponsors, tournament results, photos, awards, and accomplishments. In addition, full-color PDFs of each newsletter (see below) were posted on the website and were made available for download as well as e-mailed directly to our subscribers. The website was maintained and updated by MRD IT Director Tim Snoots.

In calendar year 2020, the Series received local, state, and national news media coverage mainly on how we were handling the Covid crisis as it related to tournaments from The Charleston Post and Courier Newspaper, The Myrtle Beach Sun News Newspaper, SC Sportsman Magazine, The Charleston Mercury Newspaper, Marlin Magazine, and In The Bite Magazine. The Series also continued a more directed approach to promotion with the publication and electronic distribution of four issues of "Tag and Release" newsletter. Full-color PDFs of the newsletter were e-mailed

to >500 subscribers, posted to the website and linked on social media. The first two newsletters covered pre-tournament information and fund raising. The third covered the results from the CBC. The third also provided explanations of the logic behind attempts to reschedule events for early August and the ultimate cancellation of the remaining tournaments and the Awards Banquet. The final newsletter focused on 2021 and efforts to raise funds for the Hwy 21 bridge project to add to the Memorial Reef.

Each year, promotional items are purchased for distribution to all participating boats and sponsors. To prepare for the 2020 season we purchased a minimal amount of koozies, stickers, and supplies like facemasks and disinfectant.

2020 SERIES RESULTS

Overview

As Robert Burns said in his poem “To a Mouse” and I paraphrase, “the best laid plans of mice and men often go awry”. There has likely never been a truer statement as to how the year 2020 unfolded. As you can see from the previous pages of this report, a lot of planning and preparation went into getting prepared for this season. The tournament committee met in late January, and the Advisory Board with three new members, Holly McAlhany, Tim Gredick and Billy Gressette, met in late February. Both meetings were conducted in person with some discussion of the COVID-19 situation. A little over two weeks later all that changed when the S.C. Governor declared a State of Emergency. It was at this point that the dominos began to fall.

An emergency meeting of the Advisory Board was called for April 3 with Vice Chairman Fred Bergen presiding. At that meeting, staff briefed the Advisory Board on the situation as we knew it. At that time, the Governor’s Executive Orders had led DNR Law Enforcement to cancel all Marine Event Permits through May 15th. In addition, the Advisory Board was informed that the Town of Seabrook would not issue a permit to Bohicket Marina to host the event scheduled for May 6-9. Bohicket Marina asked for permission to postpone the date of their tournament to July 29- August 1. This created another problem as the language in each tournament contract states that Series Tournaments need to be completed on or before July 31. After much discussion, the Advisory Board voted to revise the 2020 tournament contracts to allow events to extend to September 15th in case any other tournaments ran into similar permit approval problems. The Advisory Board also approved the new dates for the Bohicket Tournament.

This turned out to be very prophetic because less than 10 days later the Advisory Board would meet again. That meeting was held to discuss a letter from Georgetown Tournament Director Ed Keelin asking permission to possibly postpone the Georgetown Blue Marlin Tournament to August 12 -15 due to concerns about obtaining permits to host the event during its previous scheduled dates of May 20-23. Again, with Vice Chairman Fred Bergen presiding the Advisory Board discussed the hope that the tournament could take place as planned but agreed to allow for potential new dates of August 12-15 if the organizers were unsuccessful in obtaining necessary permits from the City of Georgetown. Within a week from that meeting, a new Executive Order from the Governor resulted in Marine Event permits being cancelled through the end of May. This effectively nullified the chances of the Georgetown Tournament taking place as planned. Notices were put out by staff on social media informing followers of the new proposed dates for both Bohicket and Georgetown.

As we approached June it became clear that the Big Rock Blue Marlin Tournament in Morehead

City, NC was going to take place with major modifications to their captains meeting, evening functions/parties and awards ceremony to comply with social distancing protocols. SC Governor's Cup staff and CBC Tournament Director Deidre Menefee had the advantage of observing how this was going to be done and then actually getting to see it unfold live on the internet the week before the CBC. It allowed us and other tournaments along the East Coast to emulate a strategy that appeared to work and could be permitted and carried out safely. Big Rock had 205 boats entered and was a huge success with participants adjusting their expectations to have the opportunity to fish. In addition, a new Executive Order from the Governor had made a path for events with more than 250 individuals to be permitted by the Department of Commerce in a way that would allay some of the concerns of local governments. In addition, the Marine Event permits for June were not cancelled, meaning events could go on as planned from SCDNR's perspective. These actions, plus assurances by the Charleston Harbor Resort and Marina managers to the Town of Mt. Pleasant indicating that they would adhere to social distancing protocols prescribed by the Town, led to issuance of a permit for the event. In summary, boats registered and paid for entry on-line, wristbands were issued to all participants and security guards were positioned at all entrances to make sure no one from the public other than slip holders or participants were allowed on the docks. The participating boats were placed in every other slip between boats that were not participating to minimize interaction among boats and crew. Everyone was encouraged to wear masks on the docks. The captains meeting was held on Facebook Live and over VHF radio, with captains having the opportunity to ask questions via text, Facebook comments or VHF radio. All boats had to notify the Tournament Director if they were taking a lay day. If they did not make this notification before lines in each fishing day, they were assumed to be fishing. For the weigh in, there was a single file line with spaces marked every six feet plus a 20-foot perimeter cordoned off around the weigh station itself that people entered one at a time. In addition, only the angler of the fish from each team escorted the fish to be weighed from their respective boats. No members of the public outside of participants, Series staff and tournament staff were allowed to attend the weigh ins. Photos of billfish being released were sent electronically with only the top boats having photos verified in person each night of the event. Completed release affidavits and trip reports were either delivered electronically or placed in a drop box monitored by a staff member. Each night meals were packed and delivered by resort staff to each boat in the marina. If boats were staying somewhere other than the marina, they could order in advance and pick-up food by boat or vehicle. The awards ceremony was held on Facebook Live with the winners of each category and prize money announced on Saturday evening. While this format was a big change to how things are usually done, it was quite successful. There were 47 boats entered in the tournament. Several notable boats who do not normally fish the SC Governor's Cup Billfishing Series decided to participate. One of those boats was Michael Jordan's Catch 23 which, chose to stay socially distant by docking at a different Charleston marina.

Then July came with a large increase in cases of Covid-19 in SC and the nation, and the Town of Edisto indicated they could not permit an event at the Edisto Marina. And just like that, our season was over.

The Advisory Board met on August 11th with Chairman Mungo presiding, to resolve a few remaining questions related to the year's events. The Tournament Committee had recommended at their July 29 meeting that there not be any Series awards distributed for the 2020 season because there was only one tournament, which in and of itself did not meet the standard of a Series. The fewest number of tournaments in the past was 3 in one season, so the Advisory Board agreed and decided not to provide any overall awards and to cancel the Awards Banquet. These decisions resulted in cost-savings to the Series of just under \$30,000. In addition, since

the companies and individuals that did sponsor the Series did not receive all of the benefits they would have received if events had gone as planned, staff were instructed by the Advisory Board to reach out to those donors to determine how they wanted the Series to handle their donations. Even though most events did not happen, staff had worked conducting the Series business throughout the year. After being contacted, most donors indicated that the Series should retain their contribution. No one asked for a refund, with most agreeing instead to have their funds rolled over to 2021. Finally, discussion at the meeting concluded with the Advisory Board committing to the Hwy 21 Bridge Project, while collectively having Advisory Board members donating \$55,000 at the meeting to kick off fundraising. They also approved the proposed 2021 schedule which included 5 tournaments.

The year concluded with one last Advisory Board meeting being held via web conference on December 1st with Chairman Mungo presiding. The Board approved a motion to nominate Steve Mungo, John Hill and Stokely Holder for second terms and to nominate Wesley Frierson and Douglas Jennings for the two board vacancies. They also approved the concept of a donor being able to have naming rights for the Hwy 21 reef deployment if the contribution was significant. One rule change was discussed briefly, and an update of our finances was reviewed. With that, a motion to adjourn was passed and the Series business was mercifully concluded for the year 2020.

Tournament Results

The CBC Tournament as mentioned earlier took place on June 17-20, 2020 in a socially distant format. A total of 10 blue marlin, no white marlin/spearfish, and 54 sailfish were released during the event. There were 47 boats registered with \$264,500 in cash and prizes being awarded. The Outstanding Billfish Boat winning 1st place was GRANDER owned by Terrell Rhye and Captained by Sean Dooley with 1 blue marlin and 4 sailfish releases for 1400 points, they were also the Top Billfish Conservationist Boat. The 2nd place Billfish Boat was MISTER PETE owned by Bob and Rusty McClam and Captained by Alan Neiford with 6 sailfish releases for 1200 points. The 3rd place Billfish Boat based on time was REEL HOOK UP owned by Michael Carter and captained by Randy Ragland with 6 sailfish releases for 1200 points. The largest Dolphin, 55.3 lb., was caught by Tucker Carmichael aboard LIGHTS OUT owned by Rob Carmichael and captained by Newt Cagle. The largest Wahoo, 81.0 lb., was caught by Mitch Avant Shaw aboard GROGGY's GIRL owned by Gordy Darby and Captained by Brandon Shaw. The largest Tuna was a 16.3 lb. Blackfin caught by Dan Rimer aboard FOX TROT owned by South River Boats LLC and captained by Keegan Bird. The top Lady Angler was Sara Gressette who released 1 Blue Marlin on MAN CAVE owned and captained by Billy Gressette. The top Youth Angler was Woods Herring age 11 who released 1 sailfish aboard GLAZED owned and captained by his dad Miles Herring.

2020 Awards Reception

The 2020 South Carolina Governor's Cup Billfishing Series awards reception was cancelled. Thankfully, Founders Hall at Charles Towne Landing in West Ashley allowed us to roll the 2020 deposit forward to 2021 with the hope that we will once again be able to host an event at their beautiful facility.

2020 SERIES ACCOMPLISHMENTS

Operations

As stated in the Financial Review section of this report, a total of \$68,025 was raised in support of Series operations through sponsorship, Advisory Board contributions, tournament contributions and private donations. These monies are managed through three accounts in accordance with the comptroller's office of the Marine Resources Division of SCDNR (General Operations account and the W.F. Pate Conservation Fund) and the Harry Hampton Memorial Wildlife Fund. Through these accounts all operations are funded or used as reimbursement for staff salaries, travel, and expenditures.

Education/Research

As mentioned previously, money collected for the W. F. Pate Memorial Marine Conservation Fund was used to assist with expenses related to the SCDNR Pelagic Tournament Survey. The Advisory Board of Directors also continued to support the Wallace F. Pate scholarship with a \$2,500 contribution, to be awarded to a student pursuing a degree in a natural resources discipline. However, the individual who was awarded this scholarship in 2020 chose to attend a university outside of SC and forfeited their eligibility. The money allocated for 2020 will be awarded in 2021 to the successful candidate.

Conservation

As previously stated, anglers participating in the 2020 Series have continued to embrace the concept of catch and release. Sixty-four billfish were caught during the Carolina Billfish Classic, with a 100% release rate. This conservation approach to sportfishing is a direct reversal of the industry's historic standpoint. As the sport gained popularity in the 1970s, sport fishermen sought out billfish species to bring to the docks as a glorified trophy fish. The continuation of a high release rate with an overall increase in billfish catch numbers further reinforces the importance that the educational efforts of the SC Governor's Cup Billfishing Series over the last 30+ years have been successful in promoting billfish conservation for anglers in our state and beyond.

The Blue Water Conservation award, initiated in 1997, is given to a participating vessel for tagging and releasing such highly prized meat fish as dolphin, wahoo and tuna. Originally, the Advisory Board expected the numbers of these fish tagged under the Blue Water Conservation incentive to start low and gradually increase, considering that it goes against many fishermen's nature to throw back such highly prized meatfish. Although the Series has seen large numbers of tagged meatfish in the past, there has been a significant decline over the last few years, and none were tagged in the 2020 Series event. It was decided in 2016 by the Advisory Board that a minimum requirement of 24 tagged fish be met for a vessel to qualify for this award, thus, no Blue Water Conservation Award was given for 2020.

The SC Governor's Cup, along with many constituents, have made tremendous accomplishments in the world of blue water conservation and critical habitat building. Through the inception of the Charleston Deep Reef Project, critical habitat has been placed and built upon in an area otherwise devoid of hard substrate or vertical profile. This project has created a Type II Marine Protected Area (MPA) that is 4 miles by 6 miles about 52 miles off the coast of Charleston. This

designation allows vessels to troll over the area, yet bottom fishing is prohibited, and provides critical spawning habitat for imperiled snapper and grouper species, while increasing pelagic sportfishing opportunities for South Carolina anglers. Two barges were sunk in this area in 2014, creating the first structures of the South Carolina Memorial Reef, with roughly 120 feet of vertical relief. In August 2017, the Highway 41 swing bridge in Mount Pleasant, SC was removed, attached to a barge, and was later deployed in the MPA that October. To date, ~\$480,000 has been raised to fund the construction, deployment and sinking of these structures. The Reef has already been highly successful in attracting snapper and grouper species, including Warsaw grouper, snowy grouper, speckled hind, and even the ever-elusive misty grouper. Sport fishermen in the Governor's Cup community have also experienced the benefits of these structures and have caught and released many billfish over the Reef. Efforts to further enhance this area are underway, and sights are currently set on securing material from the Highway 21 bridge in Beaufort County, SC that is set to be replaced in the coming year. At present we are in the middle of fundraising for this project. As of December 31, 2020, \$93,772.72 have been raised in support towards the goal of \$325,000 for the newest project.

ACKNOWLEDGMENTS

The SC Governor's Cup Billfishing Series represents a partnership between the SCDNR, blue water anglers of the state, and the pelagic species that they target. This program and its varied activities would not be possible without the help and support of many people. The Governor's Cup Advisory Board of Directors and the Tournament Committee provide guidance and solutions to any issues that may arise during the year and there were many such occasions during 2020. They donate their time and expertise to ensure that the Program operates efficiently, and goals are met. The data presented in this report was collected by SCDNR staff. A special thank you goes to Amy Dukes and Kayla Rudnay for their organizational, financial and data management skills and for their assistance in preparing this report. The 2020 year marked continued Series' presence on social media and public involvement, and this is all thanks to Cameron Rhodes who created numerous social media posts such as a blog called *The Teaser*, and "Mate Monday" shoutouts. Several articles in main-stream media outlets (i.e., *Marlin Magazine*), also highlighted the Series. Jim Goller served as the liaison between the Series and the Harry R. E. Hampton Memorial Wildlife Fund, and readily offered his historical perspective and advice, as he continues to help us manage our budget and issue checks for payment to vendors. Tim Snoots, IT Director for MRD, continued to maintain and update the SCGCBS website (govcup.sc.dnr.gov). Thanks to him, there are links to our sponsors' businesses, a full color version of each newsletter, and regular updates to Series standings throughout the summer on the web. It is with special thanks that we recognize Maia Ingle who served as the principle contact between the Advisory Board members and SCDNR, coordinated all meetings, and ensured minutes and records were kept up to date. We would also like to thank SCDNR's Law Enforcement Division who educate the fleet about federal and state permits and rules while creating a positive interface between the public and SCDNR. We especially want to thank Officer William Ladue, who continued his efforts and support on and off the docks. Finally, we also extend our appreciation to our 2020 sponsors and to the countless number of offshore anglers that support the Program and stuck by us during these unprecedented times.

NOW, THEREFORE, the Harry Hampton Fund and the Department agree as follows

1. The Advisory Committee of the Governor's Cup at the direction of the Department shall oversee and carry out the business of the Governor's Cup Billfishing Series. The Department will designate one staff member to act as Director of the Billfishing Series.
2. All funds necessary to carry out the Governor's Cup Series shall be derived from donations or sponsorships.
3. The Harry Hampton Fund shall establish a special account to receive funds and donations for the Governor's Cup to be used for the operational expenses of the Governor's Cup Billfish Series Program. The account will be designated as the Harry Hampton Wildlife Fund Governor's Cup account and will be used only to receipt, maintain and disburse those funds collected and used for the Governor's Cup program. The Harry Hampton Fund will disburse tax receipts to donors. At the direction of the Governor's Cup Director the Harry Hampton Fund will make payments to the South Carolina Department of Natural Resources for expenses related to the Governor's Cup program including but not limited to: salary and benefit reimbursement; travel and lodging expenses; purchase of promotional material and advertising; publication and distribution of Series newsletters; purchase of Series awards; and charges associated with the annual awards banquet.
4. The Director of the Governor's Cup must annually project the estimated total expenses of the Series which should not exceed the estimated total receipts. Funds remaining at the close of the program each year will be held over to cover start up and other costs for the following years or for those projects and programs approved by the Department for marine recreational fisheries conservation purposes.
5. At the direction of the Director of the Governor's Cup Series with the approval of the Governor's Cup Committee, the Harry Hampton Fund

will give a scholarship annually to an individual who is pursuing a degree or career in the natural resource disciplines. This scholarship is given to memorialize Wallace F. Pate.

6. In consideration for providing financial and promotional services to the Governor's Cup program, the Harry Hampton Fund may charge a fee of 1.5% of the gross annual deposits of the Governor's Cup Series less interest earned on the Governor's Cup checking account, Certificates of Deposit or other financial instruments held by the Hampton Fund for the benefit of the Governor's Cup.
7. The Hampton Fund will provide the Department with financial statements of all receipts and expenditures twice yearly. The Department may review the special Governor's Cup account maintained by the Harry Hampton Fund at any time.
8. This agreement may be modified from time to time by the parties.
9. This agreement becomes effective January 1, 2013.

IN WITNESS WHEREOF, the parties have executed the **AGREEMENT** as of the last date appearing below.



Frank Sistare, Chairman
Board of Directors
Harry R. E. Hampton Memorial
Wildlife Fund, Inc.

Date 5/30/12



Alvin A. Taylor
Director
South Carolina Department of Natural
Resources

Date 6-4-12

Appendix 2: Contributions and Sponsorships in the 2020 Governor's Cup Series Year.

11/24/2020					
2020 SCGC Sponsorship Pledges					
Potential Sponsors Contacted	Pledge \$/Anticipated	Payment Received/Actual	Request of 2020 Funds	Invoiced	Point of Contact
Western Branch Diesel/COX/Volvo Penta	\$10,000	\$10,000	Keep it	Yes	Amy
Martech Research (Marine Products-Benny)	\$10,000	\$10,000	Roll 100%	Yes	Amy
Aire Serv - Climate Professionals LLC	\$10,000	\$10,000	Roll 50%	n/a	Billy
APEX Automotive Group	\$5,000	\$5,000	No response	Yes	Amy
HMY	\$5,000	\$5,000	Keep it	Yes	Tim
W.W.Williams	\$5,000	\$5,000	Keep it	Yes	Amy
Southern Lumber	In Kind - Benefactor				Amy
Sea Hunt Boats	\$5,000	\$5,000	No response	Yes	Bubba
Pate Foundation	\$2,500	\$2,500	Keep it	Yes	Amy
QEI Security and Technology, Inc.	\$2,000	\$2,000	Keep it	n/a	Chad
McClam Associates	\$2,000	\$2,000	Keep it	n/a	Bob
Palmetto State Armory	\$2,000	\$2,000	Keep it	Yes	Amy
Blanchard Power	\$2,000	\$0		Yes	Amy
El Tejano Fishing Team	\$1,000	\$0		Yes	John
CCA of SC	\$1,000	\$0		Yes	Amy
Legal Holiday Fishing Team	\$1,500	\$1,500	Keep it	n/a	Fred
Mungo Homes	\$1,000	\$1,000	Keep it	n/a	Steve
Holder, Padgett, LittleJohn & Prickett, LLC	\$1,000	\$1,000	Keep it	Yes	Amy
Fairway Ford	\$1,000	\$1,000	No response	Yes	Amy
Spencer Yachts	\$1,000	\$1,000	Keep it	Yes	Amy
G.H. Smith Construction, Inc.	\$500	\$500	Keep it	Yes	Wally
Current Sponsor Sum	\$68,000	\$64,500			
Advisory Board Contributions	\$0				
Tournament Participation (2019 - 177 Boats)	\$13,275	\$3,525		BOH -	
				GT -	
Proposed Expenses	\$99,650			CBC -	\$ 3,525
				MD -	\$ -
Actual Deposits		\$68,025		ED -	\$ -
				Total	
Anticipated Deposits		\$0			

Appendix 3: Expenditures in the 2020 Governor's Cup Series calendar year.

SC Governor's Cup Billfishing Series - Account Summary							
2/8/2021	Actual 2015	Actual 2016	Actual 2017	Actual 2018	Actual 2019	Proposed 2020	Actual 2020
Budget Category	Expenditures	Expenditures	Expenditures	Expenditures	Expenditures	Expenditures	Expenditures
							through 12/31/2020
Salaries & Fringe	\$13,164.07	\$18,511.44	\$18,487.07	\$19,797.00	\$26,431.55	\$48,000.00	\$41,468.44
Communication	\$1,371.65	\$793.38	\$494.28	\$643.24	\$493.14	\$650.00	\$70.85
	Sat Phones	DeLormes	DeLormes	DeLormes	DeLormes	DeLormes	DeLormes
Advertisement	\$4,000.00	\$565.00	\$1,651.00	\$0.00	\$0.00	\$0.00	\$1,435.00
							In The Bite
Awards Banquet	\$12,692.72	\$16,378.77	\$16,655.80	\$18,240.33	\$18,180.49	\$18,000.00	\$1,500.00
							Rolls to 2021
Awards	\$10,472.62	\$10,219.94	\$10,103.73	\$9,959.73	\$7,438.73	\$10,000.00	\$0.00
Print & postage	\$6,623.23	\$4,262.36	\$607.32	\$666.77	\$638.40	\$1,000.00	\$240.69
Merchandise	\$7,291.78	\$8,685.80	\$7,479.91	\$18,093.33	\$9,564.96	\$10,000.00	\$1,169.43
Travel	\$2,432.68	\$4,280.82	\$4,818.55	\$5,976.37	\$7,081.25	\$6,000.00	\$3,333.02
							Most Rolls to 2021
Supplies	\$403.08	\$1,594.68	\$668.85	\$1,123.97	\$1,470.01	\$1,000.00	\$1,598.07
Memorial Reef	\$0.00	\$0.00	\$33,000.00	\$0.00	\$0.00	\$0.00	\$0.00
Scholarship	\$1,500.00	\$2,500.00	\$2,500.00	\$2,500.00	\$0.00	\$2,500.00	\$0.00
HH Sponsorship	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00
HH Assessment Fee	\$1,090.03	\$1,200.06	\$1,288.00	\$1,623.38	\$1,515.75	\$1,500.00	\$1,066.73
Other				\$4,300.00	\$1,000.00	\$1,000.00	\$2,027.56
				CS 1/2 off Payback	HH Ball Donation	HH Ball Donation	Bubbly Publication
Total	\$62,041.86	\$69,992.25	\$98,754.51	\$83,924.12	\$74,814.28	\$99,650.00	\$54,909.79
Actual Revenue	\$77,150.00	\$79,700.00	\$89,600.00	\$116,550.00	\$94,975.00		\$68,025.00
Total Bal. Jan 2016	\$203,390.62						
Total Bal. Jan 2017	\$208,994.93						
Total Bal. Jan 2018	\$213,999.48						
Total Bal. Jan 2019	\$239,375.91						
Total Bal. Jan 2020	\$260,431.95						
Accounts	State GC	CD/MM	Harry Hampton	Total	SC Memorial		
Balance Jan 2021	(\$14,940.41)	\$150,000.00	\$144,343.78	\$279,403.37	\$62,904.10		



2021 CPIP Summary - DNR

Activity Type	Qty	Total	State	Federal	Other
Construction (CS)	#REF!	#REF!	#REF!	#REF!	#REF!
Renovation/Demolition (RN/D)	#REF!	#REF!	#REF!	#REF!	#REF!
Land Acquisition (LA)	#REF!	#REF!	#REF!	#REF!	#REF!
Land Donation (LD)	#REF!	#REF!	#REF!	#REF!	#REF!
Total Projects	#REF!	#REF!	#REF!	#REF!	#REF!

2021 CPIP SUMMARY LIST- DNR

As of 4/21/2021

PIP Type	Year	Priority	Project Description	Current Status	2020 CPIP	*	SOURCE OF FUNDS			CPIP Identifier	Project Work	
							Total	State	Federal			Other
RN			6007-Poinsett Bridge Restoration	Ph I	Yes		885,515	-	-	885,515	P240-6007	Rehabilitation of historic stone bridge and access points
RN			6038-Poinsett Bridge HP Stream Restoration	Ph I	No		209,608	-	-	209,608	P240-6038	Restore Callahan Creek on Poinsett Bridge HP
LA			6013-Congaree Creek HP (CCCL)	Ph I	Yes		348,460	-	-	348,460	P240-6013	99.56 acres adjacent to Congaree Creek HP - Site for planned workshop
CS			Congaree Creek HP Workshop	CPIP	Yes		175,000	-	-	175,000	P240-P-2022-1189	Storage for equipment at Congaree Creek HP
RN			Berkeley-Childsbury Towne HP Environmental Abatement/Cleanup	New	-		150,000	-	-	150,000	P240-LWC-06	Lead abatement and asbestos removal for 18 buildings, most to be demolished afterwards
LA			Beaufort-Sea Island Cotton HP Land Acquisition	New	-		520,000	-	-	520,000	P240-LWC-01	126 acres protects high marsh area used to grow sea island cotton
LA			Edgefield-Horse Creek HP Land Acquisition (Neely)	New	-		320,000	-	-	320,000	P240-LWC-02	82 acres adjoining Horse Creek HP 700 additional feet of Horse Creek
LA			Lexington-Congaree Creek HP Phase 1	CPIP	Yes		7,020,000	-	-	7,020,000	P240-P-2021-1225	642 Acres adjoining Congaree Creek HP
LA			Lexington-Congaree Creek HP Phase 2 (Dominion)	New	-		7,140,000	-	-	7,140,000	P240-LWC-03	890 acres adjoining Congaree Creek HP-Saxe Gotha Township
LA			Lexington-Congaree Creek HP Phase 3 (Martin Marietta)	New	-		1,820,000	-	-	1,820,000	P240-LWC-04	225 acres adjoining Congaree Creek HP-Saxe Gotha Township
LA			Pickens-Wadakoe Mtn HP Land Acquisition (Ellenburg)	New	-		520,000	-	-	520,000	P240-LWC-05	25 acres adjoining Wadakoe Mtn HP on Swift Creek prehistoric complicated stamp pottery site
							-	-	-	-		
							-	-	-	-		

*State funding status F=Funded R=Requested T=Transfer

Activity Type	Qty	Total	State	Federal	Other
Construction (CS)	1	\$ 175,000	-	-	175,000
Renovation/Demolition (RN/D)	3	\$ 1,245,123	-	-	1,245,123
Land Acquisition (LA)	7	\$ 17,688,460	-	-	17,688,460
Land Donation (LD)	0	\$ -	-	-	-
Total Projects	11	\$ 19,108,583	-	-	19,108,583

Division:

Land, Water & Conservation

2021 CPIP SUMMARY LIST- DNR

As of 4/21/2021

PIP Type	Year	Priority	Project Description	Current Status	2020 CPIP	*	SOURCE OF FUNDS			CPIP Identifier	Project Work	
							Total	State	Federal			Other
RN			Chester-Leeds Shooting Range	CPIP	Yes		1,500,000	-	1,106,250	393,750	P240-P-2022-1191	Renovate and improve USFS range
RN			Pickens County Range Improvements	CPIP	Yes		500,000	-	356,250	143,750	P240-P-2022-1192	Improvements to existing shooting range

*State funding status F=Funded R=Requested T=Transfer

Activity Type	Qty	Total	State	Federal	Other
Construction (CS)	0	\$ -	-	-	-
Renovation/Demolition (RN/D)	2	\$ 2,000,000.00	-	1,462,500	537,500
Land Acquisition (LA)	0	\$ -	-	-	-
Land Donation (LD)	0	\$ -	-	-	-
Total Projects	2	\$ 2,000,000.00	-	1,462,500	537,500

Division:

Law Enforcement

Department of Natural Resources



2021 Comprehensive Permanent Improvement Plan

Project Totals by Fiscal Year

	Total	State	Federal	Other
2022	63,252,004	32,746,083	17,652,819	12,853,102
2023	5,562,828	4,430,500	-	1,132,328
2024	25,078,715	16,793,200	-	8,285,515
2025	10,412,000	1,452,000	-	8,960,000
Total	104,305,547	55,421,783	17,652,819	31,230,945

Project Totals by Type

	Total	State	Federal	Other
Land Acquisitions	29,561,442	12,160,583	4,856,419	12,544,440
Land Donations	13,870,015	4,813,000	-	9,057,015
Construction	33,377,120	31,500,000	796,400	1,080,720
Renovation/Demolition	27,496,970	6,948,200	12,000,000	8,548,770
Total	104,305,547	55,421,783	17,652,819	31,230,945

SOURCE OF FUNDS

PIP Type	Year	Priority	Project Description	Current Status	2020 CPIP	*	Total	State	Federal	Other	CCIP Identifier	Project Work
CS	2022	1	Charleston-MRRI Flood Protection	CPIP	Yes	R	644,050	585,500	-	58,550	P240-P-2023-1205	Flood protection-Stabiize shoreline to protect research Lab
LD	2022	2	Lancaster-Liberty Hill and Unnamed WMA Land Donation	New			20,000	-	-	20,000	P240-WFF-06	801.79 acre conveyance from Duke Energy-Lake Wateree FERC relicensing
LA	2022	3	Jasper- Slater Tract Land Acquisition	New			16,020,000	-	10,000,000	6,020,000	P240-WFF-03	3,527 acres along the Tullifinny River 68 priority species
RN	2022	4	9989-Yawkey Wildlife Ctr Renov-Gift	Ph I	Yes		986,000	-	-	986,000	P240-9989	Renovations 4 Yawkey Wildlife Center buildings- Gift of Construction
CS	2022	5	Barnwell-Barnwell Hatchery Managers House	CPIP	Yes		250,000	-	-	250,000	P240-P-2021-1183	Rebuild Hatchery Manager's House - higher elevation, old house was in low lying area
CS	2022	6	Charleston-Botany Bay Shop	CPIP	Yes		220,020	-	-	220,020	P240-P-2021-1208	Construct 4,000 sq ft Equipment Shed/Shop using Yawkey template, centrally located on 3,300 acres
LA	2022	7	Georgetown-Santee Delta WMA Land Acquisition (Santee Island)	New	Yes		1,820,000	-	1,000,000	820,000	P240-P-2022-1202	1,964 acres between North Santee and South Santee rivers adjacent to Santee Delta WMA
LA	2022	8	Horry-Cartwheel Bay HP Land Acquisition	New			300,000	-	-	300,000	P240_WFF-02	480 acres adjoining Cartwheel Bay HP
LA	2022	9	Jasper-Tillman HP/WMA Land Acquisition	New			609,000	-	-	609,000	P240-WFF-04	121 acres adjoining Tillman HP/WMA
LD	2022	10	6030-Edisto River WMA-Donation	Ph I	Yes		20,000	-	-	20,000	P240-6030	205.8 acres across the river from Edisto River WMA
LA	2022	11	6032-Henderson HP (Washington)	Ph I	No		235,000	-	-	235,000	P240-6032	31 acres adjoining Henderson HP
LA	2022	12	Beaufort-Sea Island Cotton HP Land Acquisition	New	-		520,000	-	-	520,000	P240-LWC-01	126 acres protects high marsh area used to grow sea island cotton
LA	2022	13	Charleston-May Forest HP Land Acquisition	New			30,000,000	30,000,000	-	-	P240-LWC-07	23 acres adjoining Ft Johnson on James Island - cultural, historical and habitat protection
RN	2022	14	Georgetown-Santee Delta WMA East & West Dike Renovation	CPIP	Yes	R	2,312,407	1,500,000	696,400	116,007	P240-P-2022-1201	Renovate East & West dikes, reshape/retop/repair water control structures
RN	2022	15	6024-Ft Johnson Central Energy Plant Protect	Ph I	Yes		403,155	-	302,366	100,789	P240-6024	Renovate Ft Johnson Central Energy Plant to protect against floods
LA	2022	16	6035-Stumphouse Mountain Land Trade (Duncan)	Ph I	Yes		257,063	-	100,000	157,063	P240-6035	Exchange 1.3 acres with adjoining landowner to maintain better control over roadway.
LA	2022	17	Land Acquisitions - 2022	CPIP	Yes		20,000	-	-	20,000	P240-P-2022-1203	1 potential acquisition for 1,000 acres HP
LA	2022	18	Edgefield-Horse Creek HP Land Acquisition (Neely)	New	-		320,000	-	-	320,000	P240-LWC-02	82 acres adjoining Horse Creek HP 700 additional feet of Horse Creek
RN	2022	19	Charleston-Santee Coastal Reserve-Dike	CPIP	Yes		1,346,553	-	1,346,553	-	P240-P-2022-1202	Renovate Murphy Island Boggy section dike
CS	2022	20	Colleton-Bennett's Point Shoreline Stabilization	CPIP	Yes		660,583	660,583	-	-	P240-P-2022-1197	Stabilize shoreline adjacent to Field Station
LA	2022	21	6013-Congaree Creek HP (CCCL)	Ph I	Yes		348,460	-	-	348,460	P240-6013	99.56 acres adjacent to Congaree Creek HP - Site for planned workshop
RN	2022	22	6037-Beaverdam Creek Waterfowl Area Dike Renovation	Ph I	No		277,063	-	100,000	177,063	P240-6037	1,000 linear feet of cleanout, reshape and retop dike, replace/install 3 water control structures
CS	2022	23	Congaree Creek HP Workshop	CPIP	Yes		175,000	-	-	175,000	P240-P-2022-1189	Storage for equipment at Congaree Creek HP
LA	2022	24	6019-Tall Pines WMA (Pacolet Miliken)	Ph I	Yes		2,580,000	-	1,920,000	660,000	P240-6019	850 acres adjoining Tall Pines WMA

LA	2022	25	6033-Meyer Lake HP (LLT/Epstein)	Ph I	Yes		1,370,000	-	1,000,000	370,000	P240-6033	973 acres to protect priority habitat
LA	2022	26	6034-Waccamaw HP (River Oaks)	Ph I	Yes		1,020,000	-	1,000,000	20,000	P240-6034	1,020 acres adjoining Waccamaw River HP
RN	2022	27	6026-Palachucola WMA-Building Ren	Ph I	Yes		247,650	-	-	247,650	P240-6026	Mistletoe Grove Historical House renovation, replace widows, exterior siding, wiring, plumbing
CS	2022	28	York-Relocate Fisheries Office	CPIP	Yes		250,000	-	187,500	62,500	P240-P-2021-1186	Rebuild Region 2 Fisheries Office and storage on York Office Site
LD	2022	29	Lancaster-Forty Acre Rock HP Land Donation	New			20,000	-	-	20,000	P240-WFF-05	2,759.38 acres mitigation for Haile Gold Mine expansion adjoining Forty Acre Rock HP
RN	2023	1	Charleston-Ft Johnson Energy Plant-Chiller	CPIP	Yes		357,500	325,000	-	32,500	P240-P-2021-1184	Replace Chiller Ft Johnson Central Energy Plant
RN	2023	2	Berkeley-Childsbury Towne HP Environmental Abatement/Cleanup	New	-		150,000	-	-	150,000	P240-LWC-06	Lead abatement and asbestos removal for 18 buildings, most to be demolished afterwards
LD	2023	3	6023-Keystone WMA-French Qtr	Ph I	Yes		20,000	-	-	20,000	P240-6023	440.26 acres adjoining Keystone WMA
RN	2023	4	Charleston-Historic Structures Maintenance	CPIP	Yes		445,720	405,500	-	40,220	P240-P-2022-1196	Marshlands House & Quarantine Officers Quarters exterior maintenance, HVAC
RN	2023	5	6038-Poinsett Bridge HP Stream Restoration	Ph I	No		209,608	-	-	209,608	P240-6038	Restore Callahan Creek on Poinsett Bridge HP
LD	2023	6	9980-Yawkey Wildlife Center Land Donation (Blackout)	Ph I	No		20,000	-	-	20,000	P240-9980	161 acres adjoining Yawkey Wildlife Center
LA	2023	7	Pickens-Wadakoe Mtn HP Land Acquisition (Ellenburg)	New	-		520,000	-	-	520,000	P240-LWC-05	25 acres adjoining Wadakoe Mtn HP on Swift Creek prehistoric complicated stamp pottery site
RN	2023	8	Barnwell-Barnwell Fish Hatchery Renovation	CPIP	Yes	R	1,800,000	1,800,000	-	-	P240-P-2021-1183	Rebuild production ponds, renovate water structures, production buildings and roads
RN	2023	9	Berkeley-Dennis Ctr/Bayless Hatchery Renovation	CPIP	Yes		1,900,000	1,900,000	-	-	P240-P-2023-1204	Add 10 and renovate 10 ponds/water control structures/harvest kettles
LA	2023	10	Land Acquisitions - 2023	CPIP	Yes		140,000	-	-	140,000	P240-P-2023-1206	7 Potential acquisitions for 5,351 acres WMA and HP
RN	2024	1	Beaufort-Waddell Mariculture Center - Ponds	CPIP	Yes		4,488,000	4,488,000	-	-	P240-P-2022-1193	Replace 25 water control structures, 9 pond liners, 8 storage/greenhouse bldgs
LA	2024	2	Lexington-Congaree Creek HP Phase 1	CPIP	Yes		7,020,000	-	-	7,020,000	P240-P-2021-1225	642 Acres adjoining Congaree Creek HP
LD	2024	3	6036-Lewis Ocean Bay HP Land Donation (Horry County MB)	Ph I	Yes		20,000	-	-	20,000	P240-6036	3,737.6 acres adjoining Lewis Ocean Bay HP
CS	2024	4	Colleton-Bennett's Point Field Station Renov	CPIP	Yes		805,200	805,200	-	-	P240-P-2022-1198	Replace HVAC, Fire Alarm, water tank and pump, roof, interior renovations
RN	2024	5	6007-Poinsett Bridge Restoration	Ph I	Yes		885,515	-	-	885,515	P240-6007	Rehabilitation of historic stone bridge and access points
LD	2024	6	6020-Landsford Canal-Donation (OSI-D)	Ph II	Yes		20,000	-	-	20,000	P240-6020	109.48 acres adjoining Landsford Canal WMA
RN	2024	7	Oconee-Walhalla Fish Hatchery	CPIP	Yes		8,000,000	8,000,000	-	-	P240-P-2022-1200	Replace six 1950 era concrete production raceways
RN	2024	8	Chesterfield-Cheraw Fish Hatchery	CPIP	Yes		3,500,000	3,500,000	-	-	P240-P-2022-1199	Replace original 1937 water distribution lines, connections and water control devices.
LD	2024	9	Dillon/Marion-Great Pee Dee Donation	New	Yes		20,000	-	-	20,000	P240-P-2021-1214	1,840.56 acres land donation
LD	2024	10	9975-Black River-Mitigation (SCDOT)	Ph I	Yes		-	-	-	-	P240-9975	442 acres SCDOT land donation, land encroachment issue being resolved

LA	2024	11	6015-Ashmore HP (Naturaland)	Ph I	Yes		220,000	-	-	220,000	P240-6015	108 acres adjoining Ashmore HP
LA	2024	12	Land Acquisitions - 2024	New			100,000	-	-	100,000	P240-WFF-01	5 Potential acquisitions for 5,243 acres WMA and HP
D	2025	1	Charleston-CCEHBR Building Demolition	CPIP	Yes		1,452,000	1,452,000	-	-	P240-P-2022-1195	Demolish 43 year old 48,000 sq ft building, costs to renovate existing structure exceed cost of rebuilding
LA	2025	2	Lexington-Congaree Creek HP Phase 2 (Dominion)	New	-		7,140,000	-	-	7,140,000	P240-LWC-03	890 acres adjoining Congaree Creek HP-Saxe Gotha Township
LA	2025	3	Lexington-Congaree Creek HP Phase 3 (Martin Marietta)	New	-		1,820,000	-	-	1,820,000	P240-LWC-04	225 acres adjoining Congaree Creek HP-Saxe Gotha Township
	CPIP		Total				104,305,547	55,421,783	17,652,819	31,230,945		

2021 CPIP SUMMARY LIST- DNR

As of 4/21/2021

PIP Type	Year	Priority	Project Description	Current Status	2020 CPIP	*	SOURCE OF FUNDS			CPIP Identifier	Project Work	
							Total	State	Federal			Other
LA			6015-Ashmore HP (Naturaland)	Ph I	Yes		220,000	-	-	220,000	P240-6015	108 acres adjoining Ashmore HP
LA			6019-Tall Pines WMA (Pacolet Miliken)	Ph I	Yes		2,580,000	-	1,920,000	660,000	P240-6019	850 acres adjoining Tall Pines WMA
LD			6020-Landsford Canal-Donation (OSI-D)	Ph II	Yes		20,000	-	-	20,000	P240-6020	109.48 acres adjoining Landsford Canal WMA
LD			6023-Keystone WMA-French Qtr	Ph I	Yes		20,000	-	-	20,000	P240-6023	440.26 acres adjoining Keystone WMA
RN			6026-Palachucola WMA-Building Ren	Ph I	Yes		247,650	-	-	247,650	P240-6026	Mistletoe Grove Historical House renovation, replace widows, exterior siding, wiring, plumbing
LD			6030-Edisto River WMA-Donation	Ph I	Yes		20,000	-	-	20,000	P240-6030	205.8 acres across the river from Edisto River WMA
LA			6032-Henderson HP (Washington)	Ph I	No		235,000	-	-	235,000	P240-6032	31 acres adjoining Henderson HP
LA			6033-Meyer Lake HP (LLT/Epstein)	Ph I	Yes		1,370,000	-	1,000,000	370,000	P240-6033	973 acres to protect priority habitat
LA			6034-Waccamaw HP (River Oaks)	Ph I	Yes		1,020,000	-	1,000,000	20,000	P240-6034	1,020 acres adjoining Waccamaw River HP
LA			6035-Stumphouse Mountain Land Trade (Duncan)	Ph I	Yes		257,063	-	100,000	157,063	P240-6035	Exchange 1.3 acres with adjoining landowner to maintain better control over roadway.
LD			6036-Lewis Ocean Bay HP Land Donation (Horry County MB)	Ph I	Yes		20,000	-	-	20,000	P240-6036	3,737.6 acres adjoining Lewis Ocean Bay HP
RN			6037-Beaverdam Creek Waterfowl Area Dike Renovation	Ph I	No		277,063	-	100,000	177,063	P240-6037	1,000 linear feet of cleanout, reshape and retop dike, replace/install 3 water control structures
LD			9975-Black River-Mitigation (SCDOT)	Ph I	Yes		-	-	-	-	P240-9975	442 acres SCDOT land donation, land encroachment issue being resolved
LD			9980-Yawkey Wildlife Center Land Donation (Blackout)	Ph I	No		20,000	-	-	20,000	P240-9980	161 acres adjoining Yawkey Wildlife Center
RN			9989-Yawkey Wildlife Ctr Renov-Gift	Ph I	Yes		986,000	-	-	986,000	P240-9989	Renovations 4 Yawkey Wildlife Center buildings- Gift of Construction
CS			Barnwell-Barnwell Hatchery Managers House	CPIP	Yes		250,000	-	-	250,000	P240-P-2021-1183	Rebuild Hatchery Manager's House - higher elevation, old house was in low lying area
CS			Charleston-Botany Bay Shop	CPIP	Yes		220,020	-	-	220,020	P240-P-2021-1208	Construct 4,000 sq ft Equipment Shed/Shop using Yawkey template, centrally located on 3,300 acres
CS			York-Relocate Fisheries Office	CPIP	Yes		250,000	-	187,500	62,500	P240-P-2021-1186	Rebuild Region 2 Fisheries Office and storage on York Office Site
RN			Barnwell-Barnwell Fish Hatchery Renovation	CPIP	Yes	R	1,800,000	1,800,000	-	-	P240-P-2021-1183	Rebuild production ponds, renovate water structures, production buildings and roads
RN			Berkeley-Dennis Ctr/Bayless Hatchery Renovation	CPIP	Yes		1,900,000	1,900,000	-	-	P240-P-2023-1204	Add 10 and renovate 10 ponds/water control structures/harvest kettles
RN			Charleston-Santee Coastal Reserve-Dike	CPIP	Yes		1,346,553	-	1,346,553	-	P240-P-2022-1202	Renovate Murphy Island Boggy section dike
RN			Chesterfield-Cheraw Fish Hatchery	CPIP	Yes		3,500,000	3,500,000	-	-	P240-P-2022-1199	Replace original 1937 water distributiou lines, connections and water control devices.
RN			Georgetown-Santee Delta WMA East & West Dike Renovation	CPIP	Yes	R	2,312,407	1,500,000	696,400	116,007	P240-P-2022-1201	Renovate East & West dikes, reshape/retop/repair water control structures
RN			Oconee-Walhalla Fish Hatchery	CPIP	Yes		8,000,000	8,000,000	-	-	P240-P-2022-1200	Replace six 1950 era concrete production raceways
LA			Land Acquisitions - 2022	CPIP	Yes		20,000	-	-	20,000	P240-P-2022-1203	1 potential acquisition for 1,000 acres HP

2021 CPIP SUMMARY LIST- DNR

As of 4/21/2021

PIP Type	Year	Priority	Project Description	Current Status	2020 CPIP	*	SOURCE OF FUNDS			CPIP Identifier	Project Work	
							Total	State	Federal			Other
LA			Land Acquisitions - 2023	CPIP	Yes		140,000	-	-	140,000	P240-P-2023-1206	7 Potential acquisitions for 5,351 acres WMA and HP
LA			Land Acquisitions - 2024	New			100,000	-	-	100,000	P240-WFF-01	5 Potential acquisitions for 5,243 acres WMA and HP
LA			Georgetown-Santee Delta WMA Land Acquisition (Santee Island)	New	Yes		1,820,000	-	1,000,000	820,000	P240-P-2022-1202	1,964 acres between North Santee and South Santee rivers adjacent to Santee Delta WMA
LA			Horry-Cartwheel Bay HP Land Acquisition	New			300,000	-	-	300,000	P240_WFF-02	480 acres adjoining Cartwheel Bay HP
LA			Jasper- Slater Tract Land Acquisition	New			16,020,000	-	10,000,000	6,020,000	P240-WFF-03	3,527 acres along the Tullifinny River 68 priority species
LA			Jasper-Tillman HP/WMA Land Acquisition	New			609,000	-	-	609,000	P240-WFF-04	121 acres adjoining Tillman HP/WMA
LA			Pickens-Jocassee Gorges WMA Acquisition (Shuler)	CPIP	Yes		290,000	-	-	290,000	P240-P-2021-1223	63 Acres adjoining Jocassee Gorges WMA
LD			Dillon/Marion-Great Pee Dee Donation	New	Yes		20,000	-	-	20,000	P240-P-2021-1214	1,840.56 acres land donation
LD			Lancaster-Forty Acre Rock HP Land Donation	New			20,000	-	-	20,000	P240-WFF-05	2,759.38 acres mitigation for Haile Gold Mine expansion adjoining Forty Acre Rock HP
LD			Lancaster-Liberty Hill and Unnamed WMA Land Donation	New			20,000	-	-	20,000	P240-WFF-06	801.79 acre conveyance from Duke Energy-Lake Wateree FERC relicensing
							-					
							-					

*State funding status F=Funded R=Requested T=Transfer

Activity Type	Qty	Total	State	Federal	Other
Construction (CS)	3	\$ 720,020.00	-	187,500	532,520
Renovation/Demolition (RN/D)	9	\$ 20,369,673.00	16,700,000	2,142,953	1,526,720
Land Acquisition (LA)	14	\$ 24,724,000.00	-	14,920,000	9,804,000
Land Donation (LD)	9	\$ 140,000.00	-	-	140,000
Total Projects	35	\$ 45,953,693.00	16,700,000	17,250,453	12,003,240

Division:

Wildlife & Freshwater Fisheries

Project	FY	County	Project Name	Acres
Land Acquisitions	2021	Lexington	Congaree Creek HP (SCEG)	1,000.0
Land Acquisitions	2022	Oconee	Jocassee Gorges WMA (George)	2,070.0
		Pickens	Jocassee WMA (Ellenburg)	26.0
		Laurens	Belfast WMA (Rasor)	691.0
		Marion	Marsh WMA	263.0
		Marion	Marsh WMA	222.0
		Horry	Lewis Ocean Bay	813.0
		Jasper	Meyer Lake	970.0
		Horry	Waccamaw River HP (River Oaks)	1,020.0
		Kershaw	Liberty Hill WMA (County Tract)	122.0
		Georgetown	Santee Island	1,964.0
		Horry	Waites Island	450.0
		Hampton	Duckfield Plantation	937.0
Land Acquisitions	2023	Berkeley	Dennis Center (Triangle Tract)	81.0

Plan Year	2020 Year Priority	2020 Year	2021 Year	Project Description	Current Status	Document for 2021	*
2021	1	2021	-	9967-Ft Johnson Boat Slip	Ph II	X	F
2021	3	2021	-	9992-Bennett's Point Public Ac	Ph II	X	
2021	4	2021	-	9993-Henderson HP -Mitigatio	Ph II	X	
2021	7	2021	-	9999-Lancaster-Forty Acre Roc	Ph II	X	
2021	9	2021	-	6003-Lake Edwin Johnson Repa	Ph II	X	
2021	10	2021	-	6006-Regional Event Range	Ph II	X	F
2021	23	2021	-	6014-Samworth Lower Middlel	Ph II	X	
2021	24	2021	-	6017-Samworth Upper Middlel	Ph II	X	T
2021	25	2021	-	6025-Belfast WMA -Mitigation	Ph II	X	
2021	35	2021	-	6021-ACE Basin-South Hutchin	Ph II	X	
2022	2	2022	Combined	Lexington-Congaree Creek HP I	-	Update	
2021	32	2021	Cancelled	Georgetown-South Island Ferry	-	Update	
2021	19	2021	-	6031-Capers Island Dock Repai	Ph I	Ph II	

Funding Source				CPIP Identifier	Project Work
Total	State	Federal	Other		
3,000,000	3,000,000	-	-	9967	Renovate Boat Slip
214,000	-	85,975	128,025	9992	Replace deck boards; construct AC
20,000	-	-	20,000	9993	118.54 acres
468,000	-	-	468,000	9999	To improve habitat for Carolina he
400,000	-	-	400,000	6003	Repair dam and improve spillway
2,100,000	750,000	1,350,000	-	6006	Construct a public shooting range
2,417,879	-	1,000,000	1,417,879	6014	Dike repair
1,310,010	50,205	1,221,855	37,950	6017	Dike repair
20,000	-	-	20,000	6025	2,742 acres I-20/I-26/I-126 Mitigat
260,000	-	260,000	-	6021	237 acres
3,520,000	-	3,500,000	20,000	HT-20-08	129 acres
20,000	-	-	20,000	WFF-20-11	0.17 acres
224,100	-	-	224,100	6031	Repair dock, walkways and suppor

to accommodate large scale events

Plan Year	PIP Type	Division	2020 Year	2021 Year	Project Description	Current Status	Document for 2021
2021	LD	WFF	2021	2022	9975-Black River-Mitigation (SCDOT)	Ph I	Ph II
2021	RN	WFF	2021	2022	9989-Yawkey Wildlife Ctr Renov-Gift	Ph I	Ph II
2021	RN	LWC	2021	2022	6007-Poinsett Bridge Restoration	Ph I	Ph II
2021	LA	WFF	2021	2022	6012-Bunched Arrowhead HP/WMA	Ph I	Ph II
2021	LA	WFF	2021	2022	6015-Ashmore HP (Naturaland)	Ph I	Ph II
2021	RN	WFF	2021	2022	Barnwell-Barnwell Fish Hatchery Renovati	-	Update
	CS	WFF			Barnwell-Barnwell Hatchery Managers House		
2021	CS	MRD	2021	2022	Charleston-MRRI Flood Protection	-	Update
2021	CS	WFF	2021	-	York-Relocate Fisheries Office	-	Update
2021	RN	WFF	2021	-	6026-Palachucola WMA-Building Ren	Ph I	Ph II
2021	CS	WFF	2021	-	Charleston-Botany Bay Shop	-	Update
2021	LD	WFF	2021	-	6036-Lewis Ocean Bay HP LandDonation	-	Ph II
2021	LD	WFF	2021	-	6023-Keystone WMA-French Qtr	Ph I	Ph II
2021	LD	WFF	2021	-	Dillon/Marion-Great Pee Dee Donation	-	Ph I
2021	LD	WFF	2021	-	6030-Edisto River WMA-Donation	Ph I	Ph II
2021	LD	WFF	2021	-	6020-Landsford Canal-Donation (OSI-D)	Ph II	Ph II
2021	LA	WFF	2021	-	6027-Landsford Canal Acquisition (OSI-A)	Ph I	Ph II
2021	LA	WFF	2021	-	6019-Tall Pines WMA (Pacolet Miliken)	Ph I	Ph II
2021	LA	WFF	2021	-	Pickens-Jocassee Gorges WMA Acquisition	-	Update
2021	LA	LWC	2021	-	Lexington-Congaree Creek HP Phase 1	-	Update
2021	LA	LWC	2021	-	Lexington-Congaree Creek HP Phase 2	-	Update
2021	LA	WFF	2021	-	6028-Edisto River WMA-Acquisition (Good	Ph I	Ph II
2021	LA	WFF	2021	-	Land Acquisitions	-	Update
2022	CS	LWC	2022	-	Congaree Creek HP Workshop	-	Update
2022	RN	LE	2022	-	Chester-Leeds Shooting Range	-	Update
2022	RN	LE	2022	-	Pickens County Range Improvements	-	Update
2022	RN	MRD	2022	-	Beaufort-Waddell Mariculture Center - Poi	-	Update
2022	RN	MRD	2022	-	6024-Ft Johnson Central Energy Plant Prot	Ph I	Ph II
2022	RN	MRD	2022	-	Charleston-Ft Johnson Energy Plant-Chiller	-	Update
2022	RN	MRD	2022	-	Charleston-Historic Structures Maintenanc	-	Update
2022	CS	MRD	2022	-	Colleton-Bennett's Point Shoreline Stabiliz	-	Update

2022	CS	MRD	2022	-	Colleton-Bennett's Point Field Station Ren	-	Update
2022	RN	WFF	2022	-	Chesterfield-Cheraw Fish Hatchery	-	Update
2022	RN	WFF	2022	-	Oconee-Walhalla Fish Hatchery	-	Update
2022	RN	WFF	2022	-	Georgetown-Santee Delta WMA E&W Dike	-	Update
2022	RN	WFF	2022	-	Charleston-Santee Coastal Reserve-Dike		Update
2022	LA	WFF	2022	-	Land Acquisitions	-	Update
2023	RN	WFF	2023	-	Berkeley-Dennis Ctr/Bayless Hatchery Ren	-	Update
2023	D	MRD	2023	-	Charleston-CCEHBR Building Demolition	-	Update
2023	LA	WFF	2023	-	Land Acquisitions	-	Update
2022	RN	LWC			Greenville-Poinsett Bridge HP Stream Rest	New	CPIP
2022	LD	WFF			Lancaster-Liberty Hill/Unnamed WMA Lan	New	CPIP
2022	LA	WFF			6032-Henderson HP (Washington)	Ph I	Ph II
2022	LA	WFF			6033-Meyer Lake HP (LLT/Epstein)	Ph I	Ph II
2022	LA	WFF			6034-Waccamaw HP (River Oaks)	Ph I	Ph II
	LD	WFF			Lancaster-Forty Acre Rock HP Land Donati	New	
	RN	LWC			Berkeley-Childsbury Towne HP Environme	New	
	LA	LWC			Lexington-Congaree Creek HP Phase 3 (Do	New	
	LA	LWC			Lexington-Congaree Creek HP Phase 4 (Ma	New	
	LA	LWC			Pickens-Wadakoe Mtn HP Land Acquisitio	New	
	LA	LWC			Edgefield-Horse Creek HP Land Acquisition	New	
	LA	LWC			Beaufort-Sea Island Cotton HP Land Acquis	New	
	LA	WFF			Horry-Cartwheel Bay HP Land Acquisition	New	
	LA	WFF			Georgetown-Santee Delta WMA Land Acq	New	
	LA	WFF			Jasper- Slater Tract Land Acquisition	New	
	LA	WFF			Jasper-Tillman HP/WMA Land Acquisition	New	
	RN	WFF			6037-Beaverdam Creek Waterfowl Area Dike Renovation		
	LA	WFF			6035-Stumphouse Mountain Land Trade (Duncan)		

**State funding status F=Funded R=Requested T=Transfer*

*	Funding Source				CPIP Identifier
	Total	State	Federal	Other	
	-	-	-	-	9975
	986,000	-	-	986,000	9989
	885,515	-	-	885,515	6007
	80,000	-	-	80,000	6012
	220,000	-	-	220,000	6015
R	1,800,000	1,800,000	-	-	WFF-17-11
	250,000	-	-	250,000	
R	644,050	585,500	-	58,550	MRD-19-02
	250,000	-	187,500	62,500	WFF-19-03
	247,650	-	-	247,650	6026
	200,000	-	-	200,000	WFF-18-01
	20,000	-	-	20,000	HT-20-04
	20,000	-	-	20,000	6023
	20,000	-	-	20,000	WFF-20-07
	20,000	-	-	20,000	WFF-20-08
	20,000	-	-	20,000	WFF-20-09
	1,020,000	-	-	1,020,000	6027
	2,580,000	-	1,920,000	660,000	6019
	290,000	-	-	290,000	WFF-19-08
	7,020,000	-	-	7,020,000	HT-19-01
	368,000	-	-	368,000	HT-20-07
	620,000	-	-	620,000	6028
	20,000	-	-	20,000	DNR-19-01
	175,000	-	-	175,000	HT-19-05
	1,500,000	-	1,106,250	393,750	LE-20-01
	500,000	-	356,250	143,750	LE-18-01
R	4,488,000	4,488,000	-	-	MRD-17-05
R	403,155	-	302,366	100,789	6024
R	357,500	325,000	-	32,500	MRD-20-02
R	445,720	405,500	-	40,220	MRD-17-02
R	660,583	660,583	-	-	MRD-17-03a

R	805,200	805,200	-	-	MRD-17-03b
R	3,500,000	3,500,000	-	-	WFF-17-12
R	8,000,000	8,000,000	-	-	WFF-17-13
	2,312,407	-	696,400	1,616,007	WFF-20-16
	1,346,553	-	1,346,553	-	WFF-20-17
	240,000	-	-	240,000	DNR-19-02
R	1,900,000	1,900,000	-	-	WFF-17-10
R	1,452,000	1,452,000	-	-	MRD-20-03
	20,000	-	-	20,000	DNR-19-03
	209,608			209,608	HT-21-
	20,000			20,000	WFF-21-
	235,000			235,000	6032
	1,370,000		1,000,000	370,000	6033
	1,020,000		1,000,000	20,000	6034
	20,000			20,000	HT-21-
	150,000			150,000	HT-21-
	7,140,000			7,140,000	
	1,820,000			1,820,000	
	520,000			520,000	
	320,000			320,000	
	520,000			520,000	
	20,000			20,000	
	20,000			20,000	
	20,000			20,000	
	20,000			20,000	
	257,063		100,000	157,063	
	257,063		100,000	157,063	

Project Work

442 acres SCDOT land donation

Renovations 4 Yawkey Wildlife Center buildings- Gift of Construction

Rehabilitation of historic stone bridge and access points

17 acres adjoining Bunched Arrowhead HP

108 acres adjoining Ashmore HP

Rebuild production ponds, renovate water structures, production buildings and roads

Rebuild Hatchery Manager's House - higher elevation, old house was in low lying area

Flood protection-MRRI Lab foundation at Ft Johnson

Rebuild Region 2 Fisheries Office and storage on York Office Site

Mistletoe Grove Historical House renovation, replace widows, exterior siding, wiring, plumbing

Construct 4,000 sq ft Equipment Shed/Shop using Yawkey template, centrally located on 3,300 acres

3,737.6 acres adjoining Lewis Ocean Bay HP

440.26 acres adjoining Keystone WMA

1,840.56 acres land donation

205.8 acres across the river from Edisto River WMA

109.48 acres adjoining Landsford Canal WMA

109 acres adjoining Landsford Canal WMA

850 acres adjoining Tall Pines WMA

63 Acres adjoining Jocassee Gorges WMA

642 Acres adjoining Congaree Creek HP

120 acres adjoining Congaree Creek HP

148 acres across the river from Edisto River WMA

1 potential acquisition for 1,000 acres HP

Storage for equipment at Congaree Creek HP

Renovate and improve USFS range

Improvements to existing shooting range

Replace 25 water control structures, 9 pond liners, 8 storage/greenhouse bldgs

Renovate Ft Johnson Central Energy Plant to protect against floods

Replace Ft Johnson CEP Chiller

Marshlands House & Quarantine Officers Quarters exterior maintenance, HVAC

Stabilize shoreline adjacent to MRRI Lab

Replace HVAC, Fire Alarm, water tank and pump, roof, interior renovations, shoreline stabilization
Replace original 1937 water distribution lines, connections and water control devices.
Replace six 1950 era concrete production raceways
Renovate East & West dikes, reshape/retop/repair water control structures
Renovate Murphy Island Boggy section dike
12 Potential acquisitions for 9,548 acres WMA and HP
Add 10 and renovate 10 ponds/water control structures/harvest kettles
Demolish 43 year old 48,000 sq ft building, costs to renovate existing structure exceed cost of rebuilding
1 Potential acquisition for 81 acres WMA and HP
Restore Callahan Creek on Poinsett Bridge HP
801.79 acre conveyance from Duke Energy-Lake Wateree
31 acres adjoining Henderson HP
973 acres to protect priority habitat
1,020 acres adjoining Waccamaw River HP
2,759.38 acres mitigation for Haile Gold Mine expansion adjoining Forty Acre Rock HP
Lead abatement and asbestos removal for 9 buildings and demolish 9 buildings
890 acres adjoining Congaree Creek HP-Saxe Gotha Township
225 acres adjoining Congaree Creek HP-Saxe Gotha Township
25 acres adjoining Wadokoe Mtn HP on Swift Creek prehistoric complicated stamp pottery site
82 acres adjoining Horse Creek HP 700 additional feet of Horse Creek
126 acres protects high marsh area used to grow sea island cotton
480 acres adjoining Cartwheel Bay HP
1,964 acres between North Santee and South Santee rivers adjacent to Santee Delta WMA
3,527 acres along the Tullifinny River 68 priority species
121 acres adjoining Tillman HP/WMA
1,000 linear feet of cleanout, reshape and retop dike, replace/install 3 water control structures
1,000 linear feet of cleanout, reshape and retop dike, replace/install 3 water control structures

South Carolina Department of Natural Resources



Robert H. Boyles, Jr.

Director

Emily C. Cope

Deputy Director for

Wildlife and Freshwater Fisheries

Memorandum

To: SCDNR Board

From: Ken Prosser *KP*

Date: May 12, 2021

Subject: Lewis Ocean Bay Heritage Preserve
Grand Strand Water and Sewer Authority Amended Contract for Waterline Easement

The Department entered into a Contract for Waterline Easement with Grand Strand Water and Sewer on August 20, 2020. In the February 11, 2021 HTAB meeting, GSWSA presented its request to modify the contract. The Heritage Trust Advisory Board (HTAB) did not act on that request but urged GSWSA and the Department's staff to continue evaluating it. Following further discussions between GSWSA and DNR staff, a new route for the waterline is proposed as set forth in the attached proposed amended Contract for Sale of Waterline Easement and is presented for review and approval by the SCDNR Board.

GSWSA is seeking a permanent easement which will require special approval by the State Fiscal Accountability Authority to deviate from its default of 50-year term easements. The SCDNR staff agreed to advance and pursue the request for a permanent easement given this unique situation. The amended contract would provide for a 15-foot wide waterline easement, installation of a 14-foot wide forest road between International Drive and Henry Road, clearing of a 100-foot wide firebreak between International Drive and Henry Road, and temporary construction easements of variable widths. Additional fire hydrants will be installed and other modifications of the original contract are reflected in the attached redlined and clean versions.

The amended contract was approved by HTAB at their last meeting. If approved by the SCDNR Board and following the execution of this contract, its terms will be embodied in an easement. As required by S.C. Code Sections 1-11-65 and 10-1-130, the Department of Administration and the State Fiscal Accountability Authority must also approve the transfer of this easement.

Draft Motion: I move the SCDNR Board accept the recommendation as approved by the Heritage Trust Advisory Board and approve the proposed amended Contract for Sale of Waterline Easement with Grand Strand Water and Sewer Authority at Lewis Ocean Bay Heritage Preserve.

- considering existing or planned uses of LOBHP,
- 2) GRANTEE will pay to GRANTOR the appraised value of the easement,
 - 3) there is an important public necessity for the encroachment which is unavoidable and imperative,
 - 4) alternative routes or locations not on state property are neither prudent nor feasible, and
 - 5) GRANTEE shall mitigate the impacts upon LOBHP;

WHEREAS, the GRANTOR's Heritage Trust Advisory Board did vote on ~~August-May~~ 13, 2020-2021 to recommend granting an easement to GRANTEE, as described and conditioned herein;

~~Whereas~~WHEREAS, the GRANTOR's Board, sitting as Board of the Department and as trustee of the South Carolina Heritage Trust, did accept the recommendation of the Heritage Trust Advisory Board and voted on ~~August-May 20~~, 2020-2021 to approve the granting of an easement to GRANTEE, as described and conditioned herein; ~~and~~

WHEREAS, GRANTEE has agreed, subject to the terms of this Contract, to construct and maintain the waterline and associated facilities within the proposed easement; ~~and~~

WHEREAS, the Parties previously executed an August 20, 2020 Contract for Sale of Waterline Easement and have negotiated amendments embodied in this Contract and by mutual agreement do declare the August 20, 2020 contract to be terminated and void.

NOW THEREFORE, KNOW ALL MEN BY THESE PRESENTS, that for and in consideration of ten (\$10.00) dollars in hand paid by each party to the other and in further consideration of the mutual covenants and agreements herein contained, the parties agree as follows:

1. BASIC CHARACTERISTICS OF PROPOSED EASEMENT

The basic characteristics of the proposed easement contemplated by this Contract are set forth below but are subject to the complete terms of this Contract.

- a. Waterline-Easements-Width. This Contract provides for a waterline easement and associated temporary easements, as detailed herein.
 - i. Waterline Easement. The maximum width of the waterline easement will be fifteen feet (15'), inclusive of all use and impacts during maintenance. Along International Drive, this waterline easement will be located on the "shoulder" of the road between the road surface and the existing adjacent fence. Upon leaving International Drive, this waterline easement will be located as depicted in Exhibit B and otherwise will abut the outer boundary of LOBHP. Along Henry Road / Carolina Bay Parkway, GRANTEE understands the existing fence is not the boundary and will seek proper authorization from the S.C. Department of Transportation.
 - ii. Temporary Waterline Construction Easement. Except in locations where ~~this-the~~

primary-waterline easement area immediately abuts wetlands, the GRANTEE shall also have, during the initial construction of the waterline, a temporary waterline construction easement that is five feet (5') in width. In more limited locations as may be agreed upon in GRANTOR's discretion prior to the preparation of the easement plat (see paragraph 2 below), such temporary waterline construction easement areas may be expanded up to fifteen feet (15') in width.

- iii. Temporary Firebreak Clearing Easement (middle). As a mitigating activity supporting forest management needs of GRANTOR and consideration for this Contract, GRANTEE will undertake, at no cost to GRANTOR, the following firebreak clearing activities. Along the southern boundary of LOBHP between International Drive and Henry Road / Carolina Bay Parkway (State Highway 31) frontage, GRANTEE shall have a temporary construction easement to mechanically clear (mulched or removed from LOBHP) trees and woody vegetation (avoiding soil surface disturbance) from a one hundred foot (100') wide strip abutting the southern boundary of LOBHP as depicted in Exhibit C; however, GRANTOR may designate certain wetland areas or trees which shall not be removed or damaged if they are 8" DBH or larger and are outside of the waterline easement and temporary forest road easement. GRANTEE will provide initial field markings to delineate the 100' area and GRANTOR will mark trees and areas that will not be removed. These clearing activities should occur in conjunction with waterline construction to minimize disturbance (temporal and spatial) to LOBHP; however, the clearing activities may only be undertaken in August and between November 16 and February 28, unless otherwise approved by the GRANTOR, to avoid nesting season for a majority of migratory birds, RCW breeding season, and juvenile Southern Hognose snakes. This temporary firebreak clearing easement terminates upon completion of clearing activities or as otherwise provided in this Contract, whichever first occurs.
- iv. Temporary Forest Road Construction Easement. As a mitigating activity supporting forest management needs of GRANTOR and consideration for this Contract, GRANTEE will install, at no cost to GRANTOR, a road with a fourteen foot (14') wide travel surface constructed with adequate materials, crowning and side slope that is suitable to the site conditions and the current and future forest management needs of GRANTOR. The road must meet or exceed the S.C. Forestry Commission Forest Road Best Management Practices and U.S. Forest Service Forest Road Guidelines (see for example <https://www.nrs.fs.fed.us/fmg/nfmg/docs/mn/roads.pdf>). Except as depicted in Exhibit D, the road would abut the northern edge of the waterline easement from International Drive to Henry Road / Carolina Bay Parkway (State Highway 31) frontage before connecting to Henry Road. GRANTEE is responsible for all costs and efforts associated with the design, permitting, mitigation, procurement, and construction of this road. Appropriate bridging / culverts (bottomless or arched preferred) and associated floodplain culverts must be installed for crossing the headwaters of Black Creek and any other specific low areas treated with

graveled fords to maintain existing hydrology. The road should be constructed in conjunction with waterline construction to minimize disturbance (temporal and spatial) to LOBHP. Design plans, permit documentation, and mitigation plans shall be submitted prior to construction for review and approval by GRANTOR. Following completion of the waterline construction, the road should be free of any associated construction debris and graded / re-topped with gravel (addressing non-ford depressions / re-topped) to facilitate future forest management activities. The installation of this road is deemed by the State to be a permanent improvement project that will require special external approvals prior to construction.

ii.v. Temporary Firebreak Clearing Easement (Henry Road). As a mitigating activity supporting forest management needs of GRANTOR and consideration for this Contract, GRANTEE will undertake, at no cost to GRANTOR, the following firebreak clearing activities. Finally, in the southern corner of LOBHP (at southern end of Henry Road), GRANTEE shall have a temporary construction easement to mechanically clear (mulched or removed from LOBHP) trees and woody vegetation from a ~~twenty-five~~forty foot (25'-40') wide strip abutting the eastern boundary of LOBHP as depicted in Exhibit BE; however, GRANTOR may designate certain trees which shall not be removed or damaged if they are 8" DBH or larger and are outside of the waterline easement and temporary forest road easement~~15' primary easement~~. These clearing activities should occur in conjunction with waterline construction to minimize disturbance (temporal and spatial) to LOBHP; however, the clearing activities may only be undertaken in August and between November 16 and February 28, unless otherwise approved by the GRANTOR, to avoid nesting season for a majority of migratory birds, RCW breeding season, and juvenile Southern Hognose snakes.

Commented [VW1]: Revised to accommodate waterline ROW and road.

a-b. Limited Use of Waterline Easement. GRANTEE's use of the waterline easement is limited exclusively to the construction and maintenance of the proposed thirty-six inch (36") waterline and no other unrelated structures, activities, or purposes. For purposes of this limitation, the installation of fire hydrants within or immediately adjacent to the easement at the request of GRANTOR shall be deemed a related structure. The waterline must be located as close to the LOBHP boundary as possible and must be at a minimum depth of four feet (4') to the top of the pipe. GRANTEE may only make lawful use of the easement area and, except as expressly allowed pursuant to the terms of the easement, the easement area remains subject to the limitations applicable to LOBHP pursuant applicable laws and policies of the GRANTOR. The waterline easement shall not be deemed a gift or dedication of any portion of the waterline easement to the general public or for any general public use or purpose. Similarly, no rights, privileges or immunities will be provided under the waterline easement for the benefit of any third-party, nor shall any third-party be deemed to be a beneficiary of any of the provisions contained in the waterline easement.

b-c. Waterline Easement Duration. The GRANTEE desires a permanent waterline easement but the default duration as established by the February 5, 2004 Budget and Control Board

policy is a term of 50 years. Based on the substantial nature of the infrastructure proposed for installation and the level of disturbance in installing or removing it, the GRANTOR will request in seeking the necessary external approvals that a permanent waterline easement be granted. However, GRANTEE acknowledges the duration of the waterline easement approved by the State Fiscal Accountability Authority (successor to Budget and Control Board) may be permanent or term limited. The GRANTEE shall be responsible for the maintenance and repair of all facilities constructed by or for the benefit of the GRANTEE upon the waterline easement area for the duration of the term. If a permanent easement is not authorized by the State Fiscal Accountability Authority, the GRANTEE shall promptly remove all facilities installed by or for the benefit of the GRANTEE following the termination of this waterline easement and restore the affected area to its original condition.

e.d. Reverter. ~~The All~~ easement rights shall revert and otherwise become void if GRANTEE (i) does not initiate construction of the waterline easement within five years after the waterline easement is executed or (ii) ceases to utilize the waterline easement as an operating waterline for a period of two years.

e.e. Non-exclusive Easement. The easements under this Contract will not be for the exclusive use of GRANTEE and GRANTOR reserves all rights to utilize the easement area and to allow other users within the easement areas. Subject to the GRANTOR's management authority for LOBHP and merely as an example, other individuals potentially accessing the easement areas include GRANTOR's staff, GRANTOR's contractors, GRANTOR's vendors, adult and minor visitors to LOBHP, and other users which may be authorized by the GRANTOR to utilize LOBHP. The GRANTOR uses existing roads located within the easement area for property management purposes including prescribed fire access and control (e.g. - firebreaks and heavy equipment potentially operating in conditions with low visibility), wildfire response access, timber removal and other forest management activities (e.g. - regular use of heavy equipment) and GRANTEE's use of the easement must not diminish the GRANTOR's ability to use the easement area for these purposes. The above considerations and expectations of use shall also apply to the firebreak areas to be cleared at the southern end of Henry Road as described in paragraph 1(a) above.

e.f. Access to Waterline Easement. Unless specifically agreed to as an amendment to the waterline easement, the waterline easement includes an incidental non-exclusive right of ingress and egress across LOBHP as conditioned by this Contract. The term of this right of access shall follow that of the waterline easement and is not independent of it. All access to the waterline easement area must be by way of public access points (e.g. - International Drive or Water Tower Road), existing LOBHP roadways, or where the easement directly enters and exists LOBHP (e.g. - each end of Henry Road). GRANTEE's ingress/egress rights are narrow. Aside from the Temporary Forest Road Construction Easement provided in this Contract, GRANTEE does not have permission to widen existing LOBHP roadways outside of the waterline easement area. Outside of the waterline easement area, GRANTEE may only use existing roads (inclusive of the forest road to be constructed under this Contract) for passage and not for parking or storage of equipment or materials. GRANTEE may not construct any gates or fences

along or across the waterline easement area within LOBHP without the prior written permission of GRANTOR. Both parties acknowledge and agree that GRANTOR may control the access to the waterline easement area by locked gates and such other measures reasonably necessary to prevent unauthorized access upon LOBHP. The parties will coordinate on interlocking or exchange of keys / codes to ensure that the other party has access consistent with the terms of the waterline easement. Both parties agree that such gates will be closed and locked at all times except when authorized for GRANTOR, GRANTEE, or their respective permittees limited needs of having the gate open. The parties will use reasonable efforts to prevent unauthorized access behind any gate. At such points where the waterline enters or exists LOBHP, the GRANTEE must establish an appropriate secure boundary (e.g. - fencing, gate(s), or otherwise) to prevent unauthorized access onto LOBHP.

2. GRANTEE PREREQUISITES TO CONVENYANCE OF PROPOSED WATERLINE EASEMENT

These prerequisites must be completed to the satisfaction of GRANTOR prior to execution and conveyance of ~~an~~ the waterline easement to GRANTEE. GRANTEE shall bear all costs associated with completing these items. The waterline easement and associated temporary easements, will incorporate the substantive terms of this contract.

- a. *Acquisition of Other Easements to Complete Project.* GRANTEE must obtain all necessary easements or rights-of-ways for completion of the proposed waterline project from International Drive to the eastern end of LOBHP, including, but not limited to, permission ~~of from~~ Horry County for encroachment into the easement it holds along International Drive.
- b. *Preparation of Easement Plat.* GRANTEE shall cause a surveyor, duly licensed in the State of South Carolina, to prepare a recordable survey of the easement area with the surveyor certifying on the face of the plat the actual net acreage contained in the waterline easement to the nearest one- hundredth of an acre. Furthermore, the plat must depict any infrastructure proposed to be installed by GRANTEE and must contain state plane coordinates at least every 1,000 feet along the length of the waterline easement and located at the closest vertex. GRANTEE shall provide a draft of the plat to GRANTOR for review prior to it being finalized or recorded. A copy of the final plat, signed and sealed, shall be provided to GRANTOR in both hardcopy and in native electronic file format, e.g. – CAD.
- c. *Appraisal of Easement.* GRANTEE will provide GRANTOR with an appraisal, prepared by a qualified appraiser, of the waterline easement, including any timber to be removed, and must pay GRANTOR for the appraised value of the easement upon transfer of the easement
- d. *Assistance in External Approvals.* To the extent the GRANTEE'S assistance or participation is necessary, GRANTEE will provide such assistance to GRANTOR in seeking such legally required approvals as may be required for granting the waterline easement and associated temporary easements, such as the Joint Bond Review

Committee, Department of Administration, and State Fiscal Accountability Authority. GRANTEE shall be responsible for payment of any fees or charges assessed by the external authorities, including but not limited to the administrative fee charged by the Department of Administration for easements (currently \$500) prior to conveyance of the waterline easement.

3. GRANTOR PREREQUISITES TO CONVEYANCE OF PROPOSED EASEMENT

As required by the state laws identified in the recitals, GRANTOR must seek certain external approvals prior to execution and conveyance of an easement to GRANTEE. Accordingly, it is clearly understood among the parties that GRANTOR shall have no authority to execute or convey an easement until the requisite external approvals are obtained. GRANTOR will make a reasonable good-faith effort to obtain such approvals but the lack of obtaining any such required approval shall not be a breach of this Contract. The specific approvals depend in part on the value of the waterline easement. However, the Department of Administration must review and approve the easement and additional approval may be required by the Joint Bond Review Committee and the State Fiscal Accountability Authority or their respective staff.

4. PREREQUISITES TO CONSTRUCTION

These prerequisites must be completed to the satisfaction of GRANTOR prior to initiation of any site preparation or construction activities within the waterline easement, temporary waterline construction easement, or temporary forest road construction easement. However, items b through e below are not required for that section of the ~~proposed waterline~~ easement located within the existing International Drive highway easement (*i.e.* those segments situated on the shoulder of International Drive). Any mitigating actions required below shall first be detailed in writing by GRANTEE and must be completed prior to initiation of any site preparation or construction activities. The core elements of the mitigating actions (*e.g.* – location, timing, *etc.*) must first be approved by GRANTOR in order to address resource-specific considerations, public use, and GRANTOR’s management of LOBHP.

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- a. *Red-cockaded Woodpecker (RCW) Assessment.* RCW are a federally and state endangered species and the assessment activities of the GRANTEE shall be performed in a manner that will meet or exceed the standards and protocols of the federal RCW recovery plan. GRANTEE, utilizing qualified individuals, will i) if pine trees 8” DBH or larger are to be removed, conduct a survey to identify cavity trees within 0.5 mile of the outer boundary of the tree removal area, ii) if construction activities or heavy equipment usage will occur within any easement during RCW breeding season (March 1 – July 31), conduct a survey to identify cavity trees within 200 feet of the outer edge of the waterline easement, temporary waterline construction easement, and temporary forest road construction easement, and iii) if warranted under the recovery plan based on cavity tree locations, conduct a red-cockaded woodpecker foraging habitat analysis for active RCW sites within any active foraging partition where habitat will be removed for the proposed easement and provide appropriate mitigation (*e.g.* – habitat improvement via mechanical clearing, installation of nest inserts, *etc.*) for any negative impacts reasonably anticipated. Cavity tree surveys must be completed no more than 180 days and no less than 30 days prior to the start of construction activities. At this time, at least ~~four~~ five clusters appear to be within 0.5 mile of the proposed easement.

Commented [VW2]: Corrected typo.

- b. *Cultural Resources Assessment.* GRANTEE will conduct a systematic evaluation/inventory of cultural resources within the waterline easement, temporary waterline construction easement, and temporary forest road construction easement ~~easement area~~, conduct appropriate data recovery for identified resources, and provide to GRANTOR interpretive materials associated with all finds. Any cultural resources recovered in this assessment must be documented appropriately and given to GRANTOR.
- c. *Evaluation of Wildlife Impacts.* GRANTEE will evaluate the unique habitats (such as wetlands, etc.) within the waterline easement, temporary waterline construction easement, and temporary forest road construction easement ~~easement area~~ for any special impacts to federally and state designated rare (pursuant to applicable laws or State Wildlife Action Plan), threatened, and endangered wildlife species and propose additional mitigation actions appropriate to the context.
- d. *Relocation of Sensitive Plants.* GRANTEE will conduct a survey for federally and state designated rare, threatened, and endangered plants (pursuant to applicable laws or State Wildlife Action Plan), and relocate such sensitive plants from the waterline easement, temporary waterline construction easement, and temporary forest road construction easement ~~easement area~~ to a GRANTOR-approved location utilizing qualified and GRANTOR-approved individuals.
- e. *Evaluation and Pretreatment of Noxious/Exotic Plant Species.* GRANTEE will conduct a survey of commonly recognized noxious/exotic plant species within the waterline easement, temporary waterline construction easement, and temporary forest road construction easement ~~easement area~~. GRANTEE will plan and execute, following GRANTOR approval, a pretreatment of commonly recognized noxious/exotic plant species within the above easement areas in order to minimize the spread of such species during construction. GRANTEE must identify any herbicide proposed for use and must obtain written approval from GRANTOR prior to applying it within the above easement area. Proposed herbicides must be as species-specific as possible and use of wide-spectrum or soil active herbicides is not favored.
- f. *Formerly Used Defense Sites.* GRANTEE will be responsible for consulting with the U.S. Army Corps of Engineers to determine if any of the proposed easement areas ~~is~~ are a Formerly Used Defense Site and if GRANTEE needs to undertake any special actions to address FUDS elements while utilizing the easements.
- g. *Jurisdictional Wetlands Determination.* GRANTEE will conduct a wetlands delineation and have a jurisdictional determination made by the U.S. Army Corps of Engineers for the waterline easement, temporary waterline construction easement, and temporary forest road construction easement ~~easement area~~. GRANTEE will provide GRANTOR with a copy (hardcopy and CAD/GIS electronic files) of the delineation boundaries and the jurisdictional determination.
- h. *Permits.* GRANTEE must obtain all necessary federal, state, and local permits /

certifications / authorizations for the entire waterline project prior to initiation of any site preparation or construction activities and will provide copies of all such permits concerning the easement area work under this Contract/easements to GRANTOR.

- i. *Construction Schedule Consultation.* GRANTEE will develop the construction schedule, inclusive of all site preparation activities, in consultation with and subject to approval of the GRANTOR. Considerations which will be incorporated into the schedule include, but are not limited to, hunting seasons at LOBHP, prescribed fire activities, closure periods for sensitive flora and wildlife protection, and other factors relevant to GRANTOR'S management of LOBHP.
- j. *GRANTEE Staff and Contractor Training.* GRANTEE will conduct training for all GRANTEE staff and contractors working within the easements to inform them of the conditions associated with the construction and maintenance of the waterline and easement areas. Such training would include notification that wildlife upon LOBHP is protected.

5. CONSTRUCTION REQUIREMENTS.

In addition to any regulatory requirements or those otherwise required, GRANTEE will incorporate the following elements into its construction plans and perform them in its construction activities in the waterline easement, temporary waterline construction easement, and temporary forest road construction easement. With respect to temporary firebreak clearing activities, conditions a(iv), (v) and (vi); b; f and g below apply.

- a. *General Best Management Practices.*
 - i) Prior to beginning any land disturbing activity, appropriate erosion and siltation control measures (*i.e.* silt fences, tubing, or barriers) must be in place and maintained in a functioning capacity until the area is permanently stabilized. Silt fencing Erosion control measures must be carefully installed to also serve as a temporary barrier to wildlife entering the construction zone.
 - ii) Materials used for erosion control (*e.g.*, hay bales or straw mulch) must be weed free, as demonstrated by a supplier certification.
 - iii) Inspecting and ensuring the maintenance of temporary erosion control measures must be performed at least:
 - (1) on a daily basis in areas of active construction or equipment operation;
 - (2) on a weekly basis in areas with no construction or equipment operation; and
 - (3) within 24 hours of each 0.5 inch of rainfall; ensuring the repair of all ineffective temporary erosion control measures within 24 hours of identification, or as soon as conditions allow if compliance with this time frame would result in greater environmental impacts.
 - iv) All necessary measures must be taken to prevent the discharge of oil, trash, and other pollutants into LOBHP.

- v) Once the project is initiated, it must be carried to completion in an expeditious manner to minimize the period of disturbance to the environment.
 - vi) Except for areas where it is necessary, trees and shrubs must be cut flush with the ground surface with root structures left intact. Cut vegetation must be hauled off-site to an appropriate lawful disposal facility.
 - vii) All excavations must be backfilled to preconstruction elevations with the excavated material after installation of the appropriate structures. When working adjacent to any wetland or stream, sidecast spoil material from trench excavation must be placed on the side of the trench opposite the streams or wetlands. Spoil material from trench excavation must be placed on the side of the trench to be reused as backfill with the A-horizon placed back in its original position. Excess spoil material must be removed to an approved upland disposal site. Excavated material that is not returned to the source location will not be deposited on LOBHP outside of the easement area.
- b. *Clean Equipment.* All construction equipment entering LOBHP must first be steam cleaned to remove any seeds or other vectors which could threaten the LOBHP ecosystem or otherwise introduce noxious / exotic species. GRANTEE must provide at least 24-hours advanced notice to SCDNR-GRANTOR of equipment arriving at the site so that GRANTOR may inspect, if it so desires, such equipment. GRANTOR may refuse entry for equipment that is not clean.
- c. *Excavation and Clean Fill Materials.* No excavation may be made upon LOBHP outside of the waterline easement, temporary waterline construction easement, or temporary forest road construction easement and any fill materials must be clean and free of waste, contaminants, and seeds. GRANTEE shall not apply any "slag" on LOBHP.
- d. *Horizontal Directional ~~Bore~~Drilling.* Horizontal Directional ~~bore~~Drilling (HDD) shall be the predominant limited method of installation to minimize surface impacts to both wetland and upland resources and such locations shall first be reviewed and approved by the GRANTOR. Wetlands that may unavoidably be impacted must be appropriately mitigated. Recognizing that inadvertent releases occasionally occur during HDD, GRANTOR will develop a HDD contingency and inadvertent release plan prior to undertaking any HDD activities. Among others, such a plan shall include the following elements:
- i. Erecting appropriate sediment control structures between the drill site and nearby sensitive resources to prevent drilling mud releases from reaching the resource.
 - ii. Conducting regular, on-site briefings for personnel to identify and locate sensitive resources at the site.
 - iii. Maintaining necessary response equipment either on-site or at a readily accessible location and in good working order.
 - iv. Provide for a full-time, qualified on-site mud engineer to continuously monitor the drilling fluid circulation and returns as a preventative measure.

d-e. *Terrestrial Wildlife Protection.* Any open trench must be temporarily fenced (properly installed ~~silt fencing~~ erosion control measures or other barriers surrounding the entire active work area) to reduce the likelihood of wildlife becoming trapped and must include a ramped section which would allow wildlife to escape. GRANTEE must make a daily visual inspection of every open trench section to identify any trapped wildlife in need of rescue and seek guidance and approval from GRANTOR for proper removal.

e-f. *Red-cockaded Woodpecker (RCW) Protection* – If any RCW cavity trees are located within 200 feet of the any easement area, GRANTEE may not operate heavy equipment within 200 feet of a cavity tree during the period of March 1 through July 31. Furthermore, no activities potentially causing soil compaction or root damage to cavity trees (including operation of heavy equipment) may occur within 50 feet of cavity trees.

f-g. *Timber Mats.* To minimize soil compaction in wetlands, GRANTEE must use timber mats under heavy construction equipment within the wetlands of ~~the all~~ easement areas. All mats must first be steam cleaned before being placed on LOBHP to remove any seeds or other vectors which could threaten the LOBHP ecosystem or otherwise introduce noxious / exotic species. GRANTEE must provide at least 24-hours advanced notice to GRANTOR of timber mats arriving at the site so that GRANTOR may inspect, if it so desires, such mats. GRANTOR may refuse entry for mats that are not clean.

g-h. *Revegetation.* GRANTEE must promptly revegetate any disturbed areas within the waterline easement, temporary waterline construction easement, and temporary forest road construction easement with native plant species (preference for native warm-season grasses and/or pollinator mixes) first approved by the GRANTOR and appropriate for the specific location.

i. *Fire Hydrant Installation.* At no cost to GRANTOR, GRANTEE shall install and maintain on LOBHP, for the benefit of GRANTOR, ~~four seven~~ freeze-proof fire hydrants (containing at least two hose and one pumper nozzle) along the length of the easement (two on the LOBHP side of International Drive, three at interior road junctions between International Drive and Henry Road, and one on each end of Henry Road within LOBHP) as depicted on Exhibit F. The hydrants shall be located on the outermost edge of the waterline easement area (i.e. - toward exterior boundary of LOBHP) and shall be situated in a manner that will not obstruct any roadways or other operational needs of the GRANTOR. The GRANTOR must approve the specific locations proposed by GRANTEE. In addition to the appraised value of the waterline easement, the installation, maintenance, and GRANTOR's use of such hydrants at no charge to GRANTOR shall be deemed additional consideration benefitting GRANTOR and supporting wildfire control at LOBHP.

h-j. Concrete Boundary Marker Installation. At no cost to GRANTOR, GRANTEE shall install permanent concrete boundary monuments (at least 4" x 4" x 2' (above ground)) at fifty foot (50') intervals along the GRANTOR's property boundary between International Drive and Henry Road / Carolina Bay Parkway unless GRANTOR determines less are needed.

Commented [VW3]: With the removal of existing boundary trees, replacement boundary markers are needed.

6. POST-CONSTRUCTION OBLIGATIONS.

Following the completion of the construction activities, GRANTEE shall have the following obligations.

- i. *Signs.* GRANTEE shall post GRANTOR-approved signs informing GRANTEE staff and agents of special conditions associated with the waterline easement and management of it.
- ii. *Noxious Weed Control.* For three years following completion of construction, GRANTEE will be responsible for controlling / eradicating any noxious or exotic vegetation discovered within the waterline easement, temporary waterline construction easement, temporary forest road construction easement, and temporary firebreak clearing easement. All actions must first be approved by GRANTOR to take into consideration the sensitivity of LOBHP and its native vegetation. GRANTEE must identify any herbicide proposed for use and must obtain written approval from GRANTOR prior to applying it within the easement areaaffected areas. Proposed herbicides must be as species-specific as possible and use of wide-spectrum or soil active herbicides is not favored.

7. MAINTENANCE AND ADAPTIVE MANAGEMENT.

- a. *Maintenance Schedules and Activities.* GRANTEE must obtain approval from GRANTOR for the schedule and activities used to maintain the waterline easement area and water line infrastructure. Such activities shall be subject to the following conditions.
 - i) Use of herbicides generally will not be approved unless necessary for eradicating a noxious weeds and special considerations will be made to protect sensitive species. GRANTEE must identify any herbicide proposed for use and must obtain written approval from GRANTOR prior to applying it within the waterline easement area. Proposed herbicides must be as species-specific as possible and use of wide-spectrum or soil active herbicides is not favored.
 - ii) Maintenance clearing or mowing of the waterline easement area shall ~~not only~~ occur in August and between March 1 and July 1 November 16 and February 28 to avoid nesting season for a majority of migratory birds, RCW breeding season, and juvenile Southern Hognose snakes, a state threatened species. The mower deck must be set no lower than 8 inches high to prevent bird injury or damage to native herbaceous vegetation.
 - iii) If clearing must occur, vegetation within wetlands or waters of the U.S. must be conducted manually and low growing, woody vegetation and shrubs must be left intact to maintain bank stability and reduce erosion.
 - iv) Following construction of the waterline and associated infrastructure, GRANTEE shall not store materials or equipment within the waterline easement area.

Commented [VW4]: Revised to consolidate dates for migratory birds, RCW and Hognose snakes.

- b. *Signs*. GRANTEE must maintain the GRANTOR-approved signs informing GRANTEE staff and agents of special conditions associated with the waterline easement and management of it.
- c. *Sensitive Species*. The management of the waterline easement and waterline infrastructure is subject to modification based on discovery/migration or any new listing of ~~any new~~ federal or state endangered, threatened, rare, or species of concern (pursuant to applicable laws or State Wildlife Action Plan) using or potentially in or adjacent to the waterline easement.
 - i) If future active red-cockaded woodpecker -cavity trees are found within 200 feet of the waterline easement, then ~~mowing~~ heavy machinery access through the corridor will not be permitted from March 1 through July 31 to avoid disturbance during breeding season. Furthermore, no activities potentially causing soil compaction or root damage to cavity trees (including operation of heavy equipment) may occur within 50 feet of cavity trees.
 - ii) ~~Mowing and h~~Heavy equipment access through the waterline easement will not be permitted from September 1 through November 15 to avoid harming juvenile Southern Hognose snakes, a state threatened species.
- d. *Monitoring vehicles*. Monitoring of the waterline easement and water line infrastructure by GRANTEE must be by the least damaging means possible. For any segment of the waterline easement not maintained as a road or firebreak by GRANTOR, inspection on foot, by tracked equipment with low ground pressure, or aerial means are preferred over other means.

8. GRANTEE ACKNOWLEDGEMENTS, REPRESENTATIONS, RELEASES, AND WARRANTIES

As introduced in the recitals above, GRANTEE acknowledges the LOBHP is a unique public resource that holds special legal protections and is managed to maximize conservation of natural resources. GRANTEE provides the following acknowledgements, representations, releases, and warranties, respectively:

- a. *Minimization of Wetlands Impacts*. GRANTEE acknowledges that its plan to construct and maintain a waterline and associated facilities will impact wetlands within the jurisdiction of both federal and state agencies. ~~While GRANTOR and GRANTEE concur that the route selected by GRANTEE for the easement avoids wetlands to a significant extent,~~ GRANTEE acknowledges and covenants that this Contract does not replace or supplant any requirements of federal or state regulatory agencies with jurisdiction over affected wetlands or the GRANTOR's right to comment on applications related to such regulatory authorizations.
- b. *Endangered Species Habitat*. GRANTEE recognizes that endangered or threatened flora and fauna are present on LOBHP. GRANTEE acknowledges and covenants that it must consult with the United State Fish and Wildlife Service to determine and ensure

compliance with the Endangered Species Act, 16 U.S.C. § 1531, *et seq.* and comply with S.C. Code Section 50-15-10, et seq.

- c. *Forest Management and Prescribed Fire.* GRANTEE acknowledges and understands that the ecology of the LOBHP is fire dependent. Much of the flora and fauna at LOBHP including, but not limited to, longleaf pine (*Pinus palustris*), ~~venus~~-Venus flytrap (*Dionaea muscipula*), and red-cockaded woodpecker (*Picoides borealis*), require periodic burning to provide necessary habitat for survival. To maintain this habitat, GRANTOR periodically will undertake prescribed burns over various portions of the LOBHP. Furthermore, the GRANTOR uses existing roads located within the waterline easement area for property management purposes including prescribed fire access and control, wildfire response access, timber removal and other forest management activities and GRANTEE's use of the waterline easement and access through LOBHP must not diminish the GRANTOR's ability to use the waterline easement area for these purposes.
- d. *Site Conditions.* GRANTOR makes no warranties as to the current state of LOBHP, the easement areas, or their accessibility or likely future condition. GRANTEE acknowledges that LOBHP and the easement areas will be used for a wide range of activities, including but not limited to the use of heavy vehicles and for forest management activities. The GRANTEE acknowledges that it has inspected the LOBHP and the easement areas, knows the conditions, and understands that access and use of LOBHP and the easement areas are to be granted without any representation or warranties whatsoever and without any obligation on the part of the GRANTOR.
- e. *Formerly Used Defense Sites.* GRANTEE acknowledges that portions of LOBHP are designated by the U.S. Army Corps of Engineers as Formerly Used Defense Sites. GRANTEE will be responsible for consulting with the U.S. Army Corps of Engineers to determine if any of the proposed easement areas ~~is~~ are a Formerly Used Defense Site and if GRANTEE needs to undertake any special actions to address FUDS elements while utilizing the easements. GRANTEE will bear all risks associated with any portion of the easements being within a FUDS.
- f. *Vehicles and Equipment.* As to any vehicle or equipment under the control of GRANTEE and traveling upon LOBHP, GRANTEE represents and warrants that each vehicle and equipment travelling upon LOBHP is properly maintained and possesses all necessary safety features and equipment for safe operation upon public roadways or the respective lawful context. GRANTEE further represents and warrants that all drivers/operators of vehicles and equipment utilized upon LOBHP are properly trained and supervised to ensure safe operation.
- g. *Liability Release and Waiver.* The GRANTEE acknowledges on behalf of itself and its agents, who may not be minors, that it voluntarily sought to undertake the activities permitted herein with full knowledge of the hazards associated with LOBHP, including but not limited to environmental and wildlife hazards and variable road conditions, and assumes the risks associated with such. GRANTEE expressly accepts responsibility for its acts, errors, and omissions and releases the State of South Carolina, including

GRANTOR, from all claims and damages associated with this Contract or the activities anticipated thereunder.

- h. *Liens or Fees.* GRANTEE has no authority to allow any liens, fees, or claims to attach to LOBHP. GRANTEE shall keep the easement areas and LOBHP free from liens arising in any manner out of the activities or infrastructure of GRANTEE and shall promptly discharge any such liens that are asserted. Furthermore, GRANTEE shall be responsible for any governmental fees arising in any manner out of the activities or infrastructure of GRANTEE and shall promptly discharge any such fees that are asserted.
- i. *Hazardous Materials.* The GRANTEE shall not cause, permit, or allow any hazardous substances to be generated, used, stored, or disposed upon LOBHP, subject only to the following exceptions. GRANTEE may utilize hazardous substances 1) in properly maintained equipment that is necessary for the construction or maintenance activities allowed by this easement when such substances are necessary for the basic operation of such equipment (e.g. gasoline, diesel, and hydraulic fluid), and 2) that are legally authorized herbicides to the extent such substance is otherwise allowed under the easement. These limited allowances of use do not excuse any uncontrolled spill or release of a hazardous substance upon LOBHP. If any hazardous substances are generated, used, stored, or disposed of on LOBHP, or if LOBHP becomes contaminated for which the GRANTEE's contractor is deemed legally liable, the GRANTEE's contractor shall indemnify, defend, and hold harmless the GRANTOR for any and all claims, damages, fines, judgments, penalties, costs, liabilities, or losses, including without limitation diminution of value or adverse impact on marketability of LOBHP, and any and all sums paid for settlement of claims, attorney's fees, consultant's fees, or expert witness' fees arising from such contamination or legal liability of the GRANTEE's contractor. This indemnification includes without limitation any and all costs incurred because of any investigation, clean-up, removal, or restoration required by any state, federal, or local agency or political subdivision. Furthermore, if the GRANTEE causes, permits, or allows the presence of any hazardous substance resulting in contamination on LOBHP, the GRANTEE shall and at its own expense take any and all actions necessary to restore LOBHP to the condition existing before such contamination; provided however that the GRANTEE shall first obtain the GRANTOR's approval for such remedial action. As used herein, the term "hazardous substance" means any substance that is toxic, ignitable, reactive, or corrosive, and which is regulated by any state, federal, or local governmental authority; and specifically includes without limitation any and all materials or substances that are defined as "hazardous waste", "extremely hazardous waste", or "hazardous substance" pursuant to state, federal, or local law; and also specifically includes without limitation asbestos, petroleum, and polychlorinated biphenyls ("PCBs"). The indemnification and hold harmless commitments above shall apply to the GRANTEE to the maximum extent allowable by law.

9. INDEMNIFICATION BY GRANTEE'S CONTRACTORS.

GRANTEE's contractors must indemnify and hold harmless the State of South Carolina and

GRANTOR, its employees, agents, invitees, or contractors, from and against any and all liability, damage, expense, claims, liens or judgments, including reasonable attorneys' fees, resulting from injury to person or damage to property resulting from or in any fashion arising out of the negligent acts, errors or omissions of GRANTEE's contractors respective agents, employees, volunteers, or invitees upon the LOBHP. GRANTEE must require any contractor entering LOBHP under the permission of this Contract to agree to and be bound by the terms of this Contract whereby the contractor will indemnify the State of South Carolina and GRANTOR.

10. INSURANCE.

~~10.~~ GRANTEE shall obtain and maintain during the term of this Contract and easement liability insurance coverage with the Insurance Reserve Fund or comparable coverage. GRANTEE must require any contractor entering LOBHP under the permission of this Contract to obtain and maintain insurance applicable to the proposed activities of said contractor and in a form generally acceptable in South Carolina as detailed below. Coverage requirements shall be as follows and have an AM Best's Key Rating Guide of A or better rating:

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- a. Commercial general liability insurance to include minimum limits of one million dollars per occurrence and five million dollars annual aggregate combined single limit bodily injury, death, and property damage. Extension of coverage to include comprehensive form, premises and operations, contractual liability, products and completed operations, independent contractors, personal injury, broad form property damage, cross liability, and pollution. Additionally, the policy shall not exclude X, C or U (explosion, collapse, or underground).
- b. Comprehensive automobile liability insurance covering owned, non-owned, hired and other vehicles, with a combined single limit of one million dollars per occurrence combined single limit bodily injury, death and property damage.
- c. The policies specified above shall include an endorsement which shall name GRANTOR as an additional insured on a primary basis for the term of the temporary commercial use.
- d. All liability coverages must be on an "occurrence" basis as opposed to "claims made."
- e. If requested by GRANTOR, GRANTEE's contractors must furnish to GRANTOR a certificate of insurance dated and signed by a stated, authorized agent for the insuring company or companies, containing a representation that coverage of the types listed in above is provided with the required liability limits and the stated endorsements.

11. PROTECTION AND RESTORATION OF PROPERTY.

Other than the specific actions ~~necessary for installation and maintenance of the waterline and associated infrastructure detailed in this Contract~~, any property of the GRANTOR that is damaged or destroyed by the GRANTEE, inclusive of it-s agents, incident to the terms of the Contract shall, following GRANTEE's approval of a corrective action plan prepared by GRANTEE, -be promptly repaired or replaced by the GRANTEE to a condition satisfactory to GRANTOR. Upon concluding all construction activities, GRANTEE, at GRANTEE's sole expense, shall restore all existing roads within LOBHP that were utilized by GRANTEE,

including any grading / crowning and surfacing, to conditions exceeding those as of the date of this Contract. Specifically, GRANTEE shall apply sufficient gravel to low sections (e.g. – water holding, washout, rutted, etc.) of Henry Road to ensure it can withstand additional traffic of GRANTEE. Any materials needed for GRANTEE’s maintenance or restoration obligations may not be obtained from LOBHP and must be provided by GRANTEE; such materials shall be clean and appropriate for the intended use. Additionally, the GRANTEE shall exercise due diligence in the protection of LOBHP against fire or damage from any and all other causes and shall be responsible for any damage that may be caused to LOBHP by the acts or omissions of the GRANTEE. Any such damage shall be promptly repaired by GRANTEE at GRANTEE’s expense to a condition satisfactory to SCDNRGRANTOR.

12. HISTORIC PRESERVATION.

With the limited exception of GRANTEE’s compliance with paragraph 4(b) above, the GRANTEE shall not remove or disturb or cause or permit to be removed or disturbed any historical, archaeological, architectural or other cultural artifacts, relics, remains, or objects of antiquity. In the event such items are discovered on LOBHP, the GRANTEE shall immediately notify the GRANTOR and protect the site and material from further disturbance until the GRANTOR gives clearance to proceed.

13. GRANTEE ACCESS UNDER THIS CONTRACT.

Upon execution of this Contract by both parties, GRANTEE or its agents shall have temporary access to the proposed easement areas for the limited purpose of making necessary, appraisals, surveys, engineering studies, and environmental studies. GRANTEE’s access pursuant to this paragraph must be coordinated at least 24 hours in advance with GRANTOR’s LOBHP manager and any activities by GRANTEE that are not merely observational must be specifically approved by GRANTOR. GRANTOR reserves the right to deny access to GRANTEE if such access will interfere with specific management activities of GRANTOR. Access pursuant to this paragraph is a mere temporary, non-exclusive license and shall cease to exist upon conveyance of the waterline easement or termination of this Contract.

14. GRANT OF EASEMENT.

Following satisfactory completion of GRANTEE and GRANTOR prerequisites provided in paragraphs 2 and 3, GRANTOR will prepare an easement that is consistent with the terms of this Contract for the easement area generally represented in **Exhibit A** but more specifically delineated in the easement plat prepared pursuant to paragraph 2. The parties agree that the easement shall incorporate relevant terms of this Contract, specifically including those contained in paragraphs 1 and 4 through 12. Upon payment of the appraised value of the easement to GRANTOR by GRANTEE, the GRANTOR shall execute and deliver to GRANTEE for recording the easement proposed under this Contract.

15. NOTICE.

Except where otherwise provided in this Contract, all notices required or permitted to be given or delivered hereunder, shall be in writing and shall be effective only if delivered by personal delivery or by regular, registered or certified mail as follows:

If to GRANTOR:

Director
South Carolina Department of Natural Resources
PO Box 167
Columbia, South Carolina 29202

If to GRANTEE:

Chief of Operations
Grand Strand Water and Sewer Authority
166 Jackson Bluff Road
Conway, SC 29526

16. ASSIGNMENT.

GRANTEE may not assign this Contract or any interest therein without prior written consent of GRANTOR. Subject to the foregoing prohibition, the agreements, conditions, terms and provisions contained herein shall inure to the benefit of and shall be binding upon the parties hereto and their respective successors and assigns.

17. TERMINATION.

This Contract shall terminate if the prerequisites established in paragraphs 2 and 3 are not satisfactorily completed within five years after this Contract is executed. Otherwise, this Contract shall terminate upon the conveyance of the easement. Notwithstanding the foregoing, any provision of this Contract relating to the GRANTEE or its agents' liability, indemnification, and/or waiver / releases for negligent acts or omissions or responsibility for other incidents causing damage to LOBHP or GRANTEE occurring while this Contract is in effect shall survive the termination and remain in full force and effect.

18. ENTIRE AGREEMENT.

This Contract consists of this instrument and the attached **Exhibits A and B through F** which are incorporated herein by reference. All prior understandings and agreements between the parties or their respective agents are merged into this Contract, which alone fully and completely expresses their agreement, and the same is entered into after full investigation, neither party relying upon any statement or representation not embodied in this Contract having been made by the other or made or furnished by any agent, employee, or other person representing or purporting to represent GRANTOR or GRANTEE.

19. APPLICABLE LAW.

This Contract shall be governed by and construed in accordance with the laws of the State of South Carolina.

20. EFFECTIVE DATE. This Contract will be effective after execution by authorized representatives of both the GRANTOR and GRANTEE.

{signature page follows}

It is so agreed.

South Carolina Department of
Natural Resources

Grand Strand Water and Sewer Authority

By: _____
Robert H. Boyles, Jr.
Director

By: _____
Name: _____

It's: _____

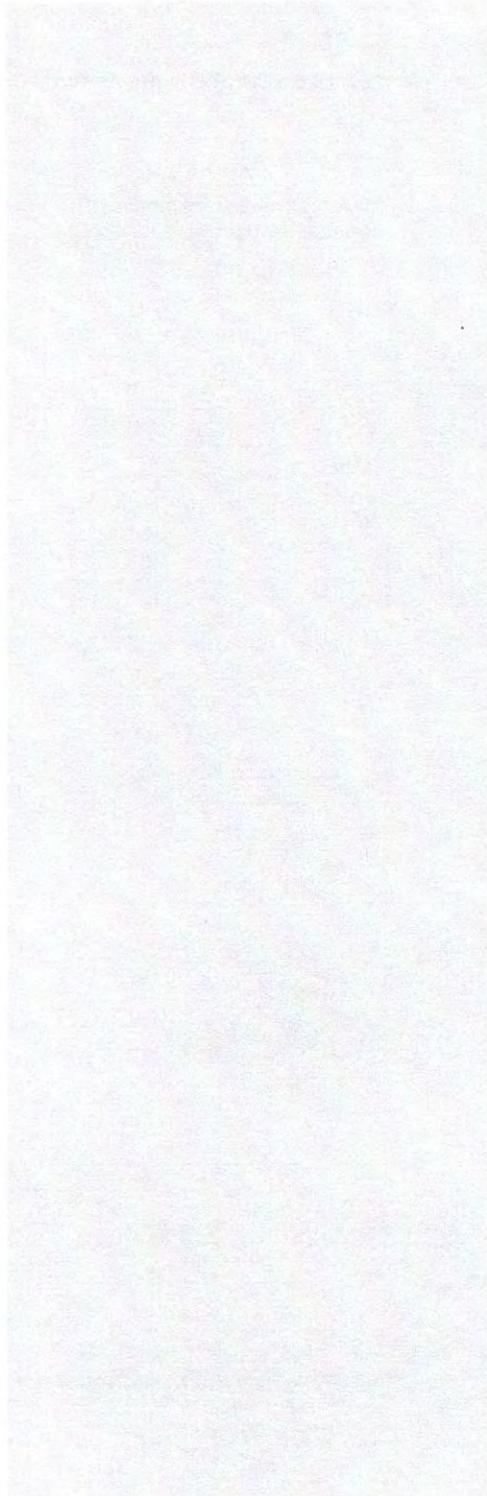
Date: _____

Date: _____

EXHIBIT A

~~Note: Waterline / easement location along International Drive is located on the "shoulder" of the road between the road surface and adjacent fence.~~

EXHIBIT B



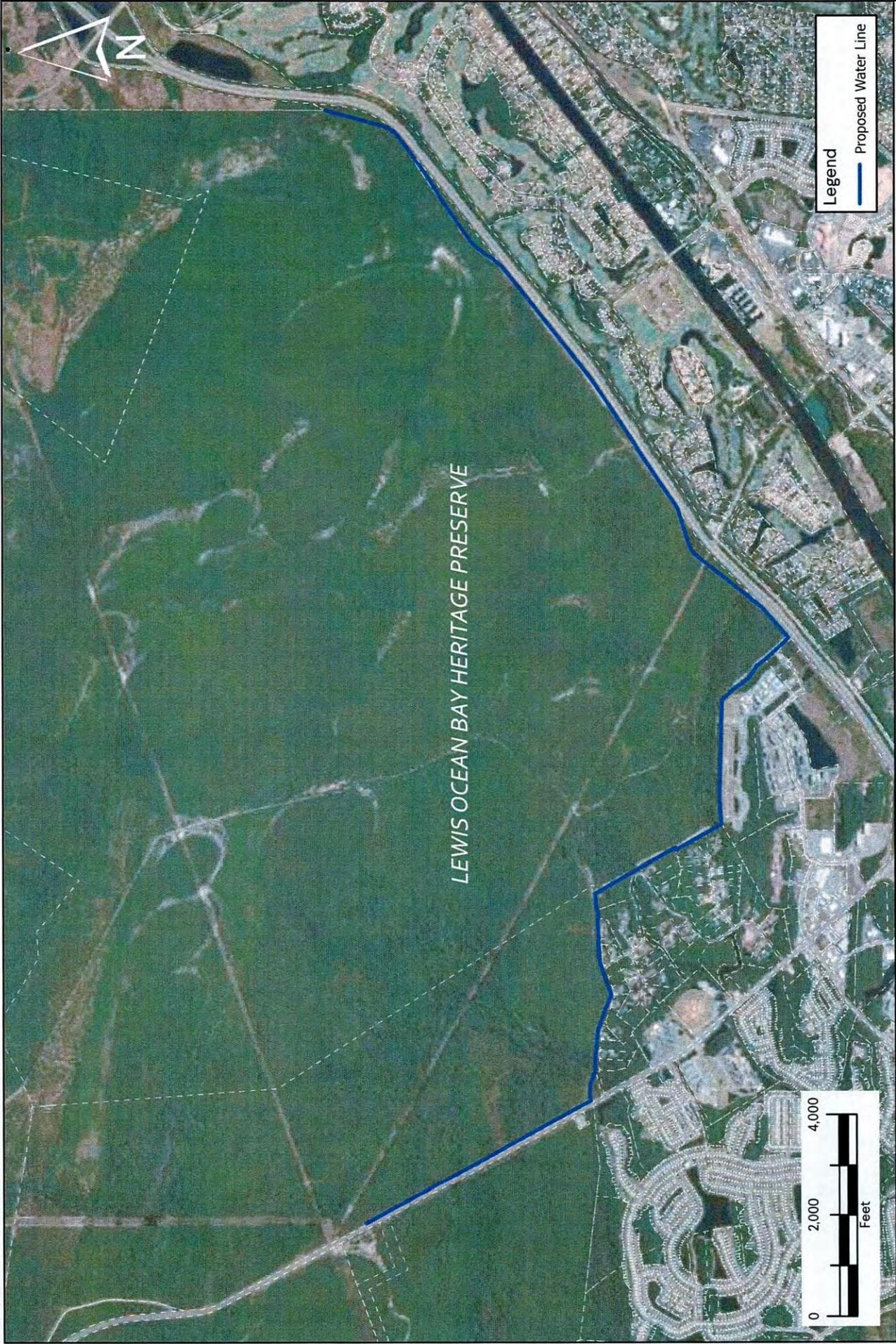


EXHIBIT A
 Horry County, SC
 DATE: 5/3/2021



617 East McBee Avenue, Suite 200
 Greenville, SC 29601
 T 864.527.0460
 GMCNETWORK.COM



EXHIBIT B
 Horry County, SC
 DATE: 5/3/2021



617 East McBee Avenue, Suite 200
 Greenville, SC 29601
 T 864.527.0460
 GMCNETWORK.COM



LEWIS OCEAN BAY HERITAGE PRESERVE

Legend

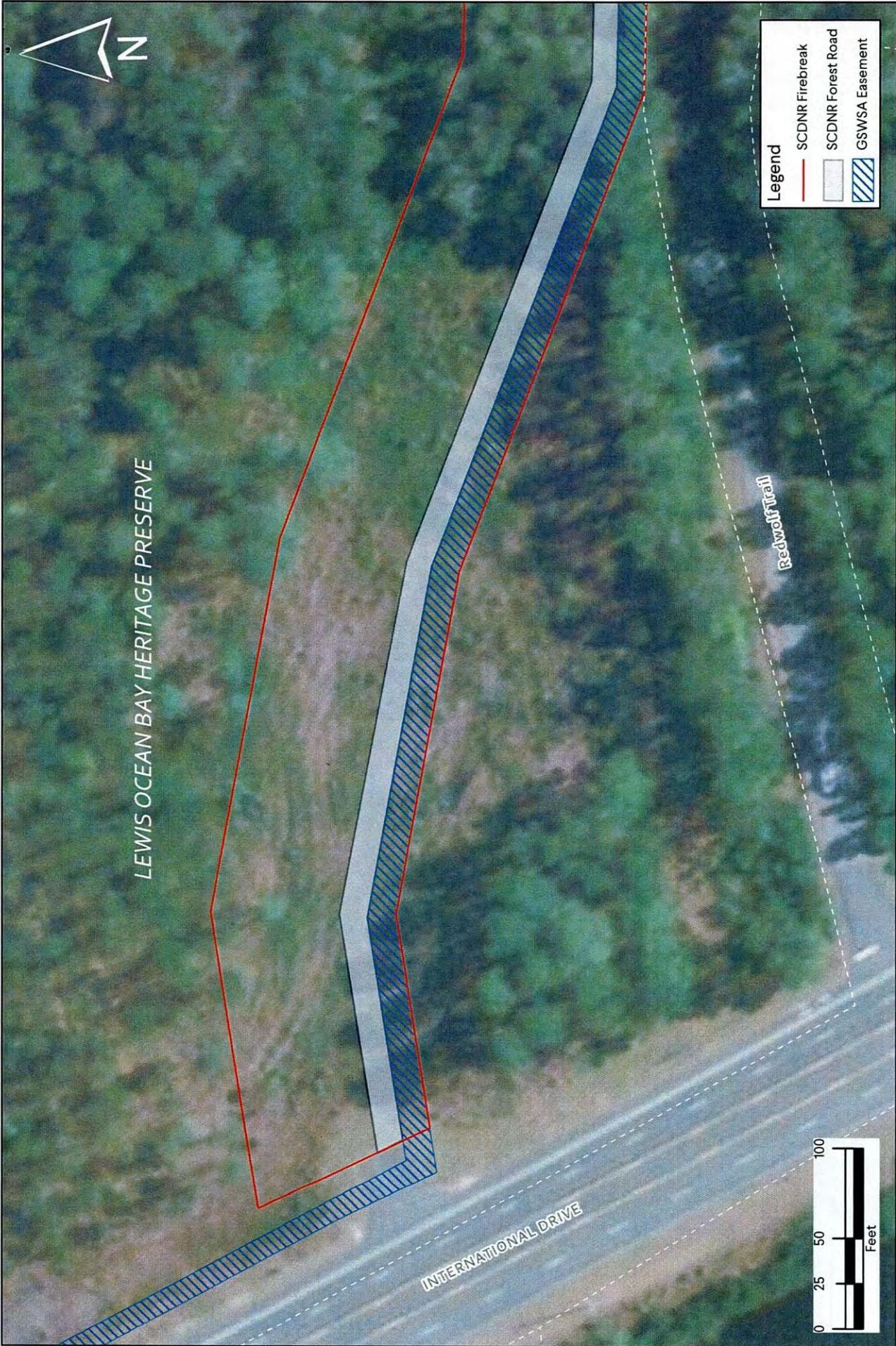
-  SCDNR Firebreak
-  SCDNR Forest Road
-  GSWSA Easement



EXHIBIT C
 Horry County, SC
 DATE: 5/4/2021



617 East McBee Avenue, Suite 200
 Greenville, SC 29601
 T 864.527.0460
 GMCNETWORK.COM



LEWIS OCEAN BAY HERITAGE PRESERVE

Legend

-  SCDNR Firebreak
-  SCDNR Forest Road
-  GSWSA Easement

Redwolf Trail

INTERNATIONAL DRIVE

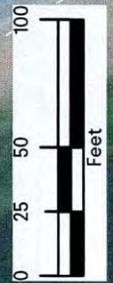


EXHIBIT D
 Horry County, SC
 DATE: 5/4/2021



617 East McBee Avenue, Suite 200
 Greenville, SC 29601
 T 864.527.0460
 GMCNETWORK.COM



617 East McBee Avenue, Suite 200
 Greenville, SC 29601
 T 864.527.0460
 GMCNETWORK.COM



EXHIBIT E
 Horry County, SC
 DATE: 5/3/2021

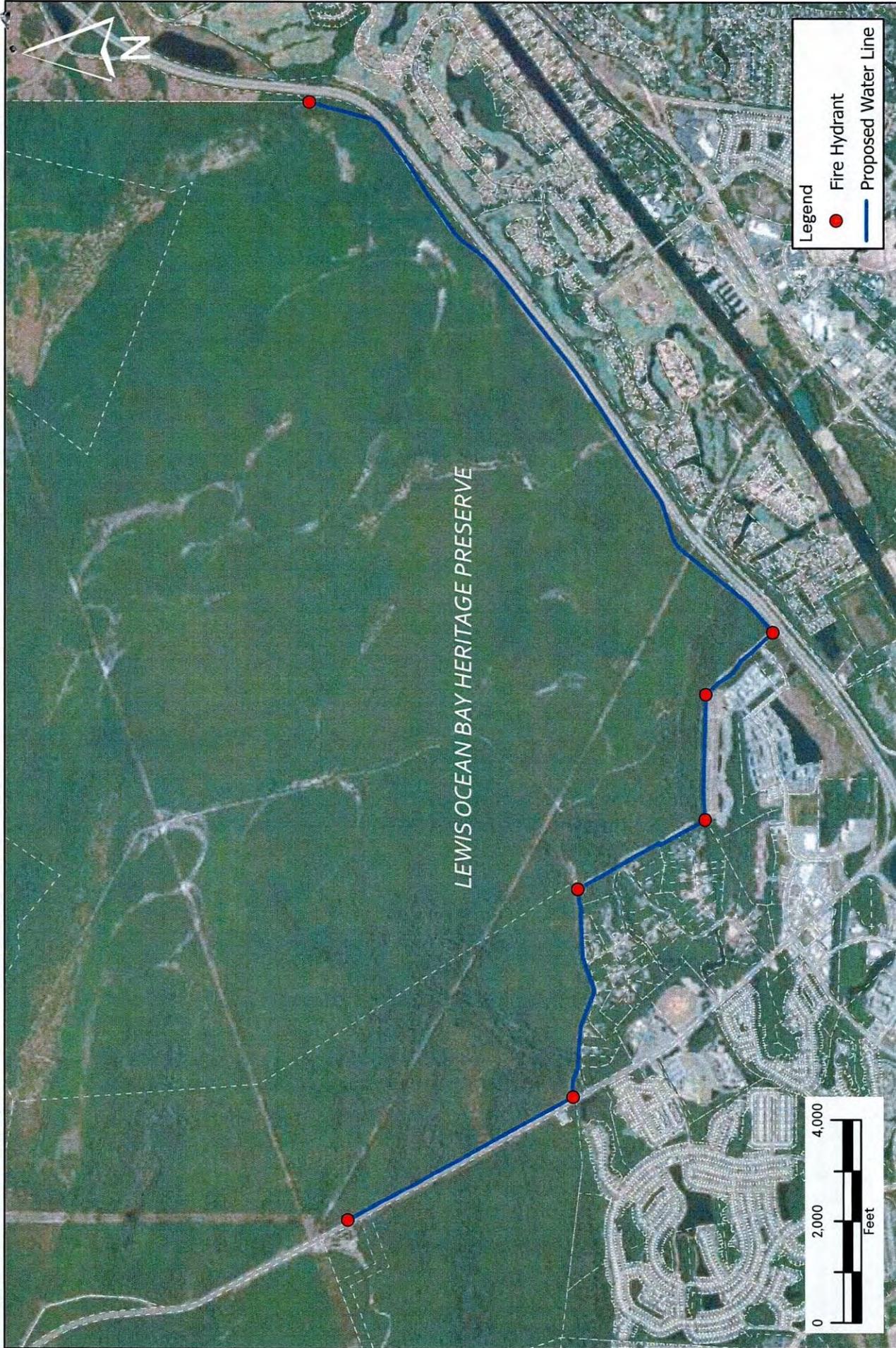


EXHIBIT F
 Horry County, SC
 DATE: 5/3/2021



617 East McBee Avenue, Suite 200
 Greenville, SC 29601
 T 864.527.0460
 GMCNETWORK.COM

STATE OF SOUTH CAROLINA)
)
COUNTY OF HORRY)

**CONTRACT FOR SALE OF
WATERLINE EASEMENT**
(Amended May __2021)

This CONTRACT FOR SALE OF WATERLINE EASEMENT ("the Contract") is made by and between the South Carolina Department of Natural Resources, an agency of the State of South Carolina, having an office at 1000 Assembly Street, Columbia, South Carolina 29201("GRANTOR"), and Grand Strand Water and Sewer Authority, a body corporate and politic of the State of South Carolina, having an office at 166 Jackson Bluff Road, Conway, SC 29526 ("GRANTEE"). This Contract reflects an amendment and total replacement of the August 20, 2020 Contract for Sale of Waterline Easement.

WITNESSETH THAT:

WHEREAS, GRANTOR owns fee title to 7,614 acres, more or less, of land in Horry County, South Carolina, generally identified as Tax Parcels 153-00-01-003, 154-00-01-002, 165-00-01-131, and 154-00-01-003, constituting a portion of Lewis Ocean Bay Heritage Preserve (LOBHP);

WHEREAS, the majority of the aforementioned tracts were acquired by GRANTOR with funds from the Heritage Land Trust Fund, are dedicated as a South Carolina Heritage Preserve, and placed in the corpus of the South Carolina Heritage Trust as authorized under the S.C. Heritage Trust Act, S.C. Code Ann. § 51-17-10, *et seq.* and are otherwise held subject to limitations of S.C. Code Ann. § 50-11-2200;

WHEREAS, the western boundary of the aforementioned tracts generally runs with International Drive and the southern boundary generally runs with Carolina Bay Parkway (State Highway 31), but the precise locations are defined by relevant deeds and plats of record;

WHEREAS, GRANTEE has requested an easement granting permission to cross over and upon a limited portion of the LOBHP being generally depicted on **Exhibit A** for the purposes of installing and maintaining a 36” waterline consistent with the public mission and purpose of GRANTEE pursuant to 1971 Act 337 but without asserting GRANTEE’s condemnation authority;

WHEREAS, GRANTOR, under limited circumstances, is authorized to grant easements pursuant to state law including Sections 1-11-65, 10-1-130, 10-1-135 and the Heritage Trust Act and GRANTEE, as a public entity possessing the power of condemnation, is eligible to receive the easement;

WHEREAS, GRANTEE has represented to GRANTOR and does hereby certify to GRANTOR the following with respect to the proposed easement:

- 1) the easement shall not materially impair the utility of or damage LOBHP

- considering existing or planned uses of LOBHP,
- 2) GRANTEE will pay to GRANTOR the appraised value of the easement,
 - 3) there is an important public necessity for the encroachment which is unavoidable and imperative,
 - 4) alternative routes or locations not on state property are neither prudent nor feasible, and
 - 5) GRANTEE shall mitigate the impacts upon LOBHP;

WHEREAS, the GRANTOR's Heritage Trust Advisory Board did vote on May __, 2021 to recommend granting an easement to GRANTEE, as described and conditioned herein;

WHEREAS, the GRANTOR's Board, sitting as Board of the Department and as trustee of the South Carolina Heritage Trust, did accept the recommendation of the Heritage Trust Advisory Board and voted on May __, 2021 to approve the granting of an easement to GRANTEE, as described and conditioned herein;

WHEREAS, GRANTEE has agreed, subject to the terms of this Contract, to construct and maintain the waterline and associated facilities within the proposed easement; and

WHEREAS, the Parties previously executed an August 20, 2020 Contract for Sale of Waterline Easement and have negotiated amendments embodied in this Contract and by mutual agreement do declare the August 20, 2020 contract to be terminated and void.

NOW THEREFORE, KNOW ALL MEN BY THESE PRESENTS, that for and in consideration of ten (\$10.00) dollars in hand paid by each party to the other and in further consideration of the mutual covenants and agreements herein contained, the parties agree as follows:

1. BASIC CHARACTERISTICS OF PROPOSED EASEMENT

The basic characteristics of the proposed easement contemplated by this Contract are set forth below but are subject to the complete terms of this Contract.

- a. *Easements.* This Contract provides for a waterline easement and associated temporary easements, as detailed herein.
 - i. *Waterline Easement.* The maximum width of the waterline easement will be fifteen feet (15'), inclusive of all use and impacts during maintenance. Along International Drive, this waterline easement will be located on the "shoulder" of the road between the road surface and the existing adjacent fence. Upon leaving International Drive, this waterline easement will be located as depicted in **Exhibit B** and otherwise will abut the outer boundary of LOBHP. Along Henry Road / Carolina Bay Parkway, GRANTEE understands the existing fence is not the boundary and will seek proper authorization from the S.C. Department of Transportation.
 - ii. *Temporary Waterline Construction Easement.* Except in locations where the waterline easement area immediately abuts wetlands, the GRANTEE shall also have, during

the initial construction of the waterline, a temporary waterline construction easement that is five feet (5') in width. In more limited locations as may be agreed upon in GRANTOR's discretion prior to the preparation of the easement plat (see paragraph 2 below), such temporary waterline construction easement areas may be expanded up to fifteen feet (15') in width.

- iii. Temporary Firebreak Clearing Easement (middle). As a mitigating activity supporting forest management needs of GRANTOR and consideration for this Contract, GRANTEE will undertake, at no cost to GRANTOR, the following firebreak clearing activities. Along the southern boundary of LOBHP between International Drive and Henry Road / Carolina Bay Parkway (State Highway 31) frontage, GRANTEE shall have a temporary construction easement to mechanically clear (mulched or removed from LOBHP) trees and woody vegetation (avoiding soil surface disturbance) from a one hundred foot (100') wide strip abutting the southern boundary of LOBHP as depicted in **Exhibit C**; however, GRANTOR may designate certain wetland areas or trees which shall not be removed or damaged if they are 8" DBH or larger and are outside of the waterline easement and temporary forest road easement. GRANTEE will provide initial field markings to delineate the 100' area and GRANTOR will mark trees and areas that will not be removed. These clearing activities should occur in conjunction with waterline construction to minimize disturbance (temporal and spatial) to LOBHP; however, the clearing activities may only be undertaken in August and between November 16 and February 28, unless otherwise approved by the GRANTOR, to avoid nesting season for a majority of migratory birds, RCW breeding season, and juvenile Southern Hognose snakes. This temporary firebreak clearing easement terminates upon completion of clearing activities or as otherwise provided in this Contract, whichever first occurs.

- iv. Temporary Forest Road Construction Easement. As a mitigating activity supporting forest management needs of GRANTOR and consideration for this Contract, GRANTEE will install, at no cost to GRANTOR, a road with a fourteen foot (14') wide travel surface constructed with adequate materials, crowning and side slope that is suitable to the site conditions and the current and future forest management needs of GRANTOR. The road must meet or exceed the S.C. Forestry Commission Forest Road Best Management Practices and U.S. Forest Service Forest Road Guidelines (see for example <https://www.nrs.fs.fed.us/fmg/nfmg/docs/mn/roads.pdf>). Except as depicted in **Exhibit D**, the road would abut the northern edge of the waterline easement from International Drive to Henry Road / Carolina Bay Parkway (State Highway 31) frontage before connecting to Henry Road. GRANTEE is responsible for all costs and efforts associated with the design, permitting, mitigation, procurement, and construction of this road. Appropriate bridging / culverts (bottomless or arched preferred) and associated floodplain culverts must be installed for crossing the headwaters of Black Creek and any other specific low areas treated with graveled fords to maintain existing hydrology. The road should be constructed in conjunction with waterline construction to minimize disturbance (temporal and

spatial) to LOBHP. Design plans, permit documentation, and mitigation plans shall be submitted prior to construction for review and approval by GRANTOR. Following completion of the waterline construction, the road should be free of any associated construction debris and graded / re-topped with gravel (addressing non-ford depressions / re-topped) to facilitate future forest management activities. The installation of this road is deemed by the State to be a permanent improvement project that will require special external approvals prior to construction.

- v. Temporary Firebreak Clearing Easement (Henry Road). As a mitigating activity supporting forest management needs of GRANTOR and consideration for this Contract, GRANTEE will undertake, at no cost to GRANTOR, the following firebreak clearing activities. In the southern corner of LOBHP (at southern end of Henry Road), GRANTEE shall have a temporary construction easement to mechanically clear (mulched or removed from LOBHP) trees and woody vegetation from a forty foot (40') wide strip abutting the eastern boundary of LOBHP as depicted in **Exhibit E**; however, GRANTOR may designate certain trees which shall not be removed or damaged if they are 8" DBH or larger and are outside of the waterline easement and temporary forest road easement. These clearing activities should occur in conjunction with waterline construction to minimize disturbance (temporal and spatial) to LOBHP; however, the clearing activities may only be undertaken in August and between November 16 and February 28, unless otherwise approved by the GRANTOR, to avoid nesting season for a majority of migratory birds, RCW breeding season, and juvenile Southern Hognose snakes.
- b. *Limited Use of Waterline Easement.* GRANTEE's use of the waterline easement is limited exclusively to the construction and maintenance of the proposed thirty-six inch (36") waterline and no other unrelated structures, activities, or purposes. For purposes of this limitation, the installation of fire hydrants within or immediately adjacent to the easement at the request of GRANTOR shall be deemed a related structure. The waterline must be located as close to the LOBHP boundary as possible and must be at a minimum depth of four feet (4') to the top of the pipe. GRANTEE may only make lawful use of the easement area and, except as expressly allowed pursuant to the terms of the easement, the easement area remains subject to the limitations applicable to LOBHP pursuant applicable laws and policies of the GRANTOR. The waterline easement shall not be deemed a gift or dedication of any portion of the waterline easement to the general public or for any general public use or purpose. Similarly, no rights, privileges or immunities will be provided under the waterline easement for the benefit of any third-party, nor shall any third-party be deemed to be a beneficiary of any of the provisions contained in the waterline easement.
- c. *Waterline Easement Duration.* The GRANTEE desires a permanent waterline easement but the default duration as established by the February 5, 2004 Budget and Control Board policy is a term of 50 years. Based on the substantial nature of the infrastructure proposed for installation and the level of disturbance in installing or removing it, the

GRANTOR will request in seeking the necessary external approvals that a permanent waterline easement be granted. However, GRANTEE acknowledges the duration of the waterline easement approved by the State Fiscal Accountability Authority (successor to Budget and Control Board) may be permanent or term limited. The GRANTEE shall be responsible for the maintenance and repair of all facilities constructed by or for the benefit of the GRANTEE upon the waterline easement area for the duration of the term. If a permanent easement is not authorized by the State Fiscal Accountability Authority, the GRANTEE shall promptly remove all facilities installed by or for the benefit of the GRANTEE following the termination of this waterline easement and restore the affected area to its original condition.

- d. *Reverter.* All easement rights shall revert and otherwise become void if GRANTEE (i) does not initiate construction of the waterline easement within five years after the waterline easement is executed or (ii) ceases to utilize the waterline easement as an operating waterline for a period of two years.
- e. *Non-exclusive Easement.* The easements under this Contract will not be for the exclusive use of GRANTEE and GRANTOR reserves all rights to utilize the easement area and to allow other users within the easement areas. Subject to the GRANTOR's management authority for LOBHP and merely as an example, other individuals potentially accessing the easement areas include GRANTOR's staff, GRANTOR's contractors, GRANTOR's vendors, adult and minor visitors to LOBHP, and other users which may be authorized by the GRANTOR to utilize LOBHP. The GRANTOR uses existing roads located within the easement area for property management purposes including prescribed fire access and control (*e.g.* - firebreaks and heavy equipment potentially operating in conditions with low visibility), wildfire response access, timber removal and other forest management activities (*e.g.* - regular use of heavy equipment) and GRANTEE's use of the easement must not diminish the GRANTOR's ability to use the easement area for these purposes. The above considerations and expectations of use shall also apply to the firebreak areas to be cleared.
- f. *Access to Waterline Easement.* Unless specifically agreed to as an amendment to the waterline easement, the waterline easement includes an incidental non-exclusive right of ingress and egress across LOBHP as conditioned by this Contract. The term of this right of access shall follow that of the waterline easement and is not independent of it. All access to the waterline easement area must be by way of public access points (*e.g.* - International Drive or Water Tower Road), existing LOBHP roadways, or where the easement directly enters and exists LOBHP (*e.g.* - each end of Henry Road). GRANTEE's ingress/egress rights are narrow. Aside from the Temporary Forest Road Construction Easement provided in this Contract, GRANTEE does not have permission to widen existing LOBHP roadways outside of the waterline easement area. Outside of the waterline easement area, GRANTEE may only use existing roads (inclusive of the forest road to be constructed under this Contract) for passage and not for parking or storage of equipment or materials. GRANTEE may not construct any gates or fences along or across the waterline easement area within LOBHP without the prior written permission of GRANTOR. Both parties acknowledge and agree that GRANTOR may

control the access to the waterline easement area by locked gates and such other measures reasonably necessary to prevent unauthorized access upon LOBHP. The parties will coordinate on interlocking or exchange of keys / codes to ensure that the other party has access consistent with the terms of the waterline easement. Both parties agree that such gates will be closed and locked at all times except when authorized for GRANTOR, GRANTEE, or their respective permittees limited needs of having the gate open. The parties will use reasonable efforts to prevent unauthorized access behind any gate. At such points where the waterline enters or exits LOBHP, the GRANTEE must establish an appropriate secure boundary (*e.g.* - fencing, gate(s), or otherwise) to prevent unauthorized access onto LOBHP.

2. GRANTEE PREREQUISITES TO CONVENYANCE OF PROPOSED WATERLINE EASEMENT

These prerequisites must be completed to the satisfaction of GRANTOR prior to execution and conveyance of the waterline easement to GRANTEE. GRANTEE shall bear all costs associated with completing these items. The waterline easement and associated temporary easements, will incorporate the substantive terms of this contract.

- a. *Acquisition of Other Easements to Complete Project.* GRANTEE must obtain all necessary easements or rights-of-way for completion of the proposed waterline project from International Drive to the eastern end of LOBHP, including, but not limited to, permission from Horry County for encroachment into the easement it holds along International Drive.
- b. *Preparation of Easement Plat.* GRANTEE shall cause a surveyor, duly licensed in the State of South Carolina, to prepare a recordable survey of the easement area with the surveyor certifying on the face of the plat the actual net acreage contained in the waterline easement to the nearest one- hundredth of an acre. Furthermore, the plat must depict any infrastructure proposed to be installed by GRANTEE and must contain state plane coordinates at least every 1,000 feet along the length of the waterline easement and located at the closest vertex. GRANTEE shall provide a draft of the plat to GRANTOR for review prior to it being finalized or recorded. A copy of the final plat, signed and sealed, shall be provided to GRANTOR in both hardcopy and in native electronic file format, *e.g.* – CAD.
- c. *Appraisal of Easement.* GRANTEE will provide GRANTOR with an appraisal, prepared by a qualified appraiser, of the waterline easement, including any timber to be removed, and must pay GRANTOR for the appraised value of the easement upon transfer of the easement
- d. *Assistance in External Approvals.* To the extent the GRANTEE'S assistance or participation is necessary, GRANTEE will provide such assistance to GRANTOR in seeking such legally required approvals as may be required for granting the waterline easement and associated temporary easements, such as the Joint Bond Review Committee, Department of Administration, and State Fiscal Accountability Authority. GRANTEE shall be responsible for payment of any fees or charges assessed by the

external authorities, including but not limited to the administrative fee charged by the Department of Administration for easements (currently \$500) prior to conveyance of the waterline easement.

3. GRANTOR PREREQUISITES TO CONVEYANCE OF PROPOSED EASEMENT

As required by the state laws identified in the recitals, GRANTOR must seek certain external approvals prior to execution and conveyance of an easement to GRANTEE. Accordingly, it is clearly understood among the parties that GRANTOR shall have no authority to execute or convey an easement until the requisite external approvals are obtained. GRANTOR will make a reasonable good-faith effort to obtain such approvals but the lack of obtaining any such required approval shall not be a breach of this Contract. The specific approvals depend in part on the value of the waterline easement. However, the Department of Administration must review and approve the easement and additional approval may be required by the Joint Bond Review Committee and the State Fiscal Accountability Authority or their respective staff.

4. PREREQUISITES TO CONSTRUCTION

These prerequisites must be completed to the satisfaction of GRANTOR prior to initiation of any site preparation or construction activities within the waterline easement, temporary waterline construction easement, or temporary forest road construction easement. However, items b through e below are not required for that section of the waterline easement located within the existing International Drive highway easement (*i.e.* those segments situated on the shoulder of International Drive). Any mitigating actions required below shall first be detailed in writing by GRANTEE and must be completed prior to initiation of any site preparation or construction activities. The core elements of the mitigating actions (*e.g.* – location, timing, *etc.*) must first be approved by GRANTOR in order to address resource-specific considerations, public use, and GRANTOR’s management of LOBHP.

- a. *Red-cockaded Woodpecker (RCW) Assessment.* RCW are a federally and state endangered species and the assessment activities of the GRANTEE shall be performed in a manner that will meet or exceed the standards and protocols of the federal RCW recovery plan. GRANTEE, utilizing qualified individuals, will i) if pine trees 8” DBH or larger are to be removed, conduct a survey to identify cavity trees within 0.5 mile of the outer boundary of the tree removal area, ii) if construction activities or heavy equipment usage will occur within any easement during RCW breeding season (March 1 – July 31), conduct a survey to identify cavity trees within 200 feet of the outer edge of the waterline easement, temporary waterline construction easement, and temporary forest road construction easement, and iii) if warranted under the recovery plan based on cavity tree locations, conduct a red-cockaded woodpecker foraging habitat analysis for active RCW sites within any active foraging partition where habitat will be removed for the proposed easement and provide appropriate mitigation (*e.g.* – habitat improvement via mechanical clearing, installation of nest inserts, *etc.*) for any negative impacts reasonably anticipated. Cavity tree surveys must be completed no more than 180 days and no less than 30 days prior to the start of construction activities. At this time, at least five clusters appear to be within 0.5 mile of the proposed easement.

- b. *Cultural Resources Assessment.* GRANTEE will conduct a systematic evaluation/

inventory of cultural resources within the waterline easement, temporary waterline construction easement, and temporary forest road construction easement, conduct appropriate data recovery for identified resources, and provide to GRANTOR interpretive materials associated with all finds. Any cultural resources recovered in this assessment must be documented appropriately and given to GRANTOR.

- c. *Evaluation of Wildlife Impacts.* GRANTEE will evaluate the unique habitats (such as wetlands, etc.) within the waterline easement, temporary waterline construction easement, and temporary forest road construction easement for any special impacts to federally and state designated rare (pursuant to applicable laws or State Wildlife Action Plan), threatened, and endangered wildlife species and propose additional mitigation actions appropriate to the context.
- d. *Relocation of Sensitive Plants.* GRANTEE will conduct a survey for federally and state designated rare, threatened, and endangered plants (pursuant to applicable laws or State Wildlife Action Plan), and relocate such sensitive plants from the waterline easement, temporary waterline construction easement, and temporary forest road construction easement to a GRANTOR-approved location utilizing qualified and GRANTOR-approved individuals.
- e. *Evaluation and Pretreatment of Noxious/Exotic Plant Species.* GRANTEE will conduct a survey of commonly recognized noxious/exotic plant species within the waterline easement, temporary waterline construction easement, and temporary forest road construction easement. GRANTEE will plan and execute, following GRANTOR approval, a pretreatment of commonly recognized noxious/exotic plant species within the above easement areas in order to minimize the spread of such species during construction. GRANTEE must identify any herbicide proposed for use and must obtain written approval from GRANTOR prior to applying it within the above easement area. Proposed herbicides must be as species-specific as possible and use of wide-spectrum or soil active herbicides is not favored.
- f. *Formerly Used Defense Sites.* GRANTEE will be responsible for consulting with the U.S. Army Corps of Engineers to determine if any of the proposed easement areas are a Formerly Used Defense Site and if GRANTEE needs to undertake any special actions to address FUDS elements while utilizing the easements.
- g. *Jurisdictional Wetlands Determination.* GRANTEE will conduct a wetlands delineation and have a jurisdictional determination made by the U.S. Army Corps of Engineers for the waterline easement, temporary waterline construction easement, and temporary forest road construction easement. GRANTEE will provide GRANTOR with a copy (hardcopy and CAD/GIS electronic files) of the delineation boundaries and the jurisdictional determination.
- h. *Permits.* GRANTEE must obtain all necessary federal, state, and local permits / certifications / authorizations for the entire waterline project prior to initiation of any site preparation or construction activities and will provide copies of all such permits

concerning the work under this Contract/easements to GRANTOR.

- i. *Construction Schedule Consultation.* GRANTEE will develop the construction schedule, inclusive of all site preparation activities, in consultation with and subject to approval of the GRANTOR. Considerations which will be incorporated into the schedule include, but are not limited to, hunting seasons at LOBHP, prescribed fire activities, closure periods for sensitive flora and wildlife protection, and other factors relevant to GRANTOR'S management of LOBHP.
- j. *GRANTEE Staff and Contractor Training.* GRANTEE will conduct training for all GRANTEE staff and contractors working within the easements to inform them of the conditions associated with the construction and maintenance of the waterline and easement areas. Such training would include notification that wildlife upon LOBHP is protected.

5. CONSTRUCTION REQUIREMENTS.

In addition to any regulatory requirements or those otherwise required, GRANTEE will incorporate the following elements into its construction plans and perform them in its construction activities in the waterline easement, temporary waterline construction easement, and temporary forest road construction easement. With respect to temporary firebreak clearing activities, conditions a(iv), (v) and (vi); b; f and g below apply.

- a. *General Best Management Practices.*
 - i) Prior to beginning any land disturbing activity, appropriate erosion and siltation control measures (*i.e.* silt fences, tubing, or barriers) must be in place and maintained in a functioning capacity until the area is permanently stabilized. Erosion control measures must be carefully installed to also serve as a temporary barrier to wildlife entering the construction zone.
 - ii) Materials used for erosion control (*e.g.*, hay bales or straw mulch) must be weed free, as demonstrated by a supplier certification.
 - iii) Inspecting and ensuring the maintenance of temporary erosion control measures must be performed at least:
 - (1) on a daily basis in areas of active construction or equipment operation;
 - (2) on a weekly basis in areas with no construction or equipment operation; and
 - (3) within 24 hours of each 0.5 inch of rainfall; ensuring the repair of all ineffective temporary erosion control measures within 24 hours of identification, or as soon as conditions allow if compliance with this time frame would result in greater environmental impacts.
 - iv) All necessary measures must be taken to prevent the discharge of oil, trash, and other pollutants into LOBHP.
 - v) Once the project is initiated, it must be carried to completion in an expeditious manner to minimize the period of disturbance to the environment.

- vi) Except for areas where it is necessary, trees and shrubs must be cut flush with the ground surface with root structures left intact. Cut vegetation must be hauled off-site to an appropriate lawful disposal facility.
- vii) All excavations must be backfilled to preconstruction elevations with the excavated material after installation of the appropriate structures. When working adjacent to any wetland or stream, sidecast spoil material from trench excavation must be placed on the side of the trench opposite the streams or wetlands. Spoil material from trench excavation must be placed on the side of the trench to be reused as backfill with the A-horizon placed back in its original position. Excess spoil material must be removed to an approved upland disposal site. Excavated material that is not returned to the source location will not be deposited on LOBHP outside of the easement area.
- b. *Clean Equipment.* All construction equipment entering LOBHP must first be steam cleaned to remove any seeds or other vectors which could threaten the LOBHP ecosystem or otherwise introduce noxious / exotic species. GRANTEE must provide at least 24-hours advanced notice to GRANTOR of equipment arriving at the site so that GRANTOR may inspect, if it so desires, such equipment. GRANTOR may refuse entry for equipment that is not clean.
- c. *Excavation and Clean Fill Materials.* No excavation may be made upon LOBHP outside of the waterline easement, temporary waterline construction easement, or temporary forest road construction easement and any fill materials must be clean and free of waste, contaminants, and seeds. GRANTEE shall not apply any “slag” on LOBHP.
- d. *Horizontal Directional Drilling.* Horizontal Directional Drilling (HDD) shall be a limited method of installation to minimize surface impacts to both wetland and upland resources and such locations shall first be reviewed and approved by the GRANTOR. Wetlands that may unavoidably be impacted must be appropriately mitigated. Recognizing that inadvertent releases occasionally occur during HDD, GRANTOR will develop a HDD contingency and inadvertent release plan prior to undertaking any HDD activities. Among others, such a plan shall include the following elements:
 - i. Erecting appropriate sediment control structures between the drill site and nearby sensitive resources to prevent drilling mud releases from reaching the resource.
 - ii. Conducting regular, on-site briefings for personnel to identify and locate sensitive resources at the site.
 - iii. Maintaining necessary response equipment either on-site or at a readily accessible location and in good working order.
 - iv. Provide for a full-time, qualified on-site mud engineer to continuously monitor the drilling fluid circulation and returns as a preventative measure.
- e. *Terrestrial Wildlife Protection.* Any open trench must be temporarily fenced (properly installed erosion control measures or other barriers surrounding the entire active work area) to reduce the likelihood of wildlife becoming trapped and must include a ramped

section which would allow wildlife to escape. GRANTEE must make a daily visual inspection of every open trench section to identify any trapped wildlife in need of rescue and seek guidance and approval from GRANTOR for proper removal.

- f. *Red-cockaded Woodpecker (RCW) Protection* – If any RCW cavity trees are located within 200 feet of the any easement area, GRANTEE may not operate heavy equipment within 200 feet of a cavity tree during the period of March 1 through July 31. Furthermore, no activities potentially causing soil compaction or root damage to cavity trees (including operation of heavy equipment) may occur within 50 feet of cavity trees.
- g. *Timber Mats*. To minimize soil compaction in wetlands, GRANTEE must use timber mats under heavy construction equipment within the wetlands of all easement areas. All mats must first be steam cleaned before being placed on LOBHP to remove any seeds or other vectors which could threaten the LOBHP ecosystem or otherwise introduce noxious / exotic species. GRANTEE must provide at least 24-hours advanced notice to GRANTOR of timber mats arriving at the site so that GRANTOR may inspect, if it so desires, such mats. GRANTOR may refuse entry for mats that are not clean.
- h. *Revegetation*. GRANTEE must promptly revegetate any disturbed areas within the waterline easement, temporary waterline construction easement, and temporary forest road construction easement with native plant species (preference for native warm-season grasses and/or pollinator mixes) first approved by the GRANTOR and appropriate for the specific location.
- i. *Fire Hydrant Installation*. At no cost to GRANTOR, GRANTEE shall install and maintain on LOBHP, for the benefit of GRANTOR, seven freeze-proof fire hydrants (containing at least two hose and one pumper nozzle) along the length of the easement (two on the LOBHP side of International Drive, three at interior road junctions between International Drive and Henry Road, and one on each end of Henry Road within LOBHP) as depicted on **Exhibit F**. The hydrants shall be located on the outermost edge of the waterline easement area (*i.e.* - toward exterior boundary of LOBHP) and shall be situated in a manner that will not obstruct any roadways or other operational needs of the GRANTOR. The GRANTOR must approve the specific locations proposed by GRANTEE. In addition to the appraised value of the waterline easement, the installation, maintenance, and GRANTOR's use of such hydrants at no charge to GRANTOR shall be deemed additional consideration benefitting GRANTOR and supporting wildfire control at LOBHP.
- j. *Concrete Boundary Marker Installation*. At no cost to GRANTOR, GRANTEE shall install permanent concrete boundary monuments (at least 4" x 4" x 2' (above ground)) at fifty foot (50') intervals along the GRANTOR's property boundary between International Drive and Henry Road / Carolina Bay Parkway unless GRANTOR determines less are needed.

6. POST-CONSTRUCTION OBLIGATIONS.

Following the completion of the construction activities, GRANTEE shall have the following

obligations.

- i. *Signs*. GRANTEE shall post GRANTOR-approved signs informing GRANTEE staff and agents of special conditions associated with the waterline easement and management of it.
- ii. *Noxious Weed Control*. For three years following completion of construction, GRANTEE will be responsible for controlling / eradicating any noxious or exotic vegetation discovered within the waterline easement, temporary waterline construction easement, temporary forest road construction easement, and temporary firebreak clearing easement . All actions must first be approved by GRANTOR to take into consideration the sensitivity of LOBHP and its native vegetation. GRANTEE must identify any herbicide proposed for use and must obtain written approval from GRANTOR prior to applying it within the affected areas. Proposed herbicides must be as species-specific as possible and use of wide-spectrum or soil active herbicides is not favored.

7. MAINTENANCE AND ADAPTIVE MANAGEMENT.

- a. *Maintenance Schedules and Activities*. GRANTEE must obtain approval from GRANTOR for the schedule and activities used to maintain the waterline easement area and water line infrastructure. Such activities shall be subject to the following conditions.
 - i) Use of herbicides generally will not be approved unless necessary for eradicating a noxious weeds and special considerations will be made to protect sensitive species. GRANTEE must identify any herbicide proposed for use and must obtain written approval from GRANTOR prior to applying it within the waterline easement area. Proposed herbicides must be as species-specific as possible and use of wide-spectrum or soil active herbicides is not favored.
 - ii) Maintenance clearing or mowing of the waterline easement area shall only occur in August and between November 16 and February 28 to avoid nesting season for a majority of migratory birds, RCW breeding season, and juvenile Southern Hognose snakes, a state threatened species. The mower deck must be set no lower than 8 inches high to prevent bird injury or damage to native herbaceous vegetation.
 - iii) If clearing must occur, vegetation within wetlands or waters of the U.S. must be conducted manually and low growing, woody vegetation and shrubs must be left intact to maintain bank stability and reduce erosion.
 - iv) Following construction of the waterline and associated infrastructure, GRANTEE shall not store materials or equipment within the waterline easement area.
- b. *Signs*. GRANTEE must maintain the GRANTOR-approved signs informing GRANTEE staff and agents of special conditions associated with the waterline easement and management of it.
- c. *Sensitive Species*. The management of the waterline easement and waterline

infrastructure is subject to modification based on discovery/migration or any new listing of federal or state endangered, threatened, rare, or species of concern (pursuant to applicable laws or State Wildlife Action Plan) using or potentially in or adjacent to the waterline easement.

- i) If future active red-cockaded woodpecker cavity trees are found within 200 feet of the waterline easement, then heavy machinery access through the corridor will not be permitted from March 1 through July 31 to avoid disturbance during breeding season. Furthermore, no activities potentially causing soil compaction or root damage to cavity trees (including operation of heavy equipment) may occur within 50 feet of cavity trees.
 - ii) Heavy equipment access through the waterline easement will not be permitted from September 1 through November 15 to avoid harming juvenile Southern Hognose snakes, a state threatened species.
- d. *Monitoring vehicles.* Monitoring of the waterline easement and water line infrastructure by GRANTEE must be by the least damaging means possible. For any segment of the waterline easement not maintained as a road or firebreak by GRANTOR, inspection on foot, by tracked equipment with low ground pressure, or aerial means are preferred over other means.

8. GRANTEE ACKNOWLEDGEMENTS, REPRESENTATIONS, RELEASES, AND WARRANTIES

As introduced in the recitals above, GRANTEE acknowledges the LOBHP is a unique public resource that holds special legal protections and is managed to maximize conservation of natural resources. GRANTEE provides the following acknowledgements, representations, releases, and warranties, respectively:

- a. *Minimization of Wetlands Impacts.* GRANTEE acknowledges that its plan to construct and maintain a waterline and associated facilities will impact wetlands within the jurisdiction of both federal and state agencies. GRANTEE acknowledges and covenants that this Contract does not replace or supplant any requirements of federal or state regulatory agencies with jurisdiction over affected wetlands or the GRANTOR's right to comment on applications related to such regulatory authorizations.
- b. *Endangered Species Habitat.* GRANTEE recognizes that endangered or threatened flora and fauna are present on LOBHP. GRANTEE acknowledges and covenants that it must consult with the United State Fish and Wildlife Service to determine and ensure compliance with the Endangered Species Act, 16 U.S.C. § 1531, *et seq.* and comply with S.C. Code Section 50-15-10, *et seq.*
- c. *Forest Management and Prescribed Fire.* GRANTEE acknowledges and understands that the ecology of the LOBHP is fire dependent. Much of the flora and fauna at LOBHP including, but not limited to, longleaf pine (*Pinus palustris*), Venus flytrap (*Dionaea muscipula*), and red-cockaded woodpecker (*Picoides borealis*), require periodic burning

to provide necessary habitat for survival. To maintain this habitat, GRANTOR periodically will undertake prescribed burns over various portions of the LOBHP. Furthermore, the GRANTOR uses existing roads located within the waterline easement area for property management purposes including prescribed fire access and control, wildfire response access, timber removal and other forest management activities and GRANTEE's use of the waterline easement and access through LOBHP must not diminish the GRANTOR's ability to use the waterline easement area for these purposes.

- d. *Site Conditions.* GRANTOR makes no warranties as to the current state of LOBHP, the easement areas, or their accessibility or likely future condition. GRANTEE acknowledges that LOBHP and the easement areas will be used for a wide range of activities, including but not limited to the use of heavy vehicles and for forest management activities. The GRANTEE acknowledges that it has inspected the LOBHP and the easement areas, knows the conditions, and understands that access and use of LOBHP and the easement areas are to be granted without any representation or warranties whatsoever and without any obligation on the part of the GRANTOR.
- e. *Formerly Used Defense Sites.* GRANTEE acknowledges that portions of LOBHP are designated by the U.S. Army Corps of Engineers as Formerly Used Defense Sites. GRANTEE will be responsible for consulting with the U.S. Army Corps of Engineers to determine if any of the proposed easement areas are a Formerly Used Defense Site and if GRANTEE needs to undertake any special actions to address FUDS elements while utilizing the easements. GRANTEE will bear all risks associated with any portion of the easements being within a FUDS.
- f. *Vehicles and Equipment.* As to any vehicle or equipment under the control of GRANTEE and traveling upon LOBHP, GRANTEE represents and warrants that each vehicle and equipment travelling upon LOBHP is properly maintained and possesses all necessary safety features and equipment for safe operation upon public roadways or the respective lawful context. GRANTEE further represents and warrants that all drivers/operators of vehicles and equipment utilized upon LOBHP are properly trained and supervised to ensure safe operation.
- g. *Liability Release and Waiver.* The GRANTEE acknowledges on behalf of itself and its agents, who may not be minors, that it voluntarily sought to undertake the activities permitted herein with full knowledge of the hazards associated with LOBHP, including but not limited to environmental and wildlife hazards and variable road conditions, and assumes the risks associated with such. GRANTEE expressly accepts responsibility for its acts, errors, and omissions and releases the State of South Carolina, including GRANTOR, from all claims and damages associated with this Contract or the activities anticipated thereunder.
- h. *Liens or Fees.* GRANTEE has no authority to allow any liens, fees, or claims to attach to LOBHP. GRANTEE shall keep the easement areas and LOBHP free from liens arising in any manner out of the activities or infrastructure of GRANTEE and shall promptly discharge any such liens that are asserted. Furthermore, GRANTEE shall be

responsible for any governmental fees arising in any manner out of the activities or infrastructure of GRANTEE and shall promptly discharge any such fees that are asserted.

- i. *Hazardous Materials.* The GRANTEE shall not cause, permit, or allow any hazardous substances to be generated, used, stored, or disposed upon LOBHP, subject only to the following exceptions. GRANTEE may utilize hazardous substances 1) in properly maintained equipment that is necessary for the construction or maintenance activities allowed by this easement when such substances are necessary for the basic operation of such equipment (*e.g.* gasoline, diesel, and hydraulic fluid), and 2) that are legally authorized herbicides to the extent such substance is otherwise allowed under the easement. These limited allowances of use do not excuse any uncontrolled spill or release of a hazardous substance upon LOBHP. If any hazardous substances are generated, used, stored, or disposed of on LOBHP, or if LOBHP becomes contaminated for which the GRANTEE's contractor is deemed legally liable, the GRANTEE's contractor shall indemnify, defend, and hold harmless the GRANTOR for any and all claims, damages, fines, judgments, penalties, costs, liabilities, or losses, including without limitation diminution of value or adverse impact on marketability of LOBHP, and any and all sums paid for settlement of claims, attorney's fees, consultant's fees, or expert witness' fees arising from such contamination or legal liability of the GRANTEE's contractor. This indemnification includes without limitation any and all costs incurred because of any investigation, clean-up, removal, or restoration required by any state, federal, or local agency or political subdivision. Furthermore, if the GRANTEE causes, permits, or allows the presence of any hazardous substance resulting in contamination on LOBHP, the GRANTEE shall and at its own expense take any and all actions necessary to restore LOBHP to the condition existing before such contamination; provided however that the GRANTEE shall first obtain the GRANTOR's approval for such remedial action. As used herein, the term "hazardous substance" means any substance that is toxic, ignitable, reactive, or corrosive, and which is regulated by any state, federal, or local governmental authority; and specifically includes without limitation any and all materials or substances that are defined as "hazardous waste", "extremely hazardous waste", or "hazardous substance" pursuant to state, federal, or local law; and also specifically includes without limitation asbestos, petroleum, and polychlorinated biphenyls ("PCBs"). The indemnification and hold harmless commitments above shall apply to the GRANTEE to the maximum extent allowable by law.

9. INDEMNIFICATION BY GRANTEE'S CONTRACTORS.

GRANTEE's contractors must indemnify and hold harmless the State of South Carolina and GRANTOR, its employees, agents, invitees, or contractors, from and against any and all liability, damage, expense, claims, liens or judgments, including reasonable attorneys' fees, resulting from injury to person or damage to property resulting from or in any fashion arising out of the negligent acts, errors or omissions of GRANTEE's contractors respective agents, employees, volunteers, or invitees upon the LOBHP. GRANTEE must require any contractor entering LOBHP under the permission of this Contract to agree to and be bound by the terms of this Contract whereby the contractor will indemnify the State of South Carolina and GRANTOR.

10. INSURANCE.

GRANTEE shall obtain and maintain during the term of this Contract and easement liability insurance coverage with the Insurance Reserve Fund or comparable coverage. GRANTEE must require any contractor entering LOBHP under the permission of this Contract to obtain and maintain insurance applicable to the proposed activities of said contractor and in a form generally acceptable in South Carolina as detailed below. Coverage requirements shall be as follows and have an AM Best's Key Rating Guide of A or better rating:

- a. Commercial general liability insurance to include minimum limits of one million dollars per occurrence and five million dollars annual aggregate combined single limit bodily injury, death, and property damage. Extension of coverage to include comprehensive form, premises and operations, contractual liability, products and completed operations, independent contractors, personal injury, broad form property damage, cross liability, and pollution. Additionally, the policy shall not exclude X, C or U (explosion, collapse, or underground).
- b. Comprehensive automobile liability insurance covering owned, non-owned, hired and other vehicles, with a combined single limit of one million dollars per occurrence combined single limit bodily injury, death and property damage.
- c. The policies specified above shall include an endorsement which shall name GRANTOR as an additional insured on a primary basis for the term of the temporary commercial use.
- d. All liability coverages must be on an "occurrence" basis as opposed to "claims made."
- e. If requested by GRANTOR, GRANTEE's contractors must furnish to GRANTOR a certificate of insurance dated and signed by a stated, authorized agent for the insuring company or companies, containing a representation that coverage of the types listed in above is provided with the required liability limits and the stated endorsements.

11. PROTECTION AND RESTORATION OF PROPERTY.

Other than the specific actions detailed in this Contract, any property of the GRANTOR that is damaged or destroyed by the GRANTEE, inclusive of its agents, incident to the terms of the Contract shall, following GRANTEE's approval of a corrective action plan prepared by GRANTEE, be promptly repaired or replaced by the GRANTEE to a condition satisfactory to GRANTOR. Upon concluding all construction activities, GRANTEE, at GRANTEE's sole expense, shall restore all existing roads within LOBHP that were utilized by GRANTEE, including any grading / crowning and surfacing, to conditions exceeding those as of the date of this Contract. Specifically, GRANTEE shall apply sufficient gravel to low sections (*e.g.* – water holding, washout, rutted, *etc.*) of Henry Road to ensure it can withstand additional traffic of GRANTEE. Any materials needed for GRANTEE's maintenance or restoration obligations may not be obtained from LOBHP and must be provided by GRANTEE; such materials shall be clean and appropriate for the intended use. Additionally, the GRANTEE shall exercise due diligence in the protection of LOBHP against fire or damage from any and all other causes and shall be responsible for any damage that may be caused to LOBHP by the acts or omissions of

the GRANTEE. Any such damage shall be promptly repaired by GRANTEE at GRANTEE's expense to a condition satisfactory to GRANTOR.

12. HISTORIC PRESERVATION.

With the limited exception of GRANTEE's compliance with paragraph 4(b) above, the GRANTEE shall not remove or disturb or cause or permit to be removed or disturbed any historical, archaeological, architectural or other cultural artifacts, relics, remains, or objects of antiquity. In the event such items are discovered on LOBHP, the GRANTEE shall immediately notify the GRANTOR and protect the site and material from further disturbance until the GRANTOR gives clearance to proceed.

13. GRANTEE ACCESS UNDER THIS CONTRACT.

Upon execution of this Contract by both parties, GRANTEE or its agents shall have temporary access to the proposed easement areas for the limited purpose of making necessary, appraisals, surveys, engineering studies, and environmental studies. GRANTEE's access pursuant to this paragraph must be coordinated at least 24 hours in advance with GRANTOR's LOBHP manager and any activities by GRANTEE that are not merely observational must be specifically approved by GRANTOR. GRANTOR reserves the right to deny access to GRANTEE if such access will interfere with specific management activities of GRANTOR. Access pursuant to this paragraph is a mere temporary, non-exclusive license and shall cease to exist upon conveyance of the waterline easement or termination of this Contract.

14. GRANT OF EASEMENT.

Following satisfactory completion of GRANTEE and GRANTOR prerequisites provided in paragraphs 2 and 3, GRANTOR will prepare an easement that is consistent with the terms of this Contract for the easement area generally represented in **Exhibit A** but more specifically delineated in the easement plat prepared pursuant to paragraph 2. The parties agree that the easement shall incorporate relevant terms of this Contract, specifically including those contained in paragraphs 1 and 4 through 12. Upon payment of the appraised value of the easement to GRANTOR by GRANTEE, the GRANTOR shall execute and deliver to GRANTEE for recording the easement proposed under this Contract.

15. NOTICE.

Except where otherwise provided in this Contract, all notices required or permitted to be given or delivered hereunder, shall be in writing and shall be effective only if delivered by personal delivery or by regular, registered or certified mail as follows:

If to GRANTOR:

Director
South Carolina Department of Natural Resources
PO Box 167
Columbia, South Carolina 29202

If to GRANTEE:

Chief of Operations

Grand Strand Water and Sewer Authority
166 Jackson Bluff Road
Conway, SC 29526

16. ASSIGNMENT.

GRANTEE may not assign this Contract or any interest therein without prior written consent of GRANTOR. Subject to the foregoing prohibition, the agreements, conditions, terms and provisions contained herein shall inure to the benefit of and shall be binding upon the parties hereto and their respective successors and assigns.

17. TERMINATION.

This Contract shall terminate if the prerequisites established in paragraphs 2 and 3 are not satisfactorily completed within five years after this Contract is executed. Otherwise, this Contract shall terminate upon the conveyance of the easement. Notwithstanding the foregoing, any provision of this Contract relating to the GRANTEE or its agents' liability, indemnification, and /or waiver / releases for negligent acts or omissions or responsibility for other incidents causing damage to LOBHP or GRANTEE occurring while this Contract is in effect shall survive the termination and remain in full force and effect.

18. ENTIRE AGREEMENT.

This Contract consists of this instrument and the attached **Exhibits** A through F which are incorporated herein by reference. All prior understandings and agreements between the parties or their respective agents are merged into this Contract, which alone fully and completely expresses their agreement, and the same is entered into after full investigation, neither party relying upon any statement or representation not embodied in this Contract having been made by the other or made or furnished by any agent, employee, or other person representing or purporting to represent GRANTOR or GRANTEE.

19. APPLICABLE LAW.

This Contract shall be governed by and construed in accordance with the laws of the State of South Carolina.

20. EFFECTIVE DATE. This Contract will be effective after execution by authorized representatives of both the GRANTOR and GRANTEE.

{signature page follows}

It is so agreed.

South Carolina Department of
Natural Resources

Grand Strand Water and Sewer Authority

By: _____
Robert H. Boyles, Jr.
Director

By: _____
Name: _____

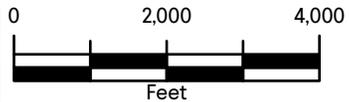
It's: _____

Date: _____

Date: _____



LEWIS OCEAN BAY HERITAGE PRESERVE



Legend
 Proposed Water Line

EXHIBIT A
 Horry County, SC
 DATE: 5/3/2021



617 East McBee Avenue, Suite 200
 Greenville, SC 29601
 T 864.527.0460
 GMCNETWORK.COM



EXHIBIT B
 Horry County, SC
 DATE: 5/3/2021



617 East McBee Avenue, Suite 200
 Greenville, SC 29601
 T 864.527.0460
 GMCNETWORK.COM



EXHIBIT C
 Horry County, SC
 DATE: 5/4/2021



617 East McBee Avenue, Suite 200
 Greenville, SC 29601
 T 864.527.0460
 GMCNETWORK.COM

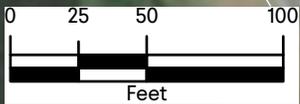


LEWIS OCEAN BAY HERITAGE PRESERVE



INTERNATIONAL DRIVE

Redwolf Trail



Legend

- SCDNR Firebreak
- ▒ SCDNR Forest Road
- ▨ GSWSA Easement

EXHIBIT D
Horry County, SC
DATE: 5/4/2021



617 East McBee Avenue, Suite 200
Greenville, SC 29601
T 864.527.0460
GMCNETWORK.COM

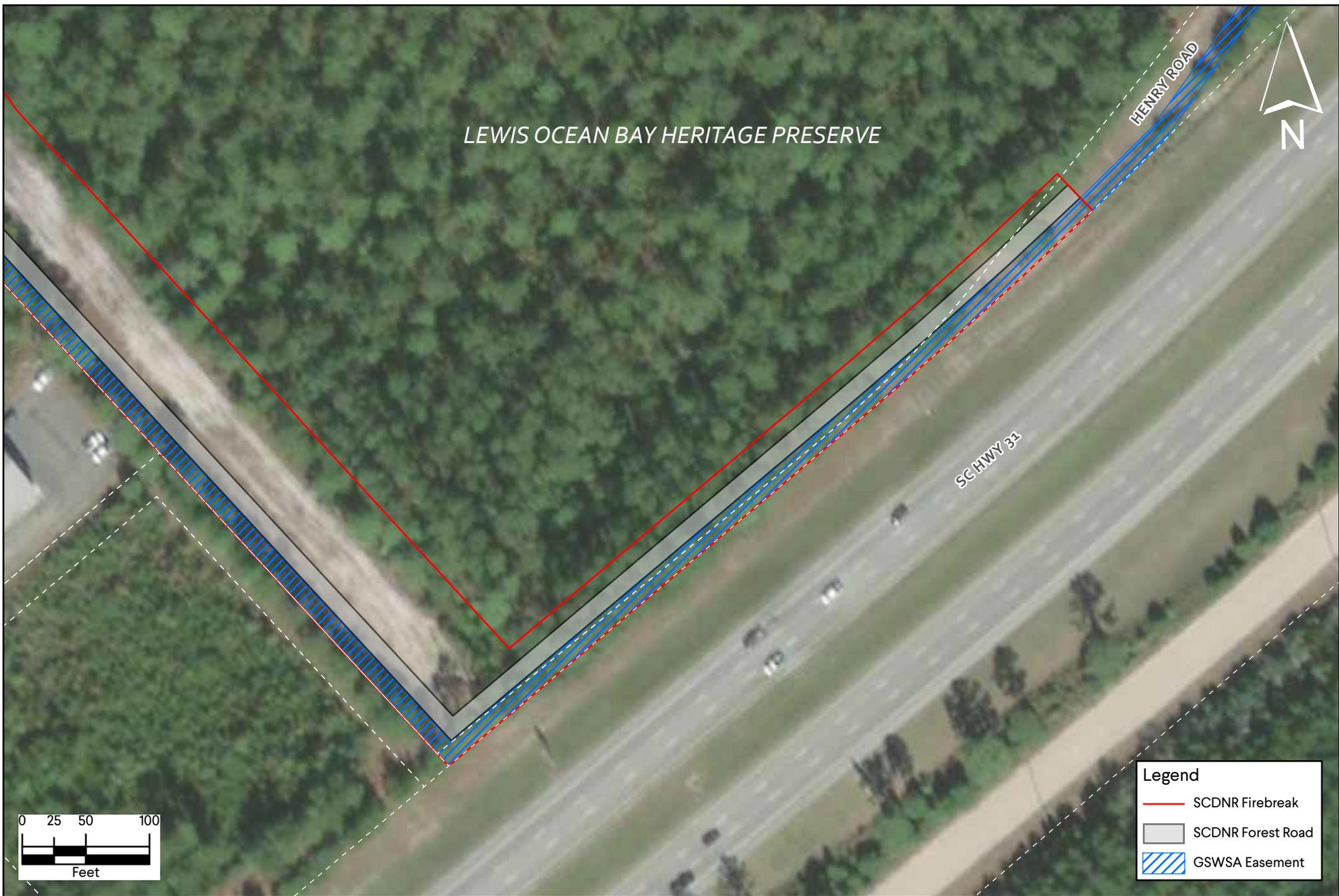


EXHIBIT E
Horry County, SC
 DATE: 5/3/2021



617 East McBee Avenue, Suite 200
 Greenville, SC 29601
 T 864.527.0460
 GMCNETWORK.COM

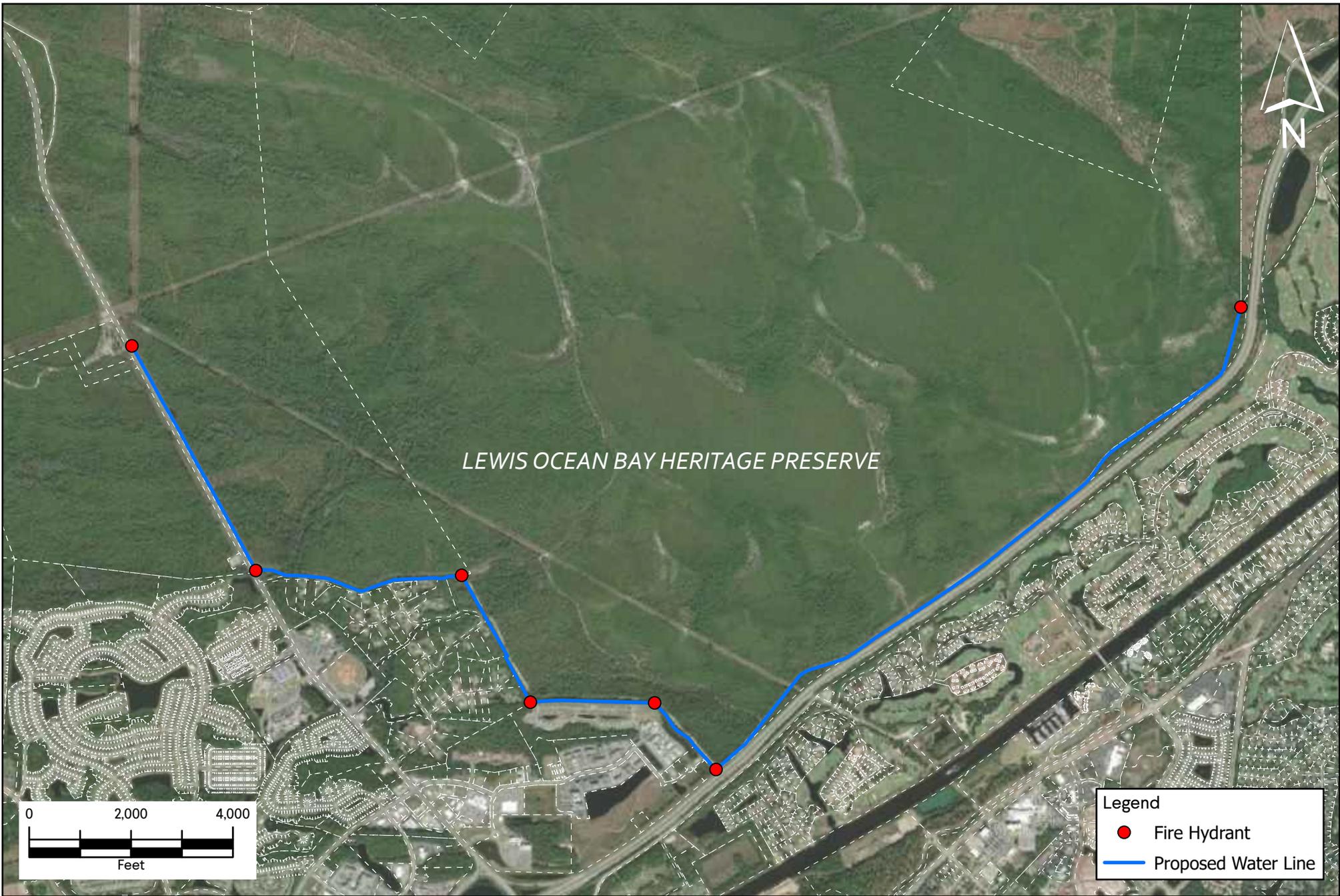


EXHIBIT F
 Horry County, SC
 DATE: 5/3/2021



617 East McBee Avenue, Suite 200
 Greenville, SC 29601
 T 864.527.0460
 GMCNETWORK.COM

WILDLIFE ENDOWMENT FUND

The Natural Resources Board, acting in its capacity as the Board of Trustees for the Wildlife Endowment Fund of the Department of Natural Resources, in accordance with Section 50-3-750 of the 1976 SC Code of Laws as amended, and in finding these uses are furthering the conservation of wildlife resources and the efficient operation of the Department does hereby authorize the following:

For the purpose of funding personal services (*i.e.* - salaries and wages), employer contributions (*i.e.* - health insurance, taxes, etc.) and other operating expenditures of the Hunting and Fishing License Section and other operating expenditures of the Marine Resources Operations Office, an amount not to exceed three hundred fifteen thousand dollars (\$315,000) of the income received and accruing from investments of the Wildlife Endowment Fund, may be expended during Fiscal Year 2021-2022.

Approved this 20th day of May, 2021.
On behalf of the Board of Trustees.

Norman F. Pulliam
Chairman, Board of Trustees

South Carolina Department of Natural Resources

1000 Assembly Street Suite 336
PO Box 167
Columbia, SC 29202



Robert H. Boyles
Director
Lorianne Riggan
Director, Office of
Environmental Programs

MEMORANDUM

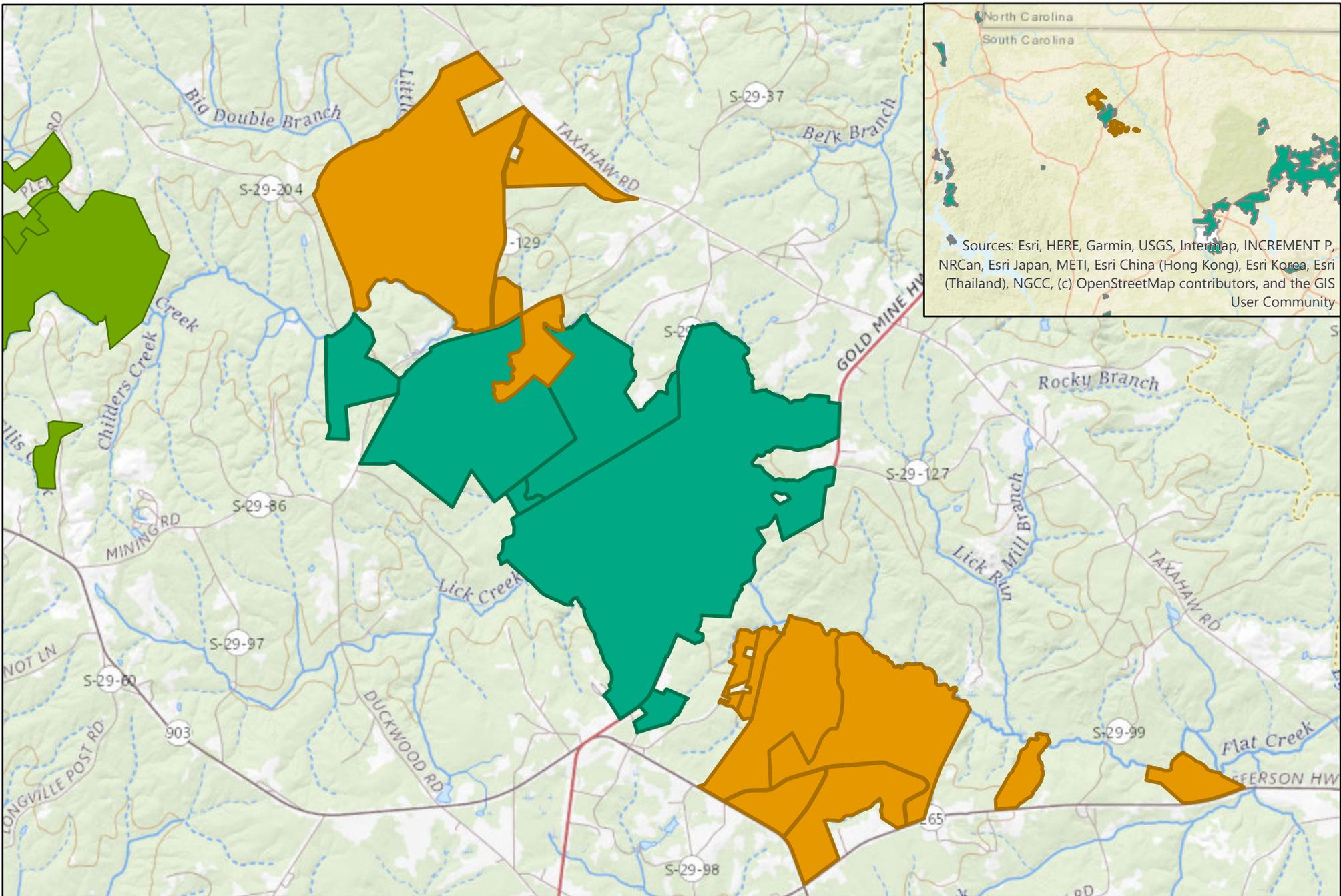
TO: DNR Board
FROM: Lorianne Riggan, Director, Office of Environmental Program, Executive Division
DATE: May 20, 2021
SUBJECT: Property Acquisition Lancaster County – Acceptance of Donation

SCDNR is seeking approval to acquire the following mitigation-related properties via donation.

Flat Creek Corridor Properties, Haile Gold Mine – 2,759.38 acres – Lancaster County

- The property is in the Flat Creek corridor, furthering protections adjacent to and downstream of the Forty Acre Rock Heritage Preserve and Wildlife Management Area in Lancaster County.
- The sites are currently a part of the proposed compensatory mitigation for the expansion of the Haile Gold Mine site.
- Haile Gold Mine intends to donate any parcels deemed solely as preservation to SCDNR following the approval of all necessary regulatory permits. As deemed necessary by the U.S. Army Corps of Engineers, tracts requiring restoration activities will be transferred following successful completion of the restoration and at the end of the required monitoring period. The total acreage to be donated will be 3,707.6 acres.
- The properties have a mosaic of cropland, pasture, woodland and forest. The intention of the mitigation package is to further protections on Flat Creek, U.S. Fish and Wildlife Service designated critical habitat for the federally endangered Carolina heelsplitter (*Lasmigona decorata*). Additionally, one of the tracts also has federally endangered black spored quillwort (*Isoetes melanospora*).
- Because of the unique geologic setting along the Carolina slate belt, several of the tracts have large boulders and rock outcrops.

Proposed Motion: Mr. Chairman, I move that the DNR Board approve the acquisition, by donation from Haile Gold Mine, of the Flat Creek Corridor Properties, a 2,759.38-acre compensatory mitigation package in Lancaster County to be dedicated as a Heritage Preserve and placed into the Corpus of the Heritage Trust Program as a part of the Forty Acre Rock Heritage Preserve, as recommended by the Heritage Trust Advisory Board, conditional upon the successful completion of all due diligence and approval by the U.S. Army Corps of Engineers, and authorize expenditure of up to \$20,000 in Heritage Trust Funds to conduct due diligence if needed.



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



**Flat Creek Properties
Haile Gold Mine Mitigation
Lancaster County**

SCDNR Managed Lands View

- Owned
- Leased
- Easement
- Other



Environmental Report



Office of Environmental Programs DNR Board Briefing Document – April 22, 2021

Office of Environmental Programs DNR Board Briefing Document – April 22, 2021

The following document lists ongoing major environmental permitting issues under review by staff of the South Carolina Department of Natural Resources (DNR). These projects have the potential for significant natural resource impacts. Comments submitted to the regulatory agencies since the last DNR Board meetings are attached. **New information is presented below in red.**

Inland Project Proposals

Atlanta to Charlotte Passenger Rail. Anderson, Cherokee, Greenville, Laurens, Oconee, Pickens, Spartanburg, Union and York Counties. See <http://www.dot.ga.gov/IS/Rail/AtlantatoCharlotte>.

The United States Department of Transportation - Federal Railroad Administration (USDOT-FRA) in cooperation with the Georgia Department of Transportation (GDOT) is preparing a Draft Tier 1 Environmental Impact Statement (DEIS) for the Atlanta to Charlotte Passenger Rail Corridor Investment Plan. The purpose of the project is to improve intercity passenger travel between Atlanta and Charlotte by expanding the region's transportation system capacity and improving trip time and reliability through highspeed passenger rail services. GDOT has selected three build alternatives and a no-build alternative for further evaluation in the Tier 1 EIS process. The Southern Crescent Alternative primarily follows the existing Norfolk Southern right-of-way (ROW) across South Carolina. The Interstate 85 Alternative is located primarily within the Interstate 85 ROW. The Greenfield Corridor Alternative is a 274-mile route primarily located on a new alignment across the state. DNR received the project on September 20, 2019 and provided comments on November 4, 2019. The USDOT - FRA and the GDOT reviewed comments received during the Tier 1 DEIS public comment period and selected the Greenfield Corridor Alternative as the Preferred Corridor Alternative. The Greenfield Corridor Alternative is a 274-mile route primarily on a new "greenfield" dedicated high-speed passenger rail alignment between CLT airport and Athens, GA, then following shared railroad ROW in the approaches to the Charlotte and Atlanta termini. This route serves three stations in North Carolina at Charlotte Gateway, CLT airport, and South Gastonia; two stations in South Carolina at GSP airport and Anderson; and five stations in Georgia in Athens, Suwanee, Doraville, downtown Atlanta (Georgia Multi-modal Passenger Terminal), and Hartsfield-Jackson Atlanta International Airport. In South Carolina, this corridor continues along a greenfield alignment for 65 miles passing east of Kings Mountain State Park to a route paralleling I-85, approximately 10 miles to the southeast, then diverging westward to a station near the GSP airport. From the GSP airport, this corridor returns eastward to a route paralleling I-85, approximately 15 miles to the east, for 50 miles to the state line at the Savannah River with a station in Anderson, SC. In addition to general concerns related to species and habitat fragmentation, DNR is particularly concerned that the proposed Greenfield alternative will cross both an existing mitigation bank, a proposed mitigation bank and a scenic river corridor. Portions of the existing Big Generostee Creek Mitigation Bank are located in the project corridor near SC Highway 187 in Anderson County and the project corridor crosses the proposed Minkum Creek Mitigation Bank including the main stem and several tributaries of Minkum Creek in Cherokee County. The Greenfield alternative will cross the Broad Scenic River Corridor approximately one-half mile downstream of the 99 Islands Dam on the Broad River. FRA and GDOT anticipate issuing a combined Final Environmental Impact Statement and Record of Decision (FEIS/ROD) later this year. DNR project manager: Greg Mixon mixong@dnr.sc.gov.

SC Department of Commerce, Project Magma SAC-2020-01715. See

https://www.sac.usace.army.mil/Portals/43/docs/regulatory/publicnotices/Jan2021_PN/SAC-2020-01715-Chester-County-Project-Magma.pdf?ver=CL39n-1crWpOZpAmKw0BaQ%3d%3d The proposed work consists of construction and operation of a production, bottling, containerization, and distribution facility for wine and spirits at a location east of US Highway 21 and south of SC Highway 9 near the Town of Fort Lawn in Chester County. In detail, the work will require the discharge of fill material into 1.23 acres of freshwater wetlands and 8,018 linear feet of tributaries that flow to the Catawba River. The applicant has proposed to mitigate for impacts to wetlands and/or waters of the United States by accomplishing

permittee-responsible compensatory mitigation to provide equal to or greater than 13.1 freshwater wetland credits and 58,747 stream credits at the Wrenn Tree Mitigation Project site in Lancaster County. The Wrenn Tree site is in the same watershed approximately 4.1 miles northeast of the proposed facility and is adjacent to a portion of the Landsford Canal State Park on the Catawba River. The proposed compensatory mitigation will include stream restoration and enhancement of 12 intermittent and/or perennial 1st order, 2nd order or 3rd order channels; enhancement and preservation of the wetlands onsite; and establishment of 300-foot buffers to protect all streams and wetlands within the proposed conservation easement. The SC Department of Parks, Recreation and Tourism (PRT) will be the long-term steward of the property and their intent is to enroll the 533-acre property into the Wildlife Management Area (WMA) program. This fits well with the adjacent PRT lands comprising 219 acres that are currently enrolled in the WMA program. The USACE placed the proposed project on public notice on January 28, 2021 and DNR provided comments on February 26, 2021. DNR project manager: Greg Mixon mixon@dnr.sc.gov.

Haile Gold Mine Expansion – OceanaGold, LLC <http://www.hailegoldmineseis.com/>

Haile Gold Mine, Inc., a subsidiary of OceanaGold Corporation, submitted a proposal to the U.S. Army Corps of Engineers to expand operations at the existing Haile Gold Mine facilities near Kershaw, South Carolina. The proposed project would include expansion of surface mining and associated mine pits and overburden storage facilities, initiation of underground mining at the Horseshoe deposit, and increased ore processing through optimization of the mill and related infrastructure including expansion of the water management system and existing tailings storage facility. Proposed mining activities in the expanded proposed project would focus on areas affected by past mining activities and additional land purchased by Haile to support proposed mining expansion activities.

A Notice of Intent to prepare the DSEIS was published in the Federal Register on December 4, 2018. DNR staff attended an Agency Scoping Meeting on April 8, 2019, in Kershaw, SC. During the scoping meeting, OceanaGold staff described potential environmental impacts and suggested that Permittee Responsible Mitigation would likely be proposed to mitigate for impacts associated with the proposed expansion. A joint public notice for the Mine Modification and Draft Supplemental Environmental Impact Statement (SEIS) was issued on March 3, 2021. The proposed modification consists of increasing the mine plan area by approximately 832 acres to expand surface mining pits and associated facilities, initiate underground mining at the Horseshoe deposit, optimize mill operations and increase ore processing rates, and improve water treatment and storage capabilities. Impacts to Water of the United States (WOTUS) include directly filling 86.22 acres of wetlands and open water and will directly affect 13,124.08 linear feet of streams. The applicant has proposed to mitigate for impacts to wetlands and/or waters of the United States by a permittee-responsible mitigation plan that identifies three separate sites along Flat Creek in the Lynches River watershed for preservation and enhancement/restoration of aquatic resources. The project purpose is to expand gold producing operations from mineralized gold-bearing zones on the Haile property. The USACE and SCDHEC will host a joint virtual public hearing on April 01, 2021 at 6:30PM on the draft SEIS and the application to modify Haile Gold Mine, Inc.'s Mine Operating Permit. DNR will provide comments in response to the noticed mine modification by April 23, 2021. DNR project manager: Tom Daniel danielt@dnr.sc.gov

Haile Gold Mine Modification – Oceana Gold, LLC. I-000601

Oceana Gold, the parent company of the Haile Gold Mine, has requested that the USACE authorize a modification to their current permit (SAC-1992-24122) originally authorized in 2014. Five operational adjustments have been identified and one of these (East PAG-Phase 2) will impact 4.75 acres of jurisdictional freshwater wetlands and open water reservoirs/impoundments. Considering the original permit authorizing approximately 120 acres of wetland fill, the additional 4.75 acres of wetland impact within the existing mine boundary is viewed as a minor modification by the USACE. The proposed mitigation for these impacts is through the perpetual protection of approximately 512 acres of land known as the Blackwell Tract. The referenced mitigation site is located approximately 9 miles northeast of Kershaw, SC adjacent to Old Jefferson Highway. Positioned in the Flat Creek Basin, the tract is a part of larger conservation efforts in the area associated with the protection and enhancement of habitat for the

Carolina Heelsplitter. The site contains approximately 29,525 linear feet of stream and 3.4 acres of wetlands as identified by field delineations. Preservation of the site will be accomplished through the fee simple transfer of the land to the Katawba Valley Land Trust. Katawba Valley Land Trust will additionally serve as the Long-term Steward of the property. DNR received the minor modification to the existing Haile Gold Mine permit July 1, 2020 and provided comments to the USACE and DHEC on July 8, 2020 asking that the permit be held in abeyance until additional information regarding the mitigation plan and additional geology data could be provided. DNR received a response to comments on August 4, 2020 and provided follow up comments on August 7, 2020. DNR project manager: Lorianne Rigglin RigglinL@dnr.sc.gov

SCDOT, Interstate 73. P/N SAC-2008-1333-DIS. See

<http://www.sac.usace.army.mil/?action=publicnotices.pn2011>.

The proposed Interstate-73 (I-73) was public noticed on January 28, 2011 and February 18, 2011 for a high-speed, fully controlled-access roadway with interchanges, frontage roads and overpasses to provide access and maintain existing traffic patterns that begins at the North Carolina state line near Bennettsville and ends at SC Highway 22 near Conway. The project corridor would be approximately 80 mi long and would cross through Marlboro, Dillon, Marion and Horry counties. The roadway would include 4 travel lanes with a grassed median. The right-of-way would be 300 ft wide for most of the project corridor and 400 ft wide where frontage roads are needed. The project would involve 212 separate crossings of streams, wetlands and open water bodies impacting a total of 4,643 linear ft of streams and 342.3 acres of wetlands and open waters. DNR staff served on the Agency Coordination Team (ACT) for I-73 from June 2004 through December 2009. The ACT determined that I-73 should be evaluated in separate Environmental Impact Statement (EIS) documents covering the southern segment (I-95 to SC Highway 22) and the northern segment (NC state line to I-95). DNR staff provided comments and input throughout the EIS process and consistently stated the primary natural resource concerns associated with the proposed roadway are habitat fragmentation, the crossing of the Little Pee Dee River and adjacent wetlands, and the need for landscape scale mitigation that adequately compensates for all project impacts. On December 3, 2015 the DOT Commission unanimously approved the purchase and use of Gunter's Island for mitigation of the environmental impacts associated with the construction of I-73. A revised mitigation plan focusing on acquisition of Gunter's Island was submitted by DOT to USACE on May 23, 2016 and USACE issued a revised public notice on July 8, 2016 that included Gunter's Island as the proposed PRM plan for the wetland and stream impacts associated with I-73. On August 8, 2016, DNR submitted comments in response to the revised mitigation plan. An interagency site visit took place to evaluate the Gunter's Island Revised Mitigation Plan on November 10, 2016. DNR staff conducted two follow-up site visits along with DOT staff on December 2 and 15, 2016. On March 2, 2017 DNR received the I-73 NEPA Re-evaluation documents for review and comments were submitted April 3, 2017. DHEC issued the 401 Water Quality Certification on April 26, 2017 and the USACE issued the final 404 permit on June 19, 2017. SCDOT closed on the Gunters Island Property on August 7, 2017. DNR will continue with the necessary external approval processes, including presenting the project to the Joint Bond Review Committee for approval on August 15, 2017. The project posted in the Federal Register for the Federal Highway Administration on August 1, 2017. This marks the beginning of the 150-day period for any claim seeking review of the Federal agency action regarding the Section 404 permit for the project. This period ended on December 29, 2017; however, the Southern Environmental Law Center on behalf of the Coastal Conservation League released a notice of intent to sue over violations of the Clean Water Act related to the approval of the USACE 404 permit on October 13, 2017. For additional information: <http://www.i73insec.com>. DNR project manager: Greg Mixon mixon@g@dnr.sc.gov.

Coastal Project Proposals

Cainho Plantation Mixed Use Development, Charleston & Berkeley Counties. See

http://www.sac.usace.army.mil/Portals/43/docs/regulatory/publicnotices/March2018_PN/SAC_%202016-756_Cainho_Plantation_Development_Berkeley%20County.pdf?ver=2018-03-22-115555-720

The 9,238-acre Cainho Plantation property is being planned and developed as a mixed-use community with homes, public schools, retail shops, restaurants and office space located within the City of

Charleston and Berkeley County. The development of this project will result in unavoidable impacts to freshwater jurisdictional wetlands (approximately 200 acres). According to preliminary plans, approximately 50% of the property (4,500 acres) will be preserved property that provides vital habitat and connectivity for plant and animal species, with the centerpiece being the 500+acre Point Hope Nature Sanctuary. OEP staff attended an interagency meeting held on October 18, 2017 to review preliminary plans and provide initial feedback. Overall the project received a very favorable review from the reviewing agencies, including DNR.

On March 21, 2018 the public notice for this project was submitted for review. The proposed master plan would impact 185.25 acres of freshwater jurisdictional wetlands and 2.65 acres of saltwater critical area wetlands. As compensatory mitigation, a Permittee Responsible Mitigation (PRM) Plan has been developed. An approximately 585-acre Point Hope Nature Sanctuary (PHNS) would be the centerpiece of this PRM plan. The PHNS would be placed under a conservation easement held by Lord Berkeley Conservation Trust and would protect the most valuable and sensitive habitats and their associated suite of species. Financial assurances would provide funding for the long-term management of this area. Approximately 268 acres of wetlands that were previously managed for pine production would be restored to a hardwood mix wetland and protected along with the remaining unimpacted wetlands and associated upland buffers. On May 5, 2018 OEP staff submitted comments on the proposed development, highlighting the significance of the natural resources on this site and asking for clarification on various issues including protected species assessments, permit phasing, protections for remainder of property and avoidance and minimization measures. It was recommended that permit issuance be held in abeyance until issues and concerns were addressed. In August of 2019, the applicant provided a response to DNR's original comments; OEP staff provided additional comments in a letter dated September 25, 2019. The DNR continued to express that the best use for this property, based on the ecological functions and unique resources located here, would be conservation and the need to address several outstanding issues. The DNR again recommended that permit issuance be held in abeyance until outstanding issues and concerns were addressed. On December 8, 2020, OEP staff commented on a revised Mitigation Plan for Cainhoy Plantation dated November 2020. The DNR continued to recommend that additional efforts are made to further avoid and minimize project impacts before consideration for compensatory mitigation. Specific comments regarding protected species and other elements of the plan were also provided. DNR project manager: Susan Davis daviss@dnr.sc.gov.

Carolina Bays Parkway Extension, Horry County. Action ID: SAW-2004-00823. See:

<https://www.ncdot.gov/projects/carolina-bays-parkway/Pages/default.aspx>

The North Carolina Department of Transportation (NCDOT) in cooperation with the South Carolina Department of Transportation (SCDOT) will be preparing a DEIS for the extension of the Carolina Bays Parkway. The project's purpose is to bypass congestion within the areas of Calabash, North Carolina and, in South Carolina, the Little River and Grand Strand areas. The project also intends to improve traffic flow and safety at the intersection of SC Hwy 9 and SC Hwy 57 and provide a more direct route for coastal truck traffic moving through North Carolina. In August of 2017, the DNR accepted an invitation to become a participating agency in the development of an EIS for this project. As a participating agency, the DNR will identify, as early as possible, any issues of concern regarding the project's potential environmental impacts. As decisions are made through the merger process, DNR will have the ability to concur, abstain, or not concur at each concurrence point. In September of 2017, the DNR provided scoping comments on this project, identifying a number of important coastal habitats in the study area, including intertidal marsh, tidal creeks and freshwater wetlands and the Waccamaw River Heritage Preserve (WRHP). Comments were also made on the need for careful consideration to avoiding and minimizing impacts to important natural resources in the selection of alternatives to be considered in the EIS. DNR recommended that project alternatives that encroach on the WRHP eliminated from consideration. DNR staff have participated in three coordination meetings regarding this project. On May 4, 2020, OEP staff participated in a meeting to review preliminary alternatives for the proposed Carolina Bays Parkway Extension project and reach concurrence on the alternatives that will be carried forward for detailed study. Formal concurrence on NEPA/Section 404 Merger Concurrence Point 2 was requested during this meeting. On December 8, 2020, staff submitted comments on a revised mitigation plan. In

addition, staff continued to recommend that additional efforts were made to further avoid and minimize project impacts before considering compensatory mitigation and reiterated several concerns regarding the mitigation plan. DNR project manager: Susan Davis daviss@dnr.sc.gov.

Charleston Peninsula Coastal Flood Risk Management Study. See

<https://www.sac.usace.army.mil/Missions/Civil-Works/Supplemental-Funding/Charleston-Peninsula-Study/>

The U.S. Army Corps of Engineers (USACE), Charleston District and City of Charleston are performing a feasibility study to evaluate storm surge risk reduction measures for the Charleston Peninsula. The goal is to reduce risks to health, safety, and economic damages from coastal storm surge inundation on the peninsula. An integrated Draft Feasibility Report (FR)/Environmental Assessment (EA) has been prepared to present the results of the study to date, and to analyze impacts of the proposed measures on the environment. The Draft FR/EA was prepared in accordance with the National Environmental Policy Act (NEPA). It evaluates potential impacts of the alternative actions on the environment, including the no-action alternative. The Tentatively Selected Plan (TSP), which is also the National Economic Development Plan (NED) is Alternative 3. The TSP consists of a storm surge wall along the perimeter of the Peninsula, recreation features, interior drainage facilities, a wave attenuation structure offshore of the Battery, and nonstructural measures. Based on the Environmental Assessment, the USACE has proposed a Draft Finding of No Significant Impact (FONSI). DNR staff have been actively participating in Interagency Coordination Team (ICT) meetings on various aspects of the project since December 10, 2018. The Draft FR/EA and FONSI were placed on public notice on April 20, 2020. DNR submitted formal written comments on June 16, 2020. On September 16, 2020, DNR staff attended a virtual ICT meeting held by USACE to update agencies on study progress, including outcomes of optimization of the TSP. The project was revised to reduce impacts by 64 acres and eliminate the miter gate and the proposed wave attenuator. The recommended plan is now Alternative 2, perimeter protection plus nonstructural measures. DNR Staff attended a virtual ICT update meeting for natural resource agencies on the Charleston Peninsula Coastal Flood Risk Management Study on January 11, 2021. At the meeting, the USACE announced that after further agency analysis and review of comments on the Draft FR/EA and FONSI, they would be seeking approval to pursue an Integrated Feasibility Report/Environmental Impact Statement (IFR/EIS) with a Record of Decision (ROD) for the study. **On March 12, 2021 DNR staff participated in a Cooperating Agency Kick Off Meeting hosted by the Corps to discuss agency roles, project updates and next steps. The Notice of Intent for the Charleston Peninsula CFRM Study was published in the Federal Register on March 23, 2021, which initiates the 30-day scoping period. A virtual public scoping meeting will be on March 30th.** DNR Project manager: Stacie Crowe crowes@dnr.sc.gov

Dewees Island POA. P/N SAC-2020-00305, Charleston County. See

https://www.sac.usace.army.mil/Portals/43/docs/regulatory/publicnotices/Aug_2020_PN/SAC-2020-00305_Charleston_Lake_Timicau_Restoration.pdf?ver=2020-08-31-123223-053

The proposed work consists of a dune restoration and resiliency project within the Lake Timicau impoundment of Dewees Island. The applicant proposes to restore a dune that was breached in early 2019 that separates the Lake Timicau impoundment area from the Atlantic Ocean. This will involve harvesting sand from the intertidal beach along accretional areas of the island and constructing a new dune spanning the channel breach. The constructed dune will be approximately 300 feet long with a crest width of 25 feet and crest elevation of +12 ft NAVD. An additional ~200 linear feet of dune may be constructed along the eastern end of the dike to connect the closure area to the existing high ground along the ocean dune ridge. Approximately 15,000 cubic yards of sand will be required for the closure dike. The project also involves constructing a new dike to serve as secondary protection for Lake Timicau in the event of a future breach of the ocean dune. The new dike will span ~950 linear feet and will consist of a 25-foot-wide berm section at an elevation of +8 feet NAVD, and side slopes grading 1:4. Approximately 8,000 cubic yards of sand will be required to construct the dike. The two primary project purposes of the proposed project are to restore the functionality of the Lake Timicau impoundment and to eliminate the risk of additional erosion to upland properties. On September 29, 2020, OEP staff submitted comments on the project, expressing natural resource concerns regarding impacts from excavation in intertidal areas and the construction of a new dike (resiliency dike) within the impoundment. Comments included several recommendations to avoid and minimize project impacts and opposition to the

construction of the new resiliency dike based on natural resource impacts and inconsistency with the terms and conditions of the Conservation Easement (CE) held by SCDNR on Dewees Island. In December of 2020, DNR staff met with Dewees Island residents and staff to discuss issues raised in SCDNR's comments. OEP staff reviewed the additional information provided by the applicant and determined that the resiliency dike has the potential to further the benefits provided by Lake Timicau as critical wintering and migrating habitat for a number of waterfowl, wading and shorebird species. A letter stated that DNR no longer recommended the elimination of the resiliency dike as previously stated in the letter dated September 29, 2020 was provided to Dewees Island Property Owner Association and the regulatory agencies on January 8, 2021. In late January, the DNR considered a request to extend the work window for this project and after review of additional information regarding shorebird usage and current beachfront conditions, the DNR recommended approval to extending the work window until the end of April. **On March 4, 2021, the project was revised only use Harvest Area 3 with the possibility of expanding Area 3 in response to beach conditions at the time of construction. The SCDNR responded that we had no concerns with the new borrow area footprint and provided no additional comments and/or concerns.** DNR project manager: Susan Davis daviss@dnr.sc.gov.

Horizon Project Foundation (WestEdge Development), Charleston County. On May 22, 2018, the USACE public noticed the Horizon Project Foundation proposal. The proposed project consists of construction of residential and mixed-use commercial, medical and research facilities in the tidal wetlands commonly known as Gadsen Creek and the proposed purpose is to serve and enhance existing functions of the Medical University of South Carolina and to advance development and improve the quality of life in the City of Charleston. The proposed work consists of impacting 3.835 acres of tidal and critical area wetlands, which are also considered Essential Fish Habitat under the Magnuson-Stevens Fishery Conservation and Management Act. These estuarine substrates and emergent wetlands are a functioning salt marsh providing habitat. DNR staff reviewed the project and provided a comment letter on June 18, 2018 recommending that the applicant consider pursuing less damaging alternatives to minimize or avoid impacts to these tidal wetland resources. On June 25, 2019, the project was re-public noticed for the same purpose with an increase in impact to a total of 3.923 acres of tidal waters and critical area wetlands. DNR staff reviewed the project and provided a comment letter on July 15, 2019 again recommending that the applicant consider pursuing less damaging alternatives to minimize or avoid impacts to these tidal wetlands resources. On January 19, 2021, the DNR provided comments on a revised mitigation plan and continued to recommend that impacts to tidal resources are avoided and minimized to the greatest extent possible and that the DNR would not be opposed to the use of the currently proposed PRM in compensating for unavoidable wetland impacts. DNR project manager: Susan Davis daviss@dnr.sc.gov

I-526 East Lowcountry Corridor Improvements Project, Charleston County. See

<http://www.526lowcountrycorridor.org/>

I-526 Lowcountry Corridor EAST (I-526 LCC EAST), extends from the eastern terminus of the I-526 LCC WEST project (Virginia Avenue) to US 17 in Mount Pleasant. The I-526 LCC EAST project would address current and projected congestion and operational issues along this 9.9 mile segment of I-526. The project consists of two major river crossings that include the Don Holt Bridge (over the Cooper River) and the James B. Edwards Bridge (over the Wando River). The Planning and Environment Linkages (PEL) program will be used to evaluate this project and was developed by FHWA to assist the transportation decisionmakers by encouraging the incorporation of key elements that include environmental resources, community, and economic goals early in project planning and development phases. On January 9, 2020, OEP staff participated in a meeting to discuss the PEL Program and how it will be implemented for this project. On April 15, 2020 DNR accepted an Invitation to Participate on the Planning and Environmental Linkages Study for I-526 Lowcountry Corridor East DNR project manager: Susan Davis daviss@dnr.sc.gov.

I-526 Extension Project (Mark Clark Expressway), Charleston County. See

<http://www.scdotmarkclark.com/>

On August 22, 2019, OEP attended the kick-off meeting for this project. The project history was discussed, including the original FEIS signed in 1977 for the Charleston Inner Belt Freeway, SEIS and

eventual construction of the 7-mile section from West Ashley to James Island in 1995, signed DEIS for the 7-mile section from West Ashley to James Island in 2010. The project was stopped in 2010 after the signing of the DEIS. A Re-evaluation of the West Ashley to James Island was prepared and signed by SCDOT and FHWA in 2016. The project was reinitiated in 2019 with the identification of funding through Charleston County and the SIB. Since there have been changes to land use, demographics, population and economic growth within the project area, and the availability of a new BCDCOG CHATS Travel Demand Model, it was determined that a SEIS would be prepared for the project. The project will not include re-scoping or redefinition of the project purpose and need. The 39 alternatives will be reanalyzed with updated and supplemented current data. The project area includes a new location 7-mile roadway from the existing I-526 terminus at US 17 (Savannah Highway) to the James Island Connector (SC 30). On March 26, 2020, OEP attended a meeting to discuss the development of the Supplemental Environmental Impact Statement (SEIS) for the Mark Clark Extension project using the evaluation process originally developed for the 2010 Draft Environmental Impact Statement (2010 DEIS) to reevaluate the 39 preliminary alternatives identified in the 2010 DEIS using current data. The preliminary alternatives were analyzed based on traffic performance and environmental impact criteria. The goal of this process was to screen the 39 alternatives originally presented in the 2010 DEIS to a smaller set of Reasonable Alternatives that will be further evaluated in the SEIS. On April 16, 2020, the DNR submitted comments on the SEIS Alternative Analysis Tier 1 Criteria Evaluation process, developed for the Mark Clark Extension project, stating that the DNR found the proposed approach to be rational in identifying a set of reasonable alternatives to be further evaluated in the SEIS. DNR project manager: Susan Davis daviss@dnr.sc.gov.

I-526 West Lowcountry Corridor Improvements Project, Charleston County. Federal Project Number P027507. See <http://www.526lowcountrycorridor.org/>

The Federal Highway Administration (FHWA) in cooperation with the South Carolina Department of Transportation (SCDOT) are preparing a DEIS for improvements to the I-526 corridor. The purpose of this project is to increase capacity and improve operations at the I-26/I-526 interchange and along the I-526 mainline from Virginia Avenue to Paul Cantrell Boulevard. The project will follow One Federal Decision (OFD) in accordance with Executive Order 13807. On April 10, 2019, the DNR accepted an invitation to become a participating agency in the development of an EIS for this project. As a participating agency, the DNR will identify, as early as possible, any issues of concern regarding the project's potential environmental impacts. As decisions are made through the OFD process, DNR will have the ability to concur, abstain, or not concur at each concurrence point. OEP staff submitted a letter of concurrence, May 3, 2019, on the Agency Coordination Plan (dated May 2019), the Purpose & Need Statement and the Permitting Timetable. DNR had no specific comments or concerns regarding these documents. On September 11, OEP staff participated in a meeting to discuss the mitigation needs assessment developed for the project. The DNR expressed that the protection of natural resources at Cainho Plantation would be DNR's priority in mitigating impacts for this project. On October 7, DNR submitted comments on the preliminary range of alternatives being considered and requested further analysis of the designs for avoidance and minimization of impacts such as reduce shoulder width and slopes and construction methods to avoid and minimize impacts. On December 11, 2019, OEP staff participated in a meeting to discuss the revised mitigation report and to further discuss mitigation options being considered. It was the consensus of the group that five options would be further considered, including Cedar Hill for freshwater and Jehossee Farms, a James Island spoil site, Noisette Creek and Filbin Creek for saltwater impacts. On March 11, 2020, OEP participated in a meeting on DOT's update on the mitigation needs assessment for the I-526 LCC West project. The DOT will continue vetting mitigation options including at Cedar Hill, Jehossee, Hermine, Noisette and others. On March 19, OEP sent a letter of concurrence on the proposed alternatives to be carried forward for detailed evaluation for the proposed I-526 West Lowcountry Corridor Improvements Environmental Impact Statement (EIS). On May 13, 2020 OEP staff participated in a meeting discuss the recommended Preferred Alternative. On June 8, 2020, DNR responded with concurrence to a Request for Concurrence on the Proposed Preferred Alternative to be carried forward for detailed analysis in the Proposed I-526 West Lowcountry Corridor Improvements Environmental Impact Statement (EIS). In August of 2020, the SCDOT circulated portions of the DEIS for preview and comment before finalizing the DEIS; OEP staff provided several recommendations. On October 22, 2020, the final DEIS for this project was submitted for review. On November 25, 2020, OEP staff provided

comment on the permit request (SAC-2019-00593) for the proposed project with recommendations on construction methods and other BMPs to minimize project impacts. DNR project manager: Susan Davis daviss@dnr.sc.gov.

McClellanville 115 kV Transmission Project, Central Electric Power Cooperative, Inc. DEIS April 2014. Central Electric proposed to construct, operate, and maintain a new 115 kV electrical transmission line (Project) that would bring service to the proposed McClellanville Substation to serve Berkeley Electric members in the McClellanville area. The new transmission line would originate at one of two potential locations near the Winyah Generation Station. The transmission line would terminate at the proposed McClellanville Substation. Approximately 15-20 miles of new 115 kV transmission line is proposed to be constructed along with a new 115 kV substation. The Project area identified encompasses parts of Georgetown and Charleston counties. DNR has been involved in the environmental review of the proposed project for well over a decade, including the submittal of extensive comments during the preliminary planning and scoping stages and most recently with the submittal of comments dated July 2, 2014 in response to the DEIS. Throughout the review process DNR has maintained a consistent position that any overhead, high voltage transmission line adjacent to US Highway 17 across the Santee-Delta Wildlife Management Area (WMA) would, at a minimum, cause unacceptable and unavoidable impact to wetlands, sensitive species, intensively managed habitat, endangered species, migratory birds and result in avoidable view-shed impacts to a historic and culturally rich corridor. We have consistently recommended that any environmental review for the improved delivery of power to the McClellanville area fully consider alternatives that minimize or eliminate potential impacts to the Francis Marion National Forest, properties titled to the citizens of South Carolina through DNR, private properties protected by conservation easement, sensitive species/habitats and cultural and historic resources. Despite our efforts to emphasize the important of the Santee River Delta and to highlight the potential adverse impacts resulting from new transmission line construction through this sensitive area, all of the alternatives considered for review in the DEIS cross the Santee River Delta. DNR submitted comments on July 2, 2014 outlining fundamental flaws and inadequacies of the DEIS and recommended the existing DEIS be revised and/or supplemented prior to proceeding with the development of a FEIS for the project, including a focused effort to fully reconsider less environmentally damaging alternatives to the McClellanville area. DNR staff met with Central Electric on August 18, 2014 to discuss alternatives that are less environmentally damaging. On April 15, DNR staff attended an interagency meeting to discuss Central Electric's re-evaluation of transmission line route alternatives and to present preliminary findings to the agencies before RUS and the cooperating agencies determine the next steps in the NEPA process. Following the agency meeting held in April 2015, Central Electric is moving forward with having an independent engineering study performed on the project. RUS has provided Central Electric a draft statement of work (SOW). Central Electric is handling the procurement side and will pay for the study. RUS solicited comments on the submitted SOW. No comments on the SOW were submitted by DNR. On February 28, 2017, DNR staff attended a meeting to discuss the results of the independent engineering study conducted for CEC. The results of the study determined that for various reasons the crossing of the Santee Delta was not a viable alternative and that the Jamestown to McClellanville was outlined as the preferred alternative. The Forest Service is initiating the next consultation meeting with Central Electric on March 21, 2017 to discuss survey requirements and initiate discussions on how to avoid impacts to endangered species, other sensitive species and habitats, private protected lands, and the Wilderness Area at Wambaw Creek. There will be a Supplemental DEIS prepared for the project that will focus on the Jamestown to McClellanville route as the preferred alternative. On August 23, 2019, a Supplemental Draft Environmental Impact Statement (DEIS) was published in the Federal Register (<https://www.rd.usda.gov/publications/environmental-studies/impact-statements/mcclellanville-115kv-transmission-line>) The Supplemental DEIS addresses the construction, operation and maintenance of Central Electric's proposed Project. The Project includes the construction of a new 115 kV transmission line needed to energize the new McClellanville Substation located near the McClellanville service area. The Supplemental DEIS considers three alternatives, encompassing three potential corridor locations with one corridor including two different alignments. The overall project area encompasses parts of Berkeley, Georgetown and Charleston counties in coastal South Carolina, and potentially crosses the Francis Marion National Forest. On October 28, 2019, OEP staff submitted comments on the SDEIS.

DNR recommended that no alternatives crossing the Santee Delta be considered in the Final EIS (FEIS). DNR also recommended that the FEIS include information that adequately describes and evaluates the potential environmental impacts of the proposed project and provides for a full comparative environmental analysis of alternatives and that the selection of a preferred alternative be based on those alternatives that minimize or eliminate potential impacts to the Francis Marion National Forest (FMNF), private land conservation easement (CE) properties, sensitive species/habitats and cultural and historic resources. The FEIS is anticipated early in 2021. DNR project manager: Susan Davis DavisS@dnr.sc.gov

Riverport Development SAC-2010-00064. See

https://www.sac.usace.army.mil/Portals/43/docs/regulatory/publicnotices/May_2020_PN/SAC-2010-00064-Jasper-County-Riverport-Development.pdf?ver=2020-05-27-091515-030.

The proposed work consists of the construction of a mixed-use development including industrial, commercial, civic and residential uses. In detail, the proposed project is a master planned development at the 4,368.81-acre Riverport Tract situated north and south of I-95, with improvements to the existing two-lane Purrysburg Road as well as a new interchange with I-95 at Mile Marker 3. Residential development, including 3,339 residential dwelling units, would occupy the project area north of I-95, with commercial and civic development situated along both sides of the new interchange and within the southern portion of the site, including over 10.6 million square feet of industrial warehouse space and 2.6 million square feet of commercial space (restaurant and hotel, grocery store, hospital, and office/retail space). The proposed work would require the placement of fill material into 35.17 acres of wetlands to accomplish road crossings for internal project access as well as for improvements to Purrysburg Road and I-95 where Exit 3 is proposed. The applicant has proposed to offset impacts to wetlands and other waters of the United States by implementing an on-site permittee-responsible compensatory mitigation plan, including the buffered preservation of all remaining wetlands on the site and restoration of approximately 150 acres of pine plantation to historic wetland condition. The project purpose is to construct a development in Jasper County, South Carolina, incorporating residential, commercial and industrial uses with direct access to Interstate 95 to meet projected future growth associated with the existing Port of Savannah and Jasper Ocean Terminal. On June 19, 2020, DNR asked that the permit be held in abeyance until comments addressing additional protections for the adjacent Savannah National Wildlife Refuge are addressed and additional information is provided regarding the proposed mitigation plan. On January 29, 2021, a revised notice was issued for this project, including a reduction in wetland impacts, as a result of a reevaluation of the jurisdictional status of wetlands on-site and a revised mitigation plan involving the purchase of mitigation credits from an approved mitigation bank. The SCDNR provided comment on this notice on February 9, 2021 and recommended that all undisturbed, excluded wetlands are included in the acreage to be preserved on-site and that mitigation is provided for all impacts to these areas. The SCDNR asked that the permit not be issued until all previously expressed concerns and recommendations were addressed. DNR project manager: Susan Davis daviss@dnr.sc.gov.

Savannah River below Augusta Restoration Feasibility Study. Under the authority of a resolution passed on 1 August 1990 by the U.S. House of Representatives Committee on Public Works and Transportation and by Section 1201(29) of the Water Resources Development Act of 2016, the SRBA Ecosystem Restoration Study considers modifications to restore hydraulic connectivity for ecosystem restoration to river meanders that were cut off to aid commercial river navigation. Of the 46 cutoff meanders that the study originally identified, the study team used detailed screening criteria to focus on an array of alternatives at seven sites that show potential to provide the greatest ecosystem restoration benefits. The USACE-Savannah District and the Savannah Riverkeeper have initiated a study to evaluate the feasibility of restoring natural bends (oxbows) in the Savannah River below Augusta. DNR staff are serving on the Task Force that will guide the feasibility study and evaluate the environmental impacts of the proposed restoration project. A total of \$12.5 million has been dedicated to this project through the Savannah Harbor Expansion Project (SHEP) Settlement Agreement, but the release of those funds will not occur until dredging begins in the inner harbor. The feasibility study is expected to be completed in 2019, when dredging of the inner harbor is expected to begin. Non-federal matching funds (\$1.5 million) to complete the oxbow restoration project are being solicited from state and local agencies and non-governmental organizations. The Task Force met on March 7, 2017 and identified several issues that

should be addressed in the Feasibility Study. These include impacts on upstream migration of sturgeon; impacts on spawning habitat for sturgeon and robust redhorse; impacts on endangered freshwater mussel species; maintenance of stable channel configurations after the initial restoration; effects on sedimentation, geomorphology, hydrology, and water quality; and property ownership issues, including potential flooding. A field trip for Task Force Members to examine potential oxbow restoration sites was conducted April 24, 2017. In February 2019, it was announced that funding had been received to resume the Savannah River Below Augusta study. DNR staff participated in a web conference kickoff meeting held on February 26, 2019. DNR staff attended the Corps Savannah District Charrette Meeting held on March 12, 2019 at the Lower Savannah River Alliance Education Center in Allendale. DNR submitted comments on the proposed restoration study on April 18, 2019. DNR staff attended the Alternatives Milestone meeting May 22, 2019. DNR staff participated in a webinar and conference call for restoration project updates on June 5, 2019. DNR staff conducted a site visit to the seven oxbows being considered for restoration on August 26, 2019. **Staff will be attending a stakeholder meeting on March 30, 2021 regarding this project. The USACE study team, with assistance from the National Ecosystem Restoration Planning Center of Expertise, is in the process of determining costs and benefits of the various alternatives at each site and will perform a cost effectiveness and incremental cost analysis to help determine the National Ecosystem Restoration Plan.** DNR project manager: Stacie Crowe crowes@dnr.sc.gov.

Savannah Harbor Navigation Project Mitigation Recovery. A Draft Environmental Assessment (EA), placed on public notice in November 2016, evaluated the potential impacts of the USACE's proposal to make specific improvements to selected wetland impoundments at the Savannah National Wildlife Refuge (SNWR) in order to enhance the effectiveness of those sites as bird habitat. The proposed action is intended to compensate for past and future short-term deficits in mitigation credits for the Savannah Harbor Navigation Project (which addresses long-term operation and maintenance requirements for the Harbor). Mitigation was required due to wetland impacts resulting from the impoundment of Dredged Material Containment Area (DMCA) 14A in 2006. In the Draft EA, USACE evaluated four alternatives for enhancing bird habitat in the SNWR and selected the least cost alternative as their preferred alternative, rather than the alternative recommended by SNWR staff. In our comment letter on the Draft EA (submitted December 8, 2016), DNR supported the selection of the alternative preferred by Refuge staff. DNR project manager: Stacie Crowe crowes@dnr.sc.gov.

Savannah Harbor Expansion Project (SHEP).

<http://www.sas.usace.army.mil/Missions/Civil-Works/Savannah-Harbor-Expansion/>

DNR project manager: Stacie Crowe crowes@dnr.sc.gov

1. Dissolved Oxygen (DO) Injection System. OEP staff attended a stakeholder meeting at the USACE Savannah District Headquarters on September 28, 2017 to discuss the proposed sampling and analysis plan to evaluate the efficacy of the SHEP DO injection systems (Speece Cones). The injection systems are being constructed at two locations on the Savannah River to mitigate for reduced oxygen levels due to harbor deepening. Modeling results indicate that a total of 40,000 lbs. of DO per day needs to be diffused into the Savannah River to compensate for the incremental reduction in DO. Construction began on the DO Injection System in February 2016 and the Hutchinson Island location was completed in March 2019. The first initial test, the Transfer Efficiency Study, which identifies the amount of oxygen being absorbed by the water column for each pound of oxygen introduced into the water, was conducted from February 17-March 3, 2019. The 60-day Water Collection Transfer Efficiency test run data collection occurred from March 17-May 16, 2019 and a data report is expected in mid-July 2019 for public comment and review. The Water Column Transfer Efficiency Report for the Dissolved Oxygen Facility Environmental Testing for the Savannah Harbor Expansion Project report was released August 15, 2019 for public comment. DNR staff reviewed the report and determined that the results of the tests indicate that the Corps met the standards they outlined in the settlement agreement. Water Column Transfer Efficiency Data Collection for the Upper System has been rescheduled to occur from July 6, 2020 – July 10, 2020

and a data report is now expected on August 1, 2020 for public comment and review. This is a slight change due to COVID-19.

As a part of a settlement agreement reached in 2013, prior to commencing the dredging of the Inner Harbor Channel, the USACE will also conduct additional tests to evaluate the downriver DO Injection System located at Hutchinson Island to demonstrate its ability to mitigate DO impacts of the SHEP project. The entire Oxygen Injection System must be operated, and instream DO must be monitored continuously for a period of 59 days (2 lunar cycles), of which at least one 29.5 day testing (one lunar cycle) must occur in July, August, or September immediately following the installation of the Oxygen Injection System. Continuous daily water quality monitoring must be conducted during this period at locations specified in and pursuant to the monitoring plan. This 59-day period of operation is referred to herein as the "Start-up Run." The Start-up Run has been rescheduled to begin on July 25, 2020 – September 11, 2020. Due to warranty (mechanical) issues with the Upriver DO plant and the COVID-19 impacts, the USACE has added 14 additional days of data collection to extend the Start-up Run through September 23, 2020. On October 28, 2020, USACE distributed the QAQC'd DO System plant raw data collected from July 13 – September 23, 2020, which includes the Start Up Run data. Only raw data was distributed and a full report summarizing the data is still expected in early 2021.

Following the Start-up Run and analysis of the modeling results and monitoring data, the USACE will provide a report comparing the monitoring data collected during the Start-up Run to the modeling results to the Conservation Groups (including DNR), Commission, and DHEC for review to assess whether the DO Injection System will work to mitigate the impacts of the SHEP project. The modeling start-up run report be available early 2021 for review.

2. **Excavation and Placement of Cadmium-Laden Sediments.** A Draft Supplemental Environmental Assessment (SEA), placed on public notice in December 2016, proposes to modify the currently authorized plan for handling cadmium-laden sediments as described in the Final Environmental Impact Statement (FEIS) for the Savannah Harbor Expansion Project (SHEP). The purpose of the proposed action is to place cadmium-laden sediments that will be dredged as part of SHEP in a manner that reduces risk to wildlife without causing dike failure in Dredged Material Containment Areas (DMCAs) 14A and 14B. The Draft SEA describes ten alternatives for the disposal of these cadmium-laden sediments. Seven of the ten alternatives were eliminated during the initial screening evaluation due to one or more factors, including a high cost of construction, high cost of mitigation, high risk of dike failure, or unacceptable risk to wildlife from exposure to cadmium-laden sediments. The USACE preferred alternative (Alternative 10) would place cadmium-laden sediments from SHEP into DMCAs 14A and 14B and maintain these sites in a "moist" (saturated) rather than "flooded" (inundated) condition during placement, followed by shallow flooding with 6 to 12 inches of water until the site could be capped with 2 feet of clean dredged material. The currently authorized alternative described in the FEIS would have maintained these DMCAs in a more deeply flooded condition (4 to 6 feet of water) until the cadmium-laden sediments are capped. In our comment letter, dated February 2, 2017, the DNR acknowledged the USACE's need to develop an alternate plan for disposing cadmium-laden sediments due to the risk of dike failure under the currently authorized plan; however, we recommended that Alternative 9 be implemented rather than Alternative 10 because it would more effectively limit the exposure of birds and other wildlife to cadmium-laden sediments. Alternative 9 would involve the construction of finger dikes within DMCAs 14A and 14B to create smaller impoundments that could be filled and capped more quickly than Alternative 10.
3. **McCoy's Cut Flow-Rerouting Plan.** A Draft Supplemental Environmental Assessment (SEA) and Finding of No Significant Impact (FONSI) for proposed modifications to the McCoy's Cut flow-rerouting feature of the Savannah Harbor Expansion Project (SHEP) was released on May 24, 2017 for public comment. The draft SEA supplements the 2012 Final Environmental Impact Statement (FEIS) and Record of Decision (ROD) for SHEP. The proposed modifications would extend the dredging area within the upper Middle River to ensure sufficient freshwater flow to intended areas, as well as save space in the upland Dredged Material Containment Areas (DMCAs) by using some of the dredged sediments to convert open-water manmade cuts (McCoomb's Cut and Rifle Cut) to

freshwater wetlands. These cuts are already planned to be plugged with recycled concrete material (from the former Highway 17 Bridge) and rock in order to prevent saltwater from the Savannah River from flowing into the Back River and adjacent tidal wetlands. The proposed modifications also include increasing the dredging depth at the mouth of Union Creek by four feet to account for potential future shoaling and constructing a temporary pile-supported platform on the edge of existing tidal wetlands in the Back River to access the construction site for the McCoy's Cut diversion structure. Comments on the draft SEA/FONSI were submitted June 26, 2017. Construction of McCoy's Cut flow re-routing feature began construction July 2018. It is anticipated to be complete in October 2019.

4. **Monitoring, Adaptive Management, and Status Reports.** In February 2018 the USACE-Savannah District released a Fiscal year 2017 Construction Monitoring Report for the Savannah Harbor Expansion Project (SHEP). This report covers the third year of construction monitoring. OEP staff are currently reviewing the FY 2017 report. In March 2018, USACE Savannah announced that they have reached the midpoint of the project with the completion of the entrance channel dredging. OEP staff attended a SHEP FY 2017 Monitoring Meeting on October 10, 2018 in Savannah, GA which reviewed the contents of the 2017 Construction Monitoring Report released in February 2018.
5. **New Savannah Bluff Lock and Dam.** The SHEP mitigation agreements, in compliance with the Endangered Species Act, require the USACE – Savannah District to reduce or mitigate impacts to sturgeon. Removal of New Savannah Bluff Lock and Dam (NSBLD) would benefit sturgeon by providing access to historic spawning areas. The USACE funded DNR Diadromous Fish staff to conduct pre-construction monitoring of sturgeon distribution and movement through the use of telemetry and sonic transmitters. This work was completed in 2014. Construction of the bypass channel originally proposed was not anticipated to occur until 2021. However, in December 2016, the Water Infrastructure Improvement for the Nation (WIIN) Act was signed into law. The WIIN Act deauthorized the NSBLD and repealed/replaced language in the Water Resources Development Appropriations Act of 2000/2001 with requirements to fulfill fish passage mitigation under the SHEP. The WIIN Act outlines two options:

A) Repair the NSBLD lock wall and modify the structure such that it is able to:

- Maintain the pool for navigation, water supply and recreational activities, and
- Allow safe passage over the structure to historic spawning grounds of shortnose and Atlantic sturgeon and other migratory fishes.

B) Construct at an appropriate location across the Savannah River of a structure that is able to maintain the pool for water supply and recreational activities and remove the NSBLD on completion of construction of the fish passage structure.

The Corps Savannah District presented five alternatives to be considered for the project to the public in June 2018 and plan to release the selected alternative in Fall 2018. OEP Staff attended the public meeting hosted by the Corps Savannah District in North Augusta, SC on November 14, 2018. The recommended plan for replacing the New Savannah Bluff Lock and Dam was announced. Of seven alternatives offered, the recommended plan chosen is a higher fixed crest weir with a dry floodplain bench. The plan involves the demolition of the current lock and dam and construction of a fixed weir with an in-channel fish passage and a floodplain bench that enables the passing of higher flows. With this design, the Corps Savannah District estimates the water level will decrease one to two feet in the downtown Augusta area under average flow conditions. River flows between 5,000 and 8,000 cubic feet per second (cfs) are considered average flows. Flows above 5,000 cfs occur approximately 77% of the time. This is a contentious issue for the community with concerns regarding maintaining the pool created by the current lock and dam for drinking water supply and recreational use. In response to concerns regarding pool height with the recommended plan, the Corps Savannah District conducted a drawdown to exhibit the height of the pool for the tentatively selected plan for local observation in February 11-14, 2019. In conjunction with the drawdown, the Corps Savannah District released the Draft Integrated Post Authorization Analysis Report (PAAR) and Supplemental Environmental Assessment (SEA), Fish Passage at New Savannah Bluff Lock and Dam (NSBLD), and Draft Finding of No Significant Impact (FONSI) for public review on February 27, 2019. DNR

staff, the public, and other resource agencies and conservation groups will have 60 days to review the details of the tentatively selected plan and provide comment by April 16, 2019. DNR submitted comments on the PAAR and SEA for the NSBLD on March 27, 2019. Additionally, staff also reviewed and provided comments on the Draft Fish and Wildlife Coordination Act Report on the NSBLD to the USFWS on March 26, 2019. On October 29, 2019, the Corps announced its decision on the future of the fish passage at NSBLD. The Corps selected alternative 2-6d, a fixed weir with an in-channel fish passage and a floodplain bench that enables the passing of higher flows. The plan calls for removal of the lock and dam. On November 4, 2019, the South Carolina Attorney General on behalf of the South Carolina Department of Health and Environmental Control and the Savannah River Maritime Commission filed a lawsuit against the United States Army Corps of Engineers Savannah District in regard to the elevation of the pool that should be maintained. DNR OEP staff attended a public meeting held in Augusta on November 13, 2019. On December 6, 2019, the City of Augusta filed a motion to intervene in the lawsuit filed by the State of South Carolina. On January 2, 2020, the Georgia Ports Authority also filed a motion to intervene in the lawsuit. On November 23, 2020, US District Judge Richard Gergel ruled in the Lock and Dam case. Judge Gergel entered an order in favor of the State of South Carolina and the City of Augusta and permanently enjoined the defendants (USACE and Georgia Ports Authority) from tearing down the NSBLD and required a mitigation alternative that keeps the pool level at 114.76 ft. On January 19, 2021, the US Army Corps of Engineers, a federal defendant in the case, filed a notice of appeal to the US Court of Appeals for the Fourth Circuit.

- 6. Wetland Mitigation Lands Acquisition.** The USACE-Savannah District released a draft Final Report documenting the acquisition and preservation of two tracts of land in partial fulfillment of wetland mitigation requirements for the Savannah Harbor Expansion Project (SHEP). Flow-rerouting features within the Savannah River estuary are expected to mitigate most of the impacts to freshwater wetlands due to SHEP (see item on McCoy's Cut below); however, the remaining impacts are required to be mitigated by the acquisition and preservation of 2,245 acres of existing wetlands within the estuary. In the 2012 SHEP Final EIS, the USACE stated it would acquire lands designated as high priority in the Savannah National Wildlife Refuge Acquisition Plan and provide them to the USFWS to manage as additions to the Refuge. The USFWS will manage these properties using funds obtained through the Department of Interior's normal budget process. The first property, a 175-acre mostly upland tract known as SLF III, was acquired by GADOT and transferred to the USFWS in 2015. The second property, Abercorn Island, is a 2,081-acre tract consisting mostly of non-tidal forested wetlands. Abercorn Island was identified by the USFWS as its top priority for acquisition. The GADOT acquired Abercorn Island in February 2017 and comments on the draft Final Report were submitted on May 30, 2017. Abercorn Island was transferred to the Refuge in June 2017.

Savannah River Training Wall Removal Study – Augusta. The U.S. Army Corps of Engineers, Savannah District, has initiated a study regarding a training wall in the Savannah River at Augusta, Georgia conducted under the authority of Section 216 of the Flood Control Act of 1970. The purpose of this type of study is to determine whether a water resources development project operated and maintained by the Corps of Engineers should be deauthorized, and if the associated property should undergo disposal. The training wall was constructed as part of the federally authorized project, Savannah River Below Augusta (SRBA), in the early 1900s. The wall, and associated structures, helped prevent formation of sandbars on the Georgia side of the river which impeded commercial navigation at the time. However, commercial navigation effectively ceased by 1980 and maintenance of the channel in that area was discontinued, the last known maintenance activity having been completed in December 1980.

The study area extends between Augusta's 13th Street Bridge and Palmetto Parkway Bridge (Interstate 520). Currently, the training wall, including underwater portions and those exposed during low flow periods controlled by the J. Strom Thurmond Dam, could be a navigational hazard. The study will determine if there remains Federal interest in this navigational feature of the SRBA project and if not, whether disposal of the wall is feasible. DNR submitted comments on the proposed study on October 28, 2019. On April 6, 2020, the USACE Savannah District released a draft Integrated Disposition Study (IDS)/Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) under the

authority of Section 216 of the Flood Control Act of 1970 (Public Law 91-611) for the Savannah River Below Augusta, Training Wall Disposition, Augusta, Georgia and North Augusta, South Carolina. The draft IDS/EA included the evaluation that the Corps performed to determine whether federal interests exist to retain or dispose of the Training Wall and its associated navigation features. The study evaluates three alternatives: (Alternative 1) Future Without Project Condition (FWOP)/No Action Alternative (NAA); (Alternative 2) Removal of the Training Wall; and (Alternative 3) Removal of the Training Wall and Sediment at Gardner's Bar on the South Carolina downstream bank. The recommended plan, Alternative 2, consists of the removal of the training wall and its associated navigation features and would allow for the natural release of sediments accumulated behind the wall back into the river system. DNR staff provided comments on the report on April 30, 2020. DNR provided comments on the Draft Fish and Wildlife Coordination Act Report to the USFWS Georgia Ecological Services Office. The USFWS Georgia Ecological Services Office provided the Final Fish and Wildlife Coordination Act Report on the Training Wall on June 22, 2020. DNR project manager: Stacie Crowe crowes@dnr.sc.gov

Stormwater Infrastructure General Permit, S.C. Department of Health and Environmental Control's Office of Ocean and Coastal Resource Management (DHEC OCRM), GP-2019-SW11, GP-2019-SW12 & GP-2019-SW13. DHEC OCRM is proposing to issue a general permit to streamline the authorization process for State Agencies, County Governments and Local Municipalities for public Storm Water Infrastructure improvement projects within DHEC OCRM Direct Permitting Authority (Critical Area), in accordance with the Coastal Zone Management Act (48-39-10 et.seq.). This GP will authorize State agencies, county governments and local municipalities to conduct activities required for the re-establishment, improvement or maintenance of existing public stormwater conveyance systems in the tideland. The purpose of this GP is to provide a simplified and expeditious means to authorize routine public stormwater infrastructure projects undertaken by state agencies, county governments and local municipalities that are similar in nature and result in only minimal individual and cumulative impacts to the tidelands critical area within the State of South Carolina.

In a letter dated April 23, 2019, DNR expressed various concerns regarding the issuance of this GP and the potential significant and cumulative impacts to important estuarine resources. DNR staff provided recommendations for minimizing potential impacts. Staff also participated in a follow-up meeting to further discuss concerns of the various commenting agencies. This GP was officially noticed in August of 2020; OEP staff made additional recommendations for minimizing potential impacts. DNR project manager: Susan Davis daviss@dnr.sc.gov.

Stormwater Management General Permit Tidal Waters, USACE General Permit P/N SAC-2020-00959.

https://www.sac.usace.army.mil/Portals/43/docs/regulatory/publicnotices/Aug_2020_PN/SAC-2020-00959_Proposed_Stormwater_Conveyance_General_Permit_PN.pdf?ver=2020-08-14-095638-890 The Charleston District proposes to issue a General Permit (GP) to federal, state, or local government agencies authorizing certain stormwater management activities located in tidal waters within the boundaries of the Critical Area Tidelands of the Coastal Zone of Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Horry, and Jasper Counties in South Carolina. The GP would authorize the excavation/dredging of existing, maintained stormwater conveyances, expansion of existing, maintained stormwater conveyances, and installation of new stormwater conveyance and/or the re-establishment of non-maintained stormwater conveyances through tidal waters. The GP would also authorize the discharge of dredged or fill material and/or excavation/dredging to facilitate the installation of new and/or the maintenance, repair, replacement and/or extension of existing water control structures, pipes and culverts in tidal waters. In a letter dated September 3, 2020, DNR expressed various concerns regarding the issuance of this GP and the potential significant and cumulative impacts to important estuarine resources and provided recommendations for minimizing potential impacts. DNR project manager: Susan Davis daviss@dnr.sc.gov.

US 278 Corridor Improvements Project, Beaufort County. Federal Project Number P030450. See: <https://www.scdot278corridor.com/>

The Federal Highway Administration (FHWA) in cooperation with the South Carolina Department of Transportation (SCDOT) are preparing an EA for improvements to the US 278 corridor. The purpose of this project is to increase capacity and reduce congestion along US 278 from Moss Creek Drive to Squire Pope Road. As a part of the corridor improvements project, the eastbound Mackay Creek Bridge, which crosses the Intracoastal Waterway, would be replaced as a part of SCDOT's bridge replacement program and the remaining three bridges in the study area would also be studied for potential improvements. In addition, the access to Pinckney Island National Wildlife Refuge and the C.C. Haigh, Jr. boat ramp would also be studied for possible improvements. On April 10, 2019, the DNR accepted an invitation to become a participating agency in the development of an EA for this project. As a participating agency, the DNR will identify, as early as possible, any issues of concern regarding the project's potential environmental impacts. DNR will also be involved in the issue resolution process and provide meaningful and timely input on unresolved issues. In a letter dated September 20, 2018, the DNR has already provided scoping comments on this project, including preliminary comments on potential impacts to natural resources in the study area. In a letter dated April 10, 2019, the DNR accepted the invitation to become a participating agency and asked that the DNR's role in dispute resolution be clarified in the Final ACP. DNR reviewed the Draft Purpose and Need statement and had no comments or concerns. On June 13, 2020, the DNR participated in a meeting to discuss the alternative evaluation criteria, range of alternatives, and provide a coordination point for agencies as required by the EA process. On March 19, 2020, OEP staff participated in a meeting to discuss the following: the reasonable alternatives and revisions since the last agency meeting; the preliminary Essential Fish Habitat assessment; and future mitigation planning. Seventeen preliminary alternatives were developed originally and were narrowed down to six reasonable alternatives. On May 14 staff participated in an ACE meeting to discuss project updates, discuss the alternatives matrix and the recommended preferred alternative. DNR project manager: Susan Davis daviss@dnr.sc.gov

Hydroelectric Energy Projects

Under the Federal Energy Regulatory Commission's (FERC) regulatory authority under the Federal Power Act, natural resource agencies have an opportunity to negotiate and collaborate with utilities to minimize and mitigate impacts to natural resources affected by the operation of hydroelectric facilities. OEP staff serve as the DNR representative as a part of the relicensing process and implementation of the license. DNR FERC Coordinator: Elizabeth Miller millere@dnr.sc.gov

Augusta Canal Hydroelectric Project (FERC Project No. 11810). The City of Augusta, Georgia, filed a license application with FERC on June 20, 2003, which is pending signatures to a Settlement Agreement and the completion of NMFS Section 7 endangered species consultation regarding hydro project impacts to shortnose and Atlantic sturgeon; DNR signed the Settlement Agreement. The Settlement Agreement and the license application propose upstream and downstream fish passage and operations of the Augusta Canal that will provide for seasonal minimum flows that will enhance aquatic habitat and recreational activities in the Savannah River at Augusta Shoals. On July 9, 2014 the City of Augusta submitted a request to DHEC for 401 Water Quality Certification (WQC) of its license application to FERC to which DNR provided comments to DHEC on Sep 11, 2014. On July 8, 2015 DHEC issued a 401 WQC of the City of Augusta's FERC license application, and the WQC is consistent with the DNR stream flow objectives. NMFS and FWS drafted a revised joint prescription for fish passage in November 2017 and again in March 2018. A draft joint fish passage prescription was issued in September 2019, which was also reviewed by DNR staff. On October 23, 2019, the City of Augusta filed for a trial type hear to resolve disputed issues regarding the Second Modified Prescription. In July 2020, the NMFS and the USFWS each filed Reservations of Authority, replacing the Second Modified Prescription for the Project. The agencies are jointly working to file a Third Modified Prescription for the Augusta Canal Project.

Cherokee Falls Hydroelectric Project (FERC Project No. 2880). Cherokee Falls Hydroelectric Project, LLC emailed a draft license application to DNR on March 18, 2019 requesting agency review and

comments by June 17, 2019. DNR submitted comments to the FERC on June 14, 2019. Enel submitted their Final License Application to the FERC on July 31, 2019. The FERC issued Scoping Document 1 for the Cherokee Project on March 6, 2020 and comments were submitted by DNR on April 3, 2020. DNR submitted comments on the Notice for Ready for Environmental Analysis (REA) to the FERC on May 18, 2020. On April 20, 2020 Cherokee Falls Hydroelectric Project, LLC submitted a request to DHEC for 401 Water Quality Certification (WQC) of its license application to the FERC. DHEC issued a public notice on April 30, 2020 requesting comments regarding the proposed application. DNR submitted comments to DHEC for the 401 WQC on June 1, 2020. DNR and DHEC submitted additional questions to the licensee regarding Project operations for clarification before issuance of the WQC. On December 15, 2020, **Hydroland Omega LLC. took ownership of Cherokee Falls Hydroelectric Project, LLC and intends to continue to pursue the subsequent license. The ownership change is at the parent company level and the primary licensee of the Project will remain the same. The licensee responded to and addressed DNR and DHEC's additional questions and concerns regarding project operations related to the issuance of the WQC. After consulting with DNR personnel, DHEC issued the WQC to the Cherokee Falls Hydroelectric Project on March 9, 2021.**

Coneross Hydroelectric Project (FERC Project No. 6731). Coneross Power Corporation filed a draft license application with the FERC on October 22, 2018. DNR staff reviewed the document and provided comments and recommendations before the January 20, 2019 comment period deadline. The applicant proposed a decrease in the minimum flow requirement of 25 cfs year-round to the bypass reach for the project and stated that it would be an enhancement to the project. DNR disagrees and finds that the change to this new flow regime would be a negative impact for aquatic resources. The current flow requirement in the previous license requires a minimum flow in the bypass reach at 35 cfs from February 1 – May 31 and 25 cfs from June 1 – January 31 or inflow to the Project's impoundment, whichever is less. They are also required to maintain a minimum flow of 36 cfs or inflow, whichever is less, downstream of the confluence between the tailrace and the bypass reach to support navigation. To address DNR's concerns, it was agreed that the applicant would fund studies to determine proper minimum flow requirements for their project. The final license application was submitted to the FERC on February 28, 2019. DNR submitted a follow-up letter in April 2019 to address the study needs required to determine adequate flow downstream of the project. The Project filed the Final License Application on January 23, 2020. The FERC issued the Scoping Document 1 (SD1) for the Project on February 20, 2020. The FERC issued an extension to the SD1's comment period on March 6, 2020 and comments were submitted by DNR staff on April 9, 2020. The FERC issued the Ready for Environmental Analysis for the Coneross Project on April 21, 2020. DNR staff reviewed the request and submitted comments and 10j recommendations on June 19, 2020. DHEC issued a public notice seeking comments on the Coneross Project's application for a 401 Water Quality Certification. DNR staff submitted comments on July 6, 2020 to DHEC recommending measures to provide protection, mitigation and enhancement for fish and wildlife resources affected by the Project. **On December 15, 2020, Hydroland Omega LLC. took ownership of the Coneross Power Corporation and intends to continue to pursue the subsequent license. The ownership change is at the parent company level and the primary licensee of the Project will remain the same.**

Parr-Fairfield Hydroelectric Project (FERC Project No. 1894). The Parr-Fairfield Hydroelectric Project was issued a new license on November 25, 2020. SCDNR staff worked collaboratively with the licensee, federal and state agencies, and other stakeholders throughout the relicensing process that began in September 2012. In June 2018, a Comprehensive Relicensing Settlement Agreement (CRSA) detailing how the Project should be managed under a new FERC license was finalized and signed by SCE&G (now Dominion Energy South Carolina (DESC)) and relicensing stakeholders, including SCDNR. The FERC incorporated most of the agreed upon terms of the CRSA into license requirements. However, DESC, in good faith and to uphold the agreed upon terms of the CRSA, has agreed to follow through with terms that were not incorporated into the license. DESC will be providing several beneficial services to the state's residents and aquatic resources as part of their new license requirements and CRSA terms. There are a variety of benefits associated with the project including:

- Benefits for aquatic resources with improved flow regimes that will reduce reservoir fluctuations and stabilize flows during fish spawning season.
- Data collected, and information gained, as a part of a freshwater mussel monitoring plan and an American eel Monitoring Plan.
- Improved water quality downstream of the Project with increased minimum flows and the implementation of a Turbine Venting Plan to enhance dissolved oxygen below Parr Shoals Dam.
- Development of a Shoreline Management Plan and Erosion Monitoring Plan to protect the Project's natural, scenic, recreational, and cultural resources over the term of the new license.
- Establishment of a Habitat Enhancement Program to enhance aquatic habitat in addition to the installation of habitat structures in Lake Monticello.
- Existing recreation sites within the Project at Parr and Monticello reservoirs, as well as the Recreation Lake or Sub-Impoundment (a 300-acre lake adjacent to Monticello Reservoir, constructed by the licensee for the sole purpose of recreation) will see enhancements at new and existing recreation sites such as new courtesy docks and fishing piers. A new canoe portage trail around the Parr Shoals Dam will also be formalized.
- Continued protection and public use of approximately 9,000 acres of land and water within the Project boundary in the Wildlife Management Area (WMA) Program.

The project website is <http://parrfairfieldlicense.com/index.html>

Saluda Hydroelectric Project (FERC Project No. 516). SCE&G filed with FERC a license application for the Saluda (Lake Murray) Project on August 27, 2008 and a Comprehensive Relicensing Settlement Agreement (CRSA) on July 31, 2009. A new FERC license for this project is pending the completion of NMFS Section 7 endangered species consultation regarding hydro project impacts to shortnose and Atlantic sturgeon. The CRSA and license application propose important protection and enhancement measures for Lake Murray and downstream sections of the Saluda and Congaree rivers. Measures include the establishment of minimum flows and striped-bass spawning enhancement flows, low-inflow drought plan, a plan for dissolved-oxygen enhancement to improve water quality, increased protection of threatened and endangered species, enhancements in fish and wildlife habitat protection and increased recreational opportunities. On January 3, 2019, SCANA/SCE&G merged with Dominion Energy South Carolina, LLC. The project website is <http://www.saludahydrorelicense.com/>.

Santee Cooper Hydroelectric Project (FERC Project No. 199). S.C. Public Service Authority (SCPSA) filed with FERC a license application on Mar 15, 2004 and a Final Settlement Agreement (FSA) on May 24, 2007. The license application and FSA propose flows through the project to enhance aquatic habitat and water quality, a low-inflow/drought plan, fish passage and protection prescriptions, plans to protect sensitive species, shoreline management plan, recreation plan, and enhancements at the Santee National Wildlife Refuge. FERC issued its Final EIS in October 2007. A new FERC license for this project is pending the completion of National Marine Fisheries Service (NMFS) Section 7 endangered species consultation regarding hydro project impacts to shortnose and Atlantic sturgeon. DNR staff continues to participate in the Santee Cooper-NMFS consultation process regarding sturgeon protection measures. DNR provided comments on July 23, 2012 to address a Santee Cooper proposal to NMFS for sturgeon passage at the Project. NMFS resumed consultations with Santee Cooper and DNR staff on April 25, 2017, to address sturgeon passage issues and planned steps for revising the draft biological opinion. In July 2019, DNR staff received a draft of the Biological Opinion and Fishway Prescription from the NMFS Section 7 endangered species consultation for review. DNR staff attended a site visit and meeting on September 30 and October 1 to discuss the NMFS draft Biological Opinion. Staff reviewed the draft Biological Opinion and draft Second Modified Prescription for Fishways and submitted comments to the FERC on December 17, 2019. NMFS issued the final Biological Opinion on January 22, 2020 and the final Second Modified Prescription for Fishways on January 27, 2020.

Spartanburg Water Proposed Hydroelectric Projects. Spartanburg Water has been granted approval by FERC on July 7, 2014 to begin the licensing process in order to establish hydroelectric facilities at two

existing Pacolet River dams on Lakes Blalock and Bowen and restoration of an abandoned hydropower facility at Fingerville on the North Pacolet River. DNR staff are providing input and assistance with study plans being implemented at the project sites. Spartanburg Water has paused its pursuit of these licenses pending resolution of related economic issues. The project website is: <http://www.sws-sssd.org/lakes/index.php>.

Stevens Creek Hydroelectric Project (FERC Project No. 2535). On January 3, 2019, SCANA/SCE&G merged with Dominion Energy. Dominion Energy conducted public outreach meetings on January 10, 2019 to address the upcoming relicense process for Stevens Creek Hydroelectric Project located on the Savannah River downstream of Lake Thurmond in Edgefield County, SC and Columbia County, GA. DNR staff attended a site visit on May 15, 2019 to survey the project area and recreational facilities provided by the project. DNR staff attended a draft Pre-Application Document (PAD) meeting on August 22, 2019. DNR is involved in several Resource Conservation Groups and has attended meetings with the different groups in preparation for the draft PAD. The current FERC license for the Project expires on October 31, 2025. Dominion Energy submitted their Pre-Application Document and request to use the Traditional Licensing Process (TLP) on May 15, 2020. DNR filed a concurrence letter in support of the use of the TLP for the Project. DNR staff participated in the Joint Agency Meeting and virtual site visit on September 3, 2020. DNR submitted comments on the Pre-Application Document and a study request for consideration on November 2, 2020. The project website is <http://stevenscreekrelicense.com>.

Upper Pelzer (FERC Project No. 10254), Lower Pelzer (FERC Project No. 10253), and Piedmont (FERC Project No. 2428) hydroelectric projects. Enel Green Power North America, Inc. was granted approval by FERC on April 5, 2013 to begin a relicensing process for these 3 run-of-river hydro projects located on the Saluda River in Greenville and Anderson counties. Three Final License Applications were submitted to FERC by Enel in late November and December, and DNR staff reviewed the documents and submitted comments to FERC on January 28 and February 17, 2016, recommending additional studies to address information needs for these projects. DNR also submitted comments and recommendations to DHEC regarding Enel's applications for 401 Water Quality Certification for these three projects. FERC issued a Ready for Environmental Analysis notice in November 2017 and is developing its Draft Environmental Assessment for the three projects. In January 2018, DNR submitted recommendations to FERC on licensing measures for protection, mitigation and enhancement of fish and wildlife resources affected by the Projects. FERC issued a Draft Environmental Assessment (DEA) on the three projects on July 16, 2019. DNR submitted comments to the Commission regarding their findings and recommendations in the DEA on August 30, 2019. The FERC reviewed DNR's comments and did not adopt any of DNR's 10j recommendations in the Final Environmental Assessment issued in October 2019. 10j under the Federal Power Act requires consideration of recommendations by fish and wildlife agencies for the protection, mitigation of damages to, and enhancement of fish and wildlife affected by the development, operation and management of a FERC project. The Piedmont Project license was issued on April 15, 2020. The Upper Pelzer Projects license was issued on June 30, 2020. The Lower Pelzer Project was issued a new license on August 6, 2020. Staff attended a site visit at the Piedmont Project on September 30, 2020 to review the draft Recreation Management Plan (RMP) for the Project. The licensee is required by Article 405 of their license to provide an informal fishing site and a canoe portage around the dam. Staff submitted comments on the draft Piedmont RMP on October 9, 2020 and draft Upper Pelzer RMP on December 8, 2020. **SCDNR staff are currently reviewing the Lower Pelzer's RMP and will be submitting comments and recommendations.**

Natural Resource Damage Assessment (NRDA).

Under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) or the Oil Pollution Act (OPA), natural resource trustees seek damages for injury to natural resources that are a result of releases of hazardous substances or oil. OEP staff serve as the DNR representative as a part of the Natural Resource Trustees. DNR project manager: Stacie Crowe crowes@dnr.sc.gov

Exxon Mobil Corporation. The NRDA Trustees reached a settlement with the Exxon Mobil Corporation for approximately \$6.6 million for claims related to the release of hazardous waste at nine phosphate

fertilizer plant sites located in Charleston, Beaufort and the Greenville area between 1900-1950. Remedial actions started around 2007-2008. The Consent Decree was filed on May 2, 2019 and entered into final judgement on June 26, 2019. Environmental impacts typically associated with phosphate-based fertilizer manufacturing facilities include elevated concentrations of metals, particularly lead and arsenic in soil, groundwater and sediment, as well as acidic pH conditions. The NRDA Trustees will now begin the Restoration Planning process where restoration actions will be designed to return impacted resources to baseline condition. The Trustees signed the funding resolution in January 2020. The settlement funds are anticipated to be used for marsh and oyster restoration projects in the Charleston and Beaufort areas.

Koppers Company Inc. The NRDA Trustees reached a settlement with Beazer East, Inc., the responsible party, for the Koppers Company site for approximately \$3 million. The Consent Decree was filed on January 7, 2019. Starting as early as 1942, wood treatment and fertilizer manufacturing facilities located at Koppers in Charleston released hazardous substances into wetland and riverine habitats in and near the Ashley River. Approximately 140 acres of tidal marsh and creeks were impacted by the contaminants released, which included polycyclic aromatic hydrocarbons (PAHs) and heavy metals. Beazer East, Inc. worked cooperatively with the EPA to clean up the contamination and remedial activities were completed in 2003. The Trustees conducted a NRDA and determined that both intertidal and subtidal habitats were affected by the contamination. Contaminant concentrations would have been toxic to benthic invertebrates (including grass shrimp), and possibly fish, birds and mammals. The Trustees have released the Final Damage Assessment and Restoration Plan, as well as the Environmental Assessment for the Koppers Site, which describes restoration projects focusing on salt marsh restoration at sites on the Ashley River and Long Branch Creek in Charleston. The comment period on the Draft Restoration Plan closed on February 12, 2020 and no public comments were received. A Trustee resolution to accept an oyster restoration project as the preferred alternative was circulated on February 26, 2020. The Trustees signed the Trustee Resolution approving the Final Supplement's release on March 12, 2020. The salt marsh restoration project at Drayton Hall will begin on March 15, 2021.

MV Everreach. On September 30, 2002, the container ship M/V Everreach spilled approximately 12,500 gallons of oil into the waters of the Cooper River in Charleston, South Carolina. While the oil was concentrated in the vicinity of the North Charleston Terminal and the Old Navy Base, oiling occurred in tidal creeks and backwater areas of James Island, Shutes Folly, Crab Bank, Morris Island, Folly Beach, and Sullivan's Island, totaling approximately 30 linear miles of shoreline. NOAA and the Trustees worked with the Responsible Party to restore over 11 acres of salt marsh habitat at the site of the former Charleston Naval Base golf course in North Charleston. The NRDA Trustees reached a settlement with the responsible party for a salt marsh restoration project and an additional \$121,000 for damages to recreational facilities and lost use of natural resources. The Consent Decree was filed on October 24, 2012. The Noisette Creek Restoration Project restored tidal flow through berm breaches and excavation of a tidal creek network and was completed in 2018. To address the lost recreational uses, the Trustees evaluated three restoration alternatives, including a no action alternative. These alternatives were presented in a Draft Restoration Plan and Environmental Assessment, released for public comment June 27 through July 27, 2019. No public comments were received. The Trustees selected one project to compensate the public for the injury to recreational fishing. The selected project will provide additional and improved fishing access through the installation of a fishing pier at the Sol Legare Boat Landing on James Island, South Carolina. Implementation is expected to begin in 2020. The Sol Legare Boat Landing improvements were completed in June 2020 and include a new floating dock and fixed crabbing and fishing pier.

Mitigation Banks and Interagency Review Team

Under the 2008 Mitigation Rule, natural resource agencies have an opportunity to participate collaboratively with resource and regulatory agencies on the Interagency Review Team (IR) to oversee and provide feedback on mitigation bank or in-lieu fee development. The IRT process ensures that mitigation banks are sited appropriately and provide ecological value, in addition to functional uplift of

aquatic resources to offset the loss of aquatic resources associated with U.S. Army Corps of Engineers Section 404 permits. A majority of the OEP staff serve on the IRT to provide expertise on stream restoration and wetland enhancement during this process. The following are a list of recent banks that are under review; this does not include existing banks that are also reviewed during the monitoring phases of the bank's life.

Audubon Silver Bluff Mitigation Bank Prospectus

The proposed project consists of establishing a 475-acre freshwater stream and wetland mitigation bank in the Middle Savannah River watershed (8-digit HUC 03060106) located in the Southern Outer Piedmont Ecoregion near Spartanburg, Spartanburg County (34.837678, -82.057584). The proposal is to restore 6,036 linear feet of Curry Branch. Approximately 292.8 acres of wetlands will be enhanced or restored through plugging ditches and vegetative enhancements. The bank is owned by the National Audubon Society and sponsored by Audubon South Carolina. The long-term steward will be Audubon South Carolina and the conservation easement holder will be the Lowcountry Land Trust. Prospectus comments were submitted to the USACE by DNR on December 17, 2020. **SCDNR staff plan to attend a site visit on April 14, 2021.** DNR project manager: Tom Daniel

Ben's Creek Mitigation Bank Prospectus

The proposed project consists of establishing a freshwater stream and wetland mitigation bank in the South Tyger watershed (8-digit Hydrologic Unit Code 03050107) located in the Southern Outer Piedmont Ecoregion near Spartanburg, Spartanburg County (34.837678, -82.057584). The proposed 430-acre mitigation bank includes approximately 28,900 linear feet of stream channels and 103.5 acres of wetlands. The proposal is to preserve 20,550 linear feet of stream, and either enhance or restore 8,350 linear feet of streams by stabilizing stream channels and reconnecting streams to their floodplain. Approximately 99.1 acres of wetlands will be enhanced or restored through removal of fill, berms and roadbeds. Approximately 4.4 acres of wetlands will be preserved on site. The bank is owned by Mr. David Keller of Moore, SC and sponsored by Southern Oaks Land and Water. Southern Oaks Land and Water will be the long-term steward. The conservation easement holder has not yet been identified. Prospectus comments were submitted to the USACE by DNR on February 19, 2020. DNR project manager: Tom Daniel

Big Dutchman Creek Mitigation Bank Draft Mitigation Banking Instrument

The proposed project consists of establishing a freshwater stream and wetland mitigation bank in the Lower Catawba watershed (8-digit Hydrologic Unit Code 03050103) located in the Level III Piedmont Ecoregion near the Rock Hill, York County, SC (35.00422, -81.08689). The proposed 106 acre bank site is located within the 800 acre Harper Farm. The proposal is to restore approximately 17,600 linear feet of stream and enhance 3.82 acres of wetlands. The bank owners and long-term stewards are Mr. Richard C. Harper and Mr. Craig Harper and the conservation easement holder is the York County Soil and Water Conservation District. Prospectus comments were submitted to the USACE by DNR on September 6, 2017 and DMBI comments were submitted on April 3, 2020. DNR submitted comments on the Design Plans for the proposed bank on September 10, 2020. DNR project manager: Greg Mixon

Brosnan Forest Coldwater Branch Mitigation Bank Mitigation Banking Instrument

The proposed bank is located in the the Four Hole Swamp watershed (8-digit Hydrologic Unit Code 03050205) in the Middle Atlantic Coastal Plain ecoregion. The proposed 1,106 mitigation site is located in Norfolk Southern Railway Company's Brosnan Forest, a 14,405-acre corporate conference center and outdoor recreation facility. The proposal is to restore 299.2 acres of headwater wetlands, 2.3 acres of isolated wetlands, 123.2 acres of streamside wetlands, 21 acres of restored impounded wetlands, and 46.3 acres of formerly impounded wetlands that will be hydrologically enhanced. All wetlands will be protected by a 150-foot average width upland buffer. In addition, 34,488 linear feet of stream will be restored or preserved with 300-foot average width upland buffers. The bank is owned and sponsored by Norfolk Southern Railway Company and will be protected by a conservation easement held by Lowcountry Land Trust, Inc. Prospectus comments were submitted to the USACE by DNR on February

4, 2019 and DMBI comments were submitted on June 2, 2020. DNR staff reviewed a revised DMBI dated September 2020 and submitted comments on October 27, 2020. DNR. Project Manager: Greg Mixon

Canadys Mitigation Bank Mitigation Banking Instrument

The proposed bank is located in the Edisto watershed (8-digit Hydrologic Unit Code 03050206) located in the Level III Southeastern Plains Ecoregion. The proposed 427-acre mitigation site includes approximately 336 acres of freshwater wetlands. The proposal is to preserve 162 acres of bottomland hardwood floodplain wetlands along 10,500 linear feet of the Edisto River. In addition, 174 acres of former timberland will be enhanced by removal of roads and bedded pines and re-planting native bottomland hardwood species. The bank is owned and sponsored by Dominion Energy SC and will be protected using a conservation easement held by Lord Berkeley Conservation Trust. Prospectus comments were submitted to the USACE by DNR on September 17, 2018 and DMBI comments were submitted on February 20, 2020. The Final MBI was approved on December 14, 2020. The project will enter the construction phase and then monitoring. Project Manager: Susan Davis

Catfish Farm Mitigation Bank Prospectus

The proposed bank is located in in the Little Pee Dee and Great Pee Dee watershed (8-digit Hydrologic Unit Code 03040204 and 03040201) located in the Middle Atlantic Coastal Plain Ecoregion. The proposed 1,199-acre mitigation site would preserve 4,098 linear feet of stream. In addition, 2,418 linear feet of stream will be enhanced by re-routing flow back into relic channels. Approximately 12,807 linear feet of stream will be restored by stabilizing stream channels, reconnecting streams to their floodplain, removal of existing impoundments, and creating new channels where needed. Buffers will be enhanced by planting a mix of native trees to improve vegetative diversity. Approximately 596.69 acres of wetlands will be enhanced by re-establishment of native hardwood species. 252.48 acres of wetlands will be restored by removing exiting pine plantation, restoring hydrology through grading and ditch plugging, and re-establishing forested wetland vegetative communities. Approximately 42.31 acres of wetlands will be preserved on site. The bank owner and proposed long-term steward is Catfish Farm, LLC and the conservation easement holder is anticipated to be Pee Dee Land Trust. Draft Prospectus comments were submitted to the USACE by DNR on May 8, 2017 and final Prospectus comments were submitted on May 5, 2020. DNR project manager: Greg Mixon

Caw Caw Mitigation Bank Draft Mitigation Banking Instrument

The proposal consists of establishing a freshwater wetland mitigation bank in the Stono River watershed (USGS 8-digit Hydrologic Unit Code 03050202) and the Middle Atlantic Coastal Plain ecoregion of South Carolina. The proposed 668.7-acre mitigation site includes 658.8 acres of freshwater wetlands and 9.87 acres of upland roads. The mitigation work plan includes the enhancement/restoration of 197.1 acres of palustrine forested wetlands by the removal of pine species and the planting of bottomland hardwood seedlings; and the preservation of 445.3 acres of palustrine forested and scrub shrub wetlands. The bank will be protected with a conservation easement held by Ducks Unlimited. Prospectus comments were submitted to the USACE by DNR on February 12, 2015 and DMBI comments were submitted on May 14, 2020. Project manager: Susan Davis

Corley Mill Mitigation Bank Final Mitigation Banking Instrument

The proposed project consists of establishing a freshwater stream and wetland mitigation bank in the Saluda River watershed (8-digit Hydrologic Unit Code 03050109) located in the Level III Piedmont Ecoregion near Lexington, Lexington County, SC (34.0278, -81.1647). The proposed 116.07-acre bank includes the lower portions of both Twelve Mile and Fourteen Mile Creeks approximately 0.65 miles upstream from the confluence with the Saluda River. The site includes 8,234 linear feet of streams and 72.64 acres of wetlands that are proposed to be restored, enhanced and preserved. The bank owners are Mrs. Lenna C. Young and Mrs. Cindy C. Waters. The long-term steward is the Corley Mill Preservation Group LLC and conservation easement holder is Congaree Land Trust. Prospectus comments were submitted to the USACE by DNR on December 17, 2016 and DMBI comments were submitted on May 5, 2020 and again on July 24, 2020 on the MBI document dated June 29, 2020. DNR staff reviewed a revised DMBI dated September 23, 2020 and provided comments dated December 9, 2020. DNR project manager: Greg Mixon

Crane Creek Mitigation Bank Draft Mitigation Banking Instrument

The proposed project consists of establishing a freshwater stream and wetland mitigation bank in the Lower Broad River watershed (8-digit Hydrologic Unit Code 03050106) located in the Level III Piedmont Ecoregion near Columbia, Richland County, SC (34.076905, -81.038011). The proposed 309.32-acre bank includes restoration and buffering of 12,031 linear feet of Crane Creek, 4,007 linear feet of associated tributaries, and 134.5 acres of palustrine forested, scrub-shrub and emergent wetlands and open water. The bank owner and long-term steward is Crane Creek Mitigation LLC and the conservation easement will be held by Congaree Land Trust. Prospectus comments were submitted to the USACE by DNR on August 24, 2017 and Draft MBI comments were submitted to the USACE by DNR on April 27, 2020. DNR staff reviewed a revised DMBI dated August 12, 2020 and submitted comments October 23, 2020. DNR project manager: Greg Mixon

Daniel Island Saltwater Mitigation Bank Draft Mitigation Banking Instrument

The proposed project consists of establishing a saltwater mitigation bank in the Cooper River watershed (8-digit Hydrologic Unit Code 03050201) in the Sea Island/Coastal Marsh Ecoregion. The 134.76-acre mitigation site is a portion of a former confined disposal facility and prior to 1970 was used to manage dredged material. According to the Prospectus, the mitigation site consists of 25.67 acres of existing salt marsh and 109.09 acres that were used for the placement of dredged material and farming activities. The long-term steward for the proposed mitigation bank will be the property owner SC Ports Authority. The third-party conservation easement holder for the site will be The Lord Berkeley Conservation Trust. Prospectus comments were submitted to the USACE by DNR on January 1, 2017 and DMBI comments were submitted August 11, 2020. DNR project Manager: Susan Davis

Eagle House Mitigation Bank – Draft Mitigation Banking Instrument

The proposed project consists of establishing a freshwater stream and wetland mitigation bank in the Wateree watershed (8-digit Hydrologic Unit Code 03050104) located in the Level III Piedmont Ecoregion near Lake Wateree in Fairfield County (34.433632; -80.919653). The 97.56 acre mitigation site is located adjacent to the existing Taylors Creek Mitigation Bank and includes approximately 12,095 linear feet of stream and 4.6 acres of wetlands. In detail, the project proposes to enhance 10,317 linear feet of stream, preserve 1,778 linear feet of stream, enhance 2.32 acres of wetlands and preserve 2.28 acres of wetlands. The bank owner and sponsor is Eagle House Farms, LLC and the conservation easement will be held by Congaree Land Trust. DNR reviewed a Draft MBI and provided comments dated June 19, 2020 and subsequently DNR reviewed a revised Draft MBI and provided comments dated February 16, 2021. Project Manager: Greg Mixon.

French Quarter Creek Mitigation Bank Draft Mitigation Banking Instrument

The French Quarter Creek (FQC) Site is in Berkeley County, South Carolina within the Cooper River Basin (8-digit HUC 03050201). The FQC Site is owned by Environmental Banc & Exchange, LLC a wholly owned subsidiary of Resource Environmental Solutions, LLC (RES) and has an estimated acreage of approximately 445 acres. The proposed bank includes both wetland and stream restoration, enhancement, enhancement by upland buffering, and preservation. In detail, the project proposes to restore approximately 70.5 acres of bottomland hardwood forest by filling ditches and raising the water table of the affected area; enhance approximately 206 acres of various wetland habitats through planting of native species and land management practices; and approximately 1,200 feet of stream restoration. The DNR has been proposed as the long-term steward of the bank and the site will be protected with a conservation easement held by Lowcountry Land Trust. Prospectus comments were provided to the USACE by DNR on March 7, 2019 and DMBI comments on March 30, 2020. DNR project manager: Susan Davis

Goose Pond Mitigation Bank Draft Mitigation Banking Instrument

The proposed project consists of establishing a freshwater wetland and stream mitigation bank in the Congaree watershed (8-digit Hydrologic Unit Code 03050110) located in the Level III Southeastern Plains Ecoregion. The proposed 1,185-acre mitigation site includes approximately 20,076 linear feet (LF) of streams and approximately 676 acres of freshwater wetlands. The proposal is to preserve 11,163 LF of stream and restore 9,940 LF of stream. The proposal would also enhance 437.7 acres of bottomland

hardwood wetlands and preserve and additional 238.8 acres of bottomland hardwood wetlands. The bank owner and sponsor are Southern Oaks Land & Water, LLC and the long-term steward is proposed to be Palmetto Environmental Consultants. The conservation easement holder is proposed to be Congaree Land Trust. Prospectus comments were provided to the USACE by DNR on October 8, 2018. A DMBI, dated July 2020, was reviewed and comments submitted on August 28, 2020. Project Manager: Greg Mixon.

Great Pee Dee Mitigation Bank Final Mitigation Banking Instrument

The proposed project consists of establishing a freshwater wetland and stream mitigation bank in the Lower Pee Dee River watershed (8-digit Hydrologic Unit Code 03040201) located in the Level III Southeastern Plains Ecoregion. The proposed 1093.86-acre mitigation site includes approximately 55,503 linear feet of nontidal stream and approximately 1,183.26 acres of freshwater wetlands. The site contains 1,019.7 acres of impaired to fully functional jurisdictional wetlands and 38,450 linear feet of existing stream channels. Of the 1,093.86 acres making up the Bank, 56.42 acres of upland occurring within the watersheds of the Great Pee Dee River, Mill Creek and Pocosin Swamp will be preserved (2.04 acres) or enhanced (54.38 acres). Additionally, 305.28 acres of riparian buffer along all streams are being preserved (226.94) or enhanced (78.34). The bank owner and sponsor are Pee Dee Wetland and Stream Mitigation, LLC and the site will be protected with a conservation easement held by Pee Dee Land Trust. DNR provided comments on a proposed Prospectus on January 16, 2018 and comments were provided on the Draft MBI on December 17, 2020 and January 13, 2021. The Final MBI was approved on January 25, 2021. The project will enter the construction phase and then monitoring. The DNR was slated to become the long-term steward of this property once the monitoring phase ended, but at this time due to issues with public access to and on the property DNR is not planning to accept the property and the long-term stewardship role. Project Manager: Greg Mixon.

Grove Creek Mitigation Bank Phase 3 Restoration Plan

The proposed project consists of designing and constructing Phase 3 at the existing mitigation bank in the Saluda watershed (8-digit Hydrologic Unit Code 03050109) located in the Level III Piedmont Ecoregion. The 512.73-acre site includes a Phase 1 and Phase 2 restoration that have been previously constructed. Phase 3 will consist of the restoration of 4,182 linear feet of the main stem of Grove Creek on approximately 100 acres within the existing bank. The owner and sponsor are Hollingsworth Funds, Inc. and the conservation easement holder is Upstate Forever. DNR previously provided comments on the Phase 3 Restoration Plan on July 20, 2016. DNR staff reviewed the proposed Phase 3 Restoration Plan dated June 2020 and provided comments on September 18, 2020. DNR staff participated in a site visit on October 22, 2020 and provided additional comments dated November 13, 2020. Project Manager: Greg Mixon

Halidon Hill Mitigation Bank Draft Mitigation Banking Instrument

The proposed project consists of establishing a freshwater wetland and stream mitigation bank in the Cooper River watershed (8-digit Hydrologic Unit Code 03050201) located in the Level III Middle Atlantic Plains Ecoregion. The proposed 1,744.5-acre mitigation site includes approximately 1,074.6 acres of wetlands, 22.8 acres of non-wetland waters, and 647.1 acres of uplands. The proposal is to preserve 175.14 acres of freshwater wetland and 802 linear feet of stream. In addition, 222.93 of freshwater wetlands will be enhanced through removal of loblolly pine and replanted with native hardwood species; 94.36 acres of wetland will be enhanced through filling ditches, breaching/removal of berms, removal of roads and culverts; 418.81 acres of wetland will be enhanced through removal of loblolly pine, replanting native species, and removing hydrological impairments and 16.91 acres of freshwater wetland will be restored by removal of loblolly pine and restoring natural hydrology. In addition, 21,881 linear feet of stream will be restored through removal of undersized culverts, bank stabilization, and construction of a new channel. The bank sponsor, using a conservation easement (Ducks Unlimited), will protect the mitigation bank site. Prospectus comments were provided to the USACE by DNR on October 10, 2019 and DMBI comments were submitted on May 21, 2020. Project manager: Susan Davis

Landsford Canal Mitigation Bank Prospectus

The proposed project consists of establishing a freshwater wetland and stream mitigation bank in the Lower Catawba watershed (8-digit Hydrologic Unit Code 03050103). The proposed 250-acre mitigation

site includes approximately 27.18 acres of wetlands and 30,131 linear feet of streams. The project will preserve approximately 16,712 linear feet of streams and 24.91 acres of palustrine, forested wetlands, restore approximately 3,674 linear feet of streams by establishing a new channel and reconnecting the stream with the abandoned floodplain bench at the current stream elevation, enhance approximately 9,745 linear feet of streams by stabilizing of the existing channel and the creation a floodplain bench at the current stream elevation restoration, and enhance approximately 2.5 acres of freshwater forested wetlands through restoration of a native hardwood community. The bank owner, sponsor and proposed long-term steward is Landsford Mitigation Bank, LLC. The identity of the conservation easement holder has not been finalized. DNR received the public notice including the prospectus on March 8, 2021 and will provide comments by April 7, 2021. DNR project manager: Greg Mixon

Minkum Creek Mitigation Bank Draft Mitigation Banking Instrument

The proposed project consists of establishing a freshwater stream and wetland mitigation bank in the Broad River watershed (8-digit Hydrologic Unit Code 03050105) located in the Level III Piedmont Ecoregion near Gaffney, Cherokee County, SC (34.981895, -81.620860). The proposed 435-acre mitigation site includes approximately 36,600 linear feet of stream channels and approximately 10 acres of freshwater wetlands. The proposal is to restore or enhance 10,010 linear feet of perennial and seasonal streams. All streams within the bank are currently proposed for some level of restoration. The bank is owned by Heritage Preservation Holdings, LLC and sponsored by Sandy Creek Partners, LLC. The property owner, Heritage Preservation Holdings, LLC, will also be the long-term steward. The conservation easement holder has not yet been identified. Prospectus comments were submitted to the USACE by DNR on June 7, 2019. The DMBI, dated July 2, 2020, was reviewed and comments submitted August 25, 2020. DNR project manager: Greg Mixon

Mountain Bridge Passage Mitigation Bank Prospectus

The proposed bank would consist of three parcels in Greenville County, South Carolina located within the Saluda River watershed (HUC 03050109)., The three parcels encompass approximately 568.72 acres, containing approximately 45,948 linear feet (8.70 miles) of stream channels. The restoration work will occur on only one of the three tracts, the site of the former Holiday Lake/Civitan Camp (35.079475, -82.574669). This work consists of 4,217 linear feet of stream restoration, 3,772 feet of stream enhancement, and 37,959 feet of stream preservation. The bank is owned and sponsored by Naturaland Trust and will be protected using a conservation easement held by Upstate Forever. The property owner, Naturaland Trust, will be the long-term steward. Prospectus comments were submitted to the USACE by DNR on June 12, 2019. DNR project manager: Tom Daniel

Palmetto Umbrella Mitigation Bank: Edisto River Mitigation Site Draft Instrument Modification (DIM)

The proposed bank is located in the Edisto River watershed (8-digit Hydrologic Unit Code 03050206) located in the Middle Atlantic Coastal Plain Ecoregion within the ACE Basin. The proposed 1,291-acre mitigation site includes approximately 12,877 linear feet of stream channels and 429.5 acres of wetlands. The proposal is to preserve 3,911 linear feet of stream and to restore 8,966 linear feet of stream by redirecting flow from channelized portions back into on-site relic channels. Wetland enhancement of 35.4 acres will include establishing native vegetation where commercial pine plantations have encroached or where vegetation has been disturbed. Approximately 395.6 acres of wetlands will be restored by removal of ditches, roads and berms. Native vegetation will be restored in areas that are in commercial pine production. Approximately 359.5 acres of wetlands will be preserved on site. The bank is owned and sponsored by Weyerhaeuser NR Company and will be protected using a conservation easement held by Lord Berkeley Conservation Trust. DIM comments were submitted to the USACE by DNR on March 19, 2020. Project Manager: Susan Davis

Palmetto Umbrella Mitigation Bank: Great Swamp Mitigation Site Draft Instrument Modification (DIM)

The proposed bank is located in the Salkehatchie watershed (8-digit Hydrologic Unit Code 03050210) located in the Coastal Plain Ecoregion. The proposed 3,067-acre mitigation site includes approximately 53,570 linear feet of stream channels and 1,411.5 acres of wetlands. The proposal is to preserve 7,035 linear feet of stream and enhance 1,283 feet of stream by stabilizing stream channels and reconnecting natural hydrology upstream. Restoration of 38,152 linear feet of stream will be achieved by removing spoil

piles, utilizing available relic channels, and adding appropriate in stream structures to maintain dimension, pattern, and profile. Wetland enhancement will include establishing native vegetation where commercial pine plantations have encroached or where vegetation has been disturbed. Approximately 848.4 acres of wetlands will be preserved on site. The bank is owned and sponsored by Weyerhaeuser NR Company and will be protected using a conservation easement held by Lord Berkeley Conservation Trust. DIM comments were submitted to the USACE by DNR on February 12, 2020. Project Manager: Susan Davis

Point Farms Mitigation Bank Draft Mitigation Banking Instrument

The proposed project consists of establishing a saltwater mitigation bank in the Edisto watershed (8-digit Hydrologic Unit Code 03050206) located in the Level III Southeastern Plains Ecoregion. The proposed 251-acre mitigation site includes approximately 169.3 acres of tidal wetlands. The proposal is to preserve 122.82 acres of tidal marsh along the North Edisto River and Leadenwah Creek. In addition, 39.90 acres of tidal wetlands will be restored or enhanced by increasing tidal flow through breaching or removal of berms to allow full range of tidal flows. Approximately 6.56 acres of tidal marsh will be created in areas that were converted to agricultural land. An upland buffer will be placed around all wetland resources. The bank sponsor, using a conservation easement (Unique Places to Save), will protect the mitigation bank site. Prospectus comments were submitted to the USACE by DNR on July 10, 2018 and DMBI comments on April 10, 2020. The Final MBI was approved on December 14, 2020. The project will enter the construction phase and then monitoring. Project manager: Susan Davis

Reedy Run Mitigation Bank Prospectus

The proposed project consists of establishing a freshwater stream and wetland mitigation bank in the Saluda River watershed (8-digit Hydrologic Unit Code 03050109) located in the Piedmont Ecoregion. The proposed 275-acre mitigation bank includes approximately 25,835 linear feet of stream, and 78 acres of freshwater wetlands. The proposal is to preserve 17.9 acres of palustrine forested and emergent wetlands, enhance 60.1 acres of freshwater wetlands, preserve approximately 10,170 linear feet of Bush River and restore approximately 15,665 linear feet of streams. The bank owner and long-term steward is Mr. Trip Taylor with Reedy Run Real Estate in Greenville, SC and the proposed conservation easement holder is the Newberry Soil and Water Conservation District. The Corps of Engineers public noticed a Prospectus on November 4, 2020 and DNR provided comments on November 30, 2020. DNR project manager: Tom Daniel

Roberts Swamp Mitigation Bank Prospectus

The proposed project consists of establishing a freshwater stream and wetland mitigation bank in the South Fork Edisto River watershed (8-digit Hydrologic Unit Code 3050204) located in the Level III Southeastern Plain Ecoregion near the Town of Norman, Orangeburg County, SC (33.454108, -81.075959). The proposed 255+ acre bank includes approximately 12,612 linear feet of streams and 165 acres of wetlands. The bank owners are West Stone 123 LLC and Mr. Robert Johnson. The long-term steward will be Roberts Swamp MB, LLC and the (tentative) conservation easement holder is Congaree Land Trust. The USACE public noticed the Prospectus on June 19, and DNR provided comments on July 15, 2020. DNR project manager: Greg Mixon

Rocky Creek Mitigation Bank Mitigation Banking Instrument

The proposed project consists of establishing a freshwater stream and wetland mitigation bank in the Lower Catawba River watershed (8-digit Hydrologic Unit Code 03050103) in the Piedmont ecoregion. The proposed 131-acre former cattle farm consists of three impoundments, seven unnamed tributaries, two freshwater wetlands, Rock Creek, Little Rocky Creek, upland and riparian buffers and an existing utility easement. The mitigation work plan includes planting existing pasture with hardwood species, restoring natural hydrology in wetlands and restoring channelized and impounded headwater streams on-site. The property owner, Cowland LLC will also be the long-term steward and the conservation easement is proposed to be held by Katawba Valley Land Trust. DNR reviewed a Prospectus dated September 9, 2014 and provided comments dated October 22, 2014. DNR staff reviewed a DMBI dated December 19, 2016 and comments were provided on March 1, 2017. DNR has received a revised MBI

dated October 5, 2020 and provided comments dated November 16, 2020. DNR project manager: Greg Mixon

Saluda Mitigation Bank Mitigation Banking Instrument

The proposed bank is located in the Saluda River watershed (8-digit Hydrologic Unit Code 03050109) located in the Level III Piedmont Ecoregion near the DNR Belfast WMA. The proposed 3,446-acre mitigation site includes approximately 75,879 linear feet of streams and approximately 4.38 acres of freshwater wetlands. The proposal is to preserve 54,095 linear feet of stream; enhance 1,726 linear feet of stream by replacing degraded culverts, removing debris, and minor stabilization of stream dimension; and restore 20,057 linear feet of stream by restoring appropriate and stable stream pattern, profile, and dimension. In addition, the proposed bank would enhance or preserve 4.38 acres of headwater wetlands. The bank owner and proposed long-term steward is Wiley Fork Laurens, LLC and the conservation easement holder is anticipated to be Upstate Forever. Prospectus comments were submitted to the USACE by DNR on July 13, 2018 and DMBI comments were submitted on January 31, 2020. A revised DMBI, dated June 2020, was reviewed and comments submitted July 17, 2020 and again on September 4, 2020 in response to the Bank Sponsor's comments on August 12, 2020. Several additional discussions have occurred and DNR staff are awaiting additional information to review to resolve outstanding concerns related to stream crossing reservations. DNR staff reviewed a revised MBI dated October 16, 2020 and provided comments dated November 10, 2020. Further in response to additional information provided, DNR provided comments again on November 20, 2020. The Final MBI was approved on December 14, 2020. The project will enter the construction phase and then monitoring. DNR project manager: Greg Mixon

South Carolina Department of Transportation (SCDOT) In-Lieu Fee Program Prospectus

The proposed project consists of establishing a Statewide In Lieu Fee (ILF) Mitigation Program initially in the Lower and Upper Catawba and Wateree River Watersheds (HUCs 3050101, 03050103, and 03050104) in the Piedmont ecoregion. The SCDOT ILF Program proposes to generate freshwater stream compensatory mitigation credit through the replacement of perched or undersized culverts within the SCDOT's transportation system in watersheds that are not currently served or are underserved by existing mitigation banks. The SCDOT will identify projects and provide funding for the ILF Program. Projects will be selected as mitigation needs require and will implemented pending IRT approval. Credits will only be used for SCDOT transportation projects. It is anticipated that the ILF Program will be used to offset impacts for smaller roadway improvement projects. Prior to submitting the permit application, the SCDOT will determine if the purchase of credits is practicable from an existing mitigation bank in the watershed. If credits are not available, the SCDOT will utilize credits from the ILF Program. The SCDOT will request the use of credits from the ILF Program when the permit application is submitted for the project. The ILF Program will likely be amended to allow additional service areas when Compensation Planning Frameworks are completed for these areas, eventually becoming a statewide ILF program. This ILF program would become South Carolina's first and only ILF program. The Prospectus was public noticed by USACE on October 19, 2020 and DNR provided comments on November 11, 2020. DNR project manager: Tom Daniel

Swamp Thing Mitigation Bank Draft Mitigation Banking Instrument

The proposed project consists of establishing a freshwater wetland mitigation bank in the Cooper River watershed (8-digit Hydrologic Unit Code 03050201) located in the Level III Lower Coastal Plain Ecoregion. The proposed 1,018.76-acre mitigation site includes approximately 997.67-acres of freshwater wetlands to be restored, enhanced, and preserved. According to the prospectus, the proposal is to restore 7.29-acres of hardwood forested wetlands that are currently trail roads; enhance 578.67-acres of hardwood forested wetlands that are currently inundated with loblolly pine; and, preserve 412.99-acres of bottomland hardwood forest. The project will be accomplished through the removal of planted pine, grading, planting native species, filling and plugging ditches, and the installation of a weir. The bank sponsor, using a conservation easement, will protect the mitigation bank site. Prospectus

comments were submitted to the USACE by DNR on May 17, 2017 and DMBI comments were submitted on June 18, 2020. Project manager: Susan Davis

Toms Branch Mitigation Bank Draft Mitigation Banking Instrument

The proposed project consists of establishing a freshwater stream and wetland mitigation bank in the Congaree River watershed (8-digit Hydrologic Unit Code 03050110) located in the Level III Southeastern Plains Ecoregion near Columbia, Richland County, SC (33.9015, -81.0201). The proposed 533 acre bank is part of a larger 753 acre tract that includes the confluence of Toms Branch with the Congaree River. The site includes 25,772 linear feet of stream of which 5,492 linear feet will be restored and 20,280 will be preserved. The site also includes 483.04 acres of wetlands of which 325.5 will be preserved and 157.54 will be restored or enhanced. The bank owner and long-term steward is Blanchard Machinery Company and the conservation easement will be held by Congaree Land Trust. Prospectus comments were submitted to the USACE by DNR on August 30, 2017 and DMBI comments were submitted on April 17, 2020. DNR staff reviewed a revised DMBI, dated August 7, 2020, and comments were submitted on September 24, 2020. DNR staff reviewed additional revisions to the DMBI and provided comments on November 5, 2020. The Final MBI was approved on December 14, 2020. The project will enter the construction phase and then monitoring. DNR project manager: Greg Mixon

Tyger Watershed Mitigation Bank Draft Mitigation Banking Instrument

The proposed project consists of establishing a freshwater stream and wetland mitigation bank in the Tyger watershed (8-digit Hydrologic Unit Code 03050107) located in the Level III Piedmont Ecoregion. The proposed 405-acre mitigation site includes approximately 60,308 linear feet of stream channels and 10.89 acres of freshwater wetlands. In addition, 5,987 feet of streams and 0.163 acres of wetlands will be enhanced and restoration of 37,436 linear feet of Cane Creek, Motley Branch, and associated tributaries. The proposal is to preserve 14,397 linear feet of stream, including 12,355 linear feet of the Tyger River and 2,042 linear feet of stable tributary streams and preserve 3.44 acres of functioning forested wetlands. The bank owner and proposed long-term steward is Wiley Fork Legacy LLC and the conservation easement holder is Spartanburg Area Conservancy (SPACE). Prospectus comments were submitted to the USACE by DNR on January 23, 2019 and DMBI comments were submitted on July 20, 2020. DNR project manager: Tom Daniel



Office of Environmental Programs DNR Board Briefing Document – May 20, 2021

Horry County Rezoning Request 2020-10-003 (TMS Parcel 39600000001)

The DNR was contacted by Horry County on October 14, 2020 in relation to a rezoning request for an adjacent parcel to Lewis Ocean Bay Heritage Preserve. The parcel is currently zoned as General Residential. The Horry County Planning Commission voted on January 7, 2021 7-2 to approve sending the rezoning request to County Council to consider.

Prior to the Planning Commission meeting on January 7th, DNR provided a follow up letter after a conversation with Conway Medical Center leadership to clarify the statutory obligation the agency has to both protect and manage the 10,000 plus acres of sensitive habitats of Carolina bays and pocosin wetlands at Lewis Ocean Bay Heritage Preserve for the citizens of South Carolina as we have done for the past 31 years. This management requires the use of prescribed fire and the agency expressed to the Planning Commission that whomever our neighbor, we want them to understand both natural and prescribed fire are a part of this landscape and smoke will be present. In summary, DNR must not be prohibited from continuing the prescribed fire management that is needed to allow these fire-dependent habitats and species to thrive.

After many discussions internally, DNR staff and leadership found that moving forward with the acceptance of the Horry County Mitigation Bank may not be in the agency's best interest. Therefore, on April 19, 2021, out of courtesy for the County staff and the consultants working toward the end goal of developing the mitigation bank, DNR notified them that the agency is considering no longer taking on the long-term stewardship role of the mitigation bank parcel for the following reasons:

1. Development near the mitigation bank parcel will restrict and limit open burning that is necessary to maintain the pine savannah habitat that will be required. The agency is concerned that continued development around the mitigation bank parcel will lend the property in a similar management scenario as the Victoria Bluff Heritage Preserve in Beaufort County. This property has been surrounded by development to the point that prescribed fire management is no longer conducted and management of the pine savanna habitat is limited to mulching only. With the current and anticipated development around LOBHP and International Drive, smoke sensitive areas will exponentially increase which will result in less days where conditions allow for the application of prescribed burns on LOBHP and the mitigation bank property.
2. Prescribed fire is much more cost effective in large areas such as Lewis Ocean Bay and the Horry County Mitigation Bank. Mechanical treatments can be at least 20 times as expensive, and chemical treatments more than 10 times as expensive. Mulching not only costs more to conduct, but it has also been proven to be less effective for the suite of ecological benefits that fire provides for the long-term sustainability of pine savanna habitat, especially for rare plant species that evolved with fire. Mechanical means are not effective at removing fuels to expose mineral soils. When fire is removed, undesirable woody late-successional species (e.g., sweetgum trees and other hardwoods) begin to encroach upon fire dependent early successional ones. The buildup of living and dead plant matter is fuel for wildfires so periodically removing those safely through use of prescribed fire protects the forest from more volatile wildfire risks.
3. Historically, fires would have created a patchwork of burned and unburned areas with the unburned areas providing refuge for wildlife. With fuel buildups, fires burn more uniformly and intensely across the landscape and few unburned refugia are left for as cover for wildlife. When

fire suppression occurs over the long term and fire is subsequently reintroduced, even those species that are fire dependent can be damaged. Fire suppression ultimately equates to a greater risk of wildfire which threatens human safety, infrastructure and ecosystem damage.

4. Mechanical treatments can easily cause soil disturbance, especially in uneven terrain, that is detrimental to plants with shallow root systems like the Venus flytrap. Additionally, many rare and declining reptiles and amphibians, such as pine snakes, depend on underground refugia and tunnels from moles and old burned roots and stumps that can be compacted by the use of heavy equipment. Mechanical treatments conducted in the growing season can also cause damage to these species.

Given the considerations of costs and ecological effectiveness for management of sensitive or rare species, DNR wanted to be transparent with all involved.

Since that time, Horry County Planning Commission released the Development Agreement to the public via their Facebook page encouraging public comment on the agreement at a meeting held May 11, 2021. Under the proposed agreement, the four ridges of uplands on the 353-acre tract would be divided between the County and CMC. The two ridges to the northern half of the property would go to the County and the two southern ridges to CMC.

CMC's rezoning request is scheduled to go before the planning commission on May 27. Then, County council would vote on the development agreement on June 1 and a second vote would be scheduled for June 15.

Crab Bank Ecosystem Restoration

Over the course of the last month, DNR staff and leadership have communicated with Representative Mace, Senator Graham and staff from both of their office and Senator Scott's with the U.S. Army Corps of Engineers (USACE) and the Town of Mount Pleasant regarding the Crab Bank project. The USACE flew additional LiDAR data in January that they analyzed over the past few months to look at how the final footprint of Crab Bank should be designed given the current conditions. The USACE staff provided several design options to discuss with the contractor, Norfolk Dredging. Following these discussions, a final footprint was chosen that both meets the needs of shorebirds and seabirds, as well as the concerns of the Town of Mount Pleasant. The final footprint will have the most northern tip of Crab Bank, approximately 1400 feet south of the remnant, instead of the original plan to tie into the remaining higher ground. Leadership from DNR, the USACE, Town of Mount Pleasant, and Senator Graham met to discuss the final solution on April 26, 2021. All involved are pleased we found a resolution that meets all parties needs and we look forward to a new Crab Bank coming to Charleston Harbor this September.

Office of Environmental Programs DNR Board Briefing Document – May 20, 2021

The following document lists ongoing major environmental permitting issues under review by staff of the South Carolina Department of Natural Resources (DNR). These projects have the potential for significant natural resource impacts. Comments submitted to the regulatory agencies since the last DNR Board meetings are attached. **New information is presented below in red.**

Inland Project Proposals

Atlanta to Charlotte Passenger Rail. Anderson, Cherokee, Greenville, Laurens, Oconee, Pickens, Spartanburg, Union and York Counties. See <http://www.dot.ga.gov/IS/Rail/AtlantatoCharlotte>.

The United States Department of Transportation - Federal Railroad Administration (USDOT-FRA) in cooperation with the Georgia Department of Transportation (GDOT) is preparing a Draft Tier 1 Environmental Impact Statement (DEIS) for the Atlanta to Charlotte Passenger Rail Corridor Investment Plan. The purpose of the project is to improve intercity passenger travel between Atlanta and Charlotte by expanding the region's transportation system capacity and improving trip time and reliability through highspeed passenger rail services. GDOT has selected three build alternatives and a no-build alternative for further evaluation in the Tier 1 EIS process. The Southern Crescent Alternative primarily follows the existing Norfolk Southern right-of-way (ROW) across South Carolina. The Interstate 85 Alternative is located primarily within the Interstate 85 ROW. The Greenfield Corridor Alternative is a 274-mile route primarily located on a new alignment across the state. DNR received the project on September 20, 2019 and provided comments on November 4, 2019. The USDOT - FRA and the GDOT reviewed comments received during the Tier 1 DEIS public comment period and selected the Greenfield Corridor Alternative as the Preferred Corridor Alternative. The Greenfield Corridor Alternative is a 274-mile route primarily on a new "greenfield" dedicated high-speed passenger rail alignment between CLT airport and Athens, GA, then following shared railroad ROW in the approaches to the Charlotte and Atlanta termini. This route serves three stations in North Carolina at Charlotte Gateway, CLT airport, and South Gastonia; two stations in South Carolina at GSP airport and Anderson; and five stations in Georgia in Athens, Suwanee, Doraville, downtown Atlanta (Georgia Multi-modal Passenger Terminal), and Hartsfield-Jackson Atlanta International Airport. In South Carolina, this corridor continues along a greenfield alignment for 65 miles passing east of Kings Mountain State Park to a route paralleling I-85, approximately 10 miles to the southeast, then diverging westward to a station near the GSP airport. From the GSP airport, this corridor returns eastward to a route paralleling I-85, approximately 15 miles to the east, for 50 miles to the state line at the Savannah River with a station in Anderson, SC. In addition to general concerns related to species and habitat fragmentation, DNR is particularly concerned that the proposed Greenfield alternative will cross both an existing mitigation bank, a proposed mitigation bank and a scenic river corridor. Portions of the existing Big Generostee Creek Mitigation Bank are located in the project corridor near SC Highway 187 in Anderson County and the project corridor crosses the proposed Minkum Creek Mitigation Bank including the main stem and several tributaries of Minkum Creek in Cherokee County. The Greenfield alternative will cross the Broad Scenic River Corridor approximately one-half mile downstream of the 99 Islands Dam on the Broad River. FRA and GDOT anticipate issuing a combined Final Environmental Impact Statement and Record of Decision (FEIS/ROD) later this year. DNR project manager: Greg Mixon mixong@dnr.sc.gov.

SC Department of Commerce, Project Magma SAC-2020-01715. See

https://www.sac.usace.army.mil/Portals/43/docs/regulatory/publicnotices/Jan2021_PN/SAC-2020-01715-Chester-County-Project-Magma.pdf?ver=CL39n-1crWpOZpAmKw0BaQ%3d%3d The proposed work consists of construction and operation of a production, bottling, containerization, and distribution facility for wine and spirits at a location east of US Highway 21 and south of SC Highway 9 near the Town of Fort Lawn in Chester County. In detail, the work will require the discharge of fill material into 1.23 acres of freshwater wetlands and 8,018 linear feet of tributaries that flow to the Catawba River. The applicant has proposed to mitigate for impacts to wetlands and/or waters of the United States by accomplishing

permittee-responsible compensatory mitigation to provide equal to or greater than 13.1 freshwater wetland credits and 58,747 stream credits at the Wrenn Tree Mitigation Project site in Lancaster County. The Wrenn Tree site is in the same watershed approximately 4.1 miles northeast of the proposed facility and is adjacent to a portion of the Landsford Canal State Park on the Catawba River. The proposed compensatory mitigation will include stream restoration and enhancement of 12 intermittent and/or perennial 1st order, 2nd order or 3rd order channels; enhancement and preservation of the wetlands onsite; and establishment of 300-foot buffers to protect all streams and wetlands within the proposed conservation easement. The SC Department of Parks, Recreation and Tourism (PRT) will be the long-term steward of the property and their intent is to enroll the 533-acre property into the Wildlife Management Area (WMA) program. This fits well with the adjacent PRT lands comprising 219 acres that are currently enrolled in the WMA program. The USACE placed the proposed project on public notice on January 28, 2021 and DNR provided comments on February 26, 2021. **The applicant provided a revised permittee-responsible compensatory mitigation plan on May 5, 2021 and DNR will provide comments by May 14, 2021.** DNR project manager: Greg Mixon mixong@dnr.sc.gov.

Haile Gold Mine Expansion – OceanaGold, LLC <http://www.hailegoldmineseis.com/>

Haile Gold Mine, Inc., a subsidiary of OceanaGold Corporation, submitted a proposal to the U.S. Army Corps of Engineers to expand operations at the existing Haile Gold Mine facilities near Kershaw, South Carolina. The proposed project would include expansion of surface mining and associated mine pits and overburden storage facilities, initiation of underground mining at the Horseshoe deposit, and increased ore processing through optimization of the mill and related infrastructure including expansion of the water management system and existing tailings storage facility. Proposed mining activities in the expanded proposed project would focus on areas affected by past mining activities and additional land purchased by Haile to support proposed mining expansion activities.

A Notice of Intent to prepare the DSEIS was published in the Federal Register on December 4, 2018. DNR staff attended an Agency Scoping Meeting on April 8, 2019, in Kershaw, SC. During the scoping meeting, OceanaGold staff described potential environmental impacts and suggested that Permittee Responsible Mitigation would likely be proposed to mitigate for impacts associated with the proposed expansion. A joint public notice for the Mine Modification and Draft Supplemental Environmental Impact Statement (SEIS) was issued on March 3, 2021. The proposed modification consists of increasing the mine plan area by approximately 832 acres to expand surface mining pits and associated facilities, initiate underground mining at the Horseshoe deposit, optimize mill operations and increase ore processing rates, and improve water treatment and storage capabilities. Impacts to Water of the United States (WOTUS) include directly filling 86.22 acres of wetlands and open water and will directly affect 13,124.08 linear feet of streams. The applicant has proposed to mitigate for impacts to wetlands and/or waters of the United States by a permittee-responsible mitigation plan that identifies three separate sites along Flat Creek in the Lynches River watershed for preservation and enhancement/restoration of aquatic resources. The project purpose is to expand gold producing operations from mineralized gold-bearing zones on the Haile property. The USACE and SCDHEC hosted a joint virtual public hearing on April 01, 2021 at 6:30PM on the draft SEIS and the application to modify Haile Gold Mine, Inc.'s Mine Operating Permit. **DNR provided comments in response to the noticed mine modification on April 23, 2021.** DNR project manager: Tom Daniel danielt@dnr.sc.gov

Haile Gold Mine Modification – Oceana Gold, LLC. I-000601

Oceana Gold, the parent company of the Haile Gold Mine, has requested that the USACE authorize a modification to their current permit (SAC-1992-24122) originally authorized in 2014. Five operational adjustments have been identified and one of these (East PAG-Phase 2) will impact 4.75 acres of jurisdictional freshwater wetlands and open water reservoirs/impoundments. Considering the original permit authorizing approximately 120 acres of wetland fill, the additional 4.75 acres of wetland impact within the existing mine boundary is viewed as a minor modification by the USACE. The proposed mitigation for these impacts is through the perpetual protection of approximately 512 acres of land known as the Blackwell Tract. The referenced mitigation site is located approximately 9 miles northeast of Kershaw, SC adjacent to Old Jefferson Highway. Positioned in the Flat Creek Basin, the tract is a part of

larger conservation efforts in the area associated with the protection and enhancement of habitat for the Carolina Heelsplitter. The site contains approximately 29,525 linear feet of stream and 3.4 acres of wetlands as identified by field delineations. Preservation of the site will be accomplished through the fee simple transfer of the land to the Katawba Valley Land Trust. Katawba Valley Land Trust will additionally serve as the Long-term Steward of the property. DNR received the minor modification to the existing Haile Gold Mine permit July 1, 2020 and provided comments to the USACE and DHEC on July 8, 2020 asking that the permit be held in abeyance until additional information regarding the mitigation plan and additional geology data could be provided. DNR received a response to comments on August 4, 2020 and provided follow up comments on August 7, 2020. DNR project manager: Lorianne Rigglin RigglinL@dnr.sc.gov

SCDOT, Interstate 73. P/N SAC-2008-1333-DIS. See

<http://www.sac.usace.army.mil/?action=publicnotices.pn2011>.

The proposed Interstate-73 (I-73) was public noticed on January 28, 2011 and February 18, 2011 for a high-speed, fully controlled-access roadway with interchanges, frontage roads and overpasses to provide access and maintain existing traffic patterns that begins at the North Carolina state line near Bennettsville and ends at SC Highway 22 near Conway. The project corridor would be approximately 80 mi long and would cross through Marlboro, Dillon, Marion and Horry counties. The roadway would include 4 travel lanes with a grassed median. The right-of-way would be 300 ft wide for most of the project corridor and 400 ft wide where frontage roads are needed. The project would involve 212 separate crossings of streams, wetlands and open water bodies impacting a total of 4,643 linear ft of streams and 342.3 acres of wetlands and open waters. DNR staff served on the Agency Coordination Team (ACT) for I-73 from June 2004 through December 2009. The ACT determined that I-73 should be evaluated in separate Environmental Impact Statement (EIS) documents covering the southern segment (I-95 to SC Highway 22) and the northern segment (NC state line to I-95). DNR staff provided comments and input throughout the EIS process and consistently stated the primary natural resource concerns associated with the proposed roadway are habitat fragmentation, the crossing of the Little Pee Dee River and adjacent wetlands, and the need for landscape scale mitigation that adequately compensates for all project impacts. On December 3, 2015 the DOT Commission unanimously approved the purchase and use of Gunter's Island for mitigation of the environmental impacts associated with the construction of I-73. A revised mitigation plan focusing on acquisition of Gunter's Island was submitted by DOT to USACE on May 23, 2016 and USACE issued a revised public notice on July 8, 2016 that included Gunter's Island as the proposed PRM plan for the wetland and stream impacts associated with I-73. On August 8, 2016, DNR submitted comments in response to the revised mitigation plan. An interagency site visit took place to evaluate the Gunter's Island Revised Mitigation Plan on November 10, 2016. DNR staff conducted two follow-up site visits along with DOT staff on December 2 and 15, 2016. On March 2, 2017 DNR received the I-73 NEPA Re-evaluation documents for review and comments were submitted April 3, 2017. DHEC issued the 401 Water Quality Certification on April 26, 2017 and the USACE issued the final 404 permit on June 19, 2017. SCDOT closed on the Gunters Island Property on August 7, 2017. DNR will continue with the necessary external approval processes, including presenting the project to the Joint Bond Review Committee for approval on August 15, 2017. The project posted in the Federal Register for the Federal Highway Administration on August 1, 2017. This marks the beginning of the 150-day period for any claim seeking review of the Federal agency action regarding the Section 404 permit for the project. This period ended on December 29, 2017; however, the Southern Environmental Law Center on behalf of the Coastal Conservation League released a notice of intent to sue over violations of the Clean Water Act related to the approval of the USACE 404 permit on October 13, 2017. For additional information: <http://www.i73innc.com>. DNR project manager: Greg Mixon mixon@g@dnr.sc.gov.

Coastal Project Proposals

Cainho Plantation Mixed Use Development, Charleston & Berkeley Counties. See

http://www.sac.usace.army.mil/Portals/43/docs/regulatory/publicnotices/March2018_PN/SAC_%202016-756_Cainho_Plantation_Development_Berkeley%20County.pdf?ver=2018-03-22-115555-720

The 9,238-acre Cainhoy Plantation property is being planned and developed as a mixed-use community with homes, public schools, retail shops, restaurants and office space located within the City of Charleston and Berkeley County. The development of this project will result in unavoidable impacts to freshwater jurisdictional wetlands (approximately 200 acres). According to preliminary plans, approximately 50% of the property (4,500 acres) will be preserved property that provides vital habitat and connectivity for plant and animal species, with the centerpiece being the 500+acre Point Hope Nature Sanctuary. OEP staff attended an interagency meeting held on October 18, 2017 to review preliminary plans and provide initial feedback. Overall the project received a very favorable review from the reviewing agencies, including DNR.

On March 21, 2018 the public notice for this project was submitted for review. The proposed master plan would impact 185.25 acres of freshwater jurisdictional wetlands and 2.65 acres of saltwater critical area wetlands. As compensatory mitigation, a Permittee Responsible Mitigation (PRM) Plan has been developed. An approximately 585-acre Point Hope Nature Sanctuary (PHNS) would be the centerpiece of this PRM plan. The PHNS would be placed under a conservation easement held by Lord Berkeley Conservation Trust and would protect the most valuable and sensitive habitats and their associated suite of species. Financial assurances would provide funding for the long-term management of this area. Approximately 268 acres of wetlands that were previously managed for pine production would be restored to a hardwood mix wetland and protected along with the remaining unimpacted wetlands and associated upland buffers. On May 5, 2018 OEP staff submitted comments on the proposed development, highlighting the significance of the natural resources on this site and asking for clarification on various issues including protected species assessments, permit phasing, protections for remainder of property and avoidance and minimization measures. It was recommended that permit issuance be held in abeyance until issues and concerns were addressed. In August of 2019, the applicant provided a response to DNR's original comments; OEP staff provided additional comments in a letter dated September 25, 2019. The DNR continued to express that the best use for this property, based on the ecological functions and unique resources located here, would be conservation and the need to address several outstanding issues. The DNR again recommended that permit issuance be held in abeyance until outstanding issues and concerns were addressed. On December 8, 2020, OEP staff commented on a revised Mitigation Plan for Cainhoy Plantation dated November 2020. The DNR continued to recommend that additional efforts are made to further avoid and minimize project impacts before consideration for compensatory mitigation. Specific comments regarding protected species and other elements of the plan were also provided. DNR project manager: Susan Davis daviss@dnr.sc.gov.

Carolina Bays Parkway Extension, Horry County. Action ID: SAW-2004-00823. See:

<https://www.ncdot.gov/projects/carolina-bays-parkway/Pages/default.aspx>

The North Carolina Department of Transportation (NCDOT) in cooperation with the South Carolina Department of Transportation (SCDOT) will be preparing a DEIS for the extension of the Carolina Bays Parkway. The project's purpose is to bypass congestion within the areas of Calabash, North Carolina and, in South Carolina, the Little River and Grand Strand areas. The project also intends to improve traffic flow and safety at the intersection of SC Hwy 9 and SC Hwy 57 and provide a more direct route for coastal truck traffic moving through North Carolina. In August of 2017, the DNR accepted an invitation to become a participating agency in the development of an EIS for this project. As a participating agency, the DNR will identify, as early as possible, any issues of concern regarding the project's potential environmental impacts. As decisions are made through the merger process, DNR will have the ability to concur, abstain, or not concur at each concurrence point. In September of 2017, the DNR provided scoping comments on this project, identifying a number of important coastal habitats in the study area, including intertidal marsh, tidal creeks and freshwater wetlands and the Waccamaw River Heritage Preserve (WRHP). Comments were also made on the need for careful consideration to avoiding and minimizing impacts to important natural resources in the selection of alternatives to be considered in the EIS. DNR recommended that project alternatives that encroach on the WRHP eliminated from consideration. DNR staff have participated in three coordination meetings regarding this project. On May 4, 2020, OEP staff participated in a meeting to review preliminary alternatives for the proposed Carolina Bays Parkway Extension project and reach concurrence on the alternatives that will be carried forward for

detailed study. Formal concurrence on NEPA/Section 404 Merger Concurrence Point 2 was requested during this meeting. On December 8, 2020, staff submitted comments on a revised mitigation plan. In addition, staff continued to recommend that additional efforts were made to further avoid and minimize project impacts before considering compensatory mitigation and reiterated several concerns regarding the mitigation plan. DNR project manager: Susan Davis daviss@dnr.sc.gov.

Charleston Peninsula Coastal Flood Risk Management Study. See

<https://www.sac.usace.army.mil/Missions/Civil-Works/Supplemental-Funding/Charleston-Peninsula-Study/>

The U.S. Army Corps of Engineers (USACE), Charleston District and City of Charleston are performing a feasibility study to evaluate storm surge risk reduction measures for the Charleston Peninsula. The goal is to reduce risks to health, safety, and economic damages from coastal storm surge inundation on the peninsula. An integrated Draft Feasibility Report (FR)/Environmental Assessment (EA) has been prepared to present the results of the study to date, and to analyze impacts of the proposed measures on the environment. The Draft FR/EA was prepared in accordance with the National Environmental Policy Act (NEPA). It evaluates potential impacts of the alternative actions on the environment, including the no-action alternative. The Tentatively Selected Plan (TSP), which is also the National Economic Development Plan (NED) is Alternative 3. The TSP consists of a storm surge wall along the perimeter of the Peninsula, recreation features, interior drainage facilities, a wave attenuation structure offshore of the Battery, and nonstructural measures. Based on the Environmental Assessment, the USACE has proposed a Draft Finding of No Significant Impact (FONSI). DNR staff have been actively participating in Interagency Coordination Team (ICT) meetings on various aspects of the project since December 10, 2018. The Draft FR/EA and FONSI were placed on public notice on April 20, 2020. DNR submitted formal written comments on June 16, 2020. On September 16, 2020, DNR staff attended a virtual ICT meeting held by USACE to update agencies on study progress, including outcomes of optimization of the TSP. The project was revised to reduce impacts by 64 acres and eliminate the miter gate and the proposed wave attenuator. The recommended plan is now Alternative 2, perimeter protection plus nonstructural measures. DNR Staff attended a virtual ICT update meeting for natural resource agencies on the Charleston Peninsula Coastal Flood Risk Management Study on January 11, 2021. At the meeting, the USACE announced that after further agency analysis and review of comments on the Draft FR/EA and FONSI, they would be seeking approval to pursue an Integrated Feasibility Report/Environmental Impact Statement (IFR/EIS) with a Record of Decision (ROD) for the study. On March 12, 2021 DNR staff participated in a Cooperating Agency Kick Off Meeting hosted by the Corps to discuss agency roles, project updates and next steps. The Notice of Intent for the Charleston Peninsula CFRM Study was published in the Federal Register on March 23, 2021, which initiates the 30-day scoping period. A virtual public scoping meeting was held on March 30th. **DNR staff have been attending standing working group meetings of natural resource agencies and USACE for the project on a bi-weekly schedule.** DNR Project manager: Stacie Crowe crowes@dnr.sc.gov

Horizon Project Foundation (WestEdge Development), Charleston County. On May 22, 2018, the USACE public noticed the Horizon Project Foundation proposal. The proposed project consists of construction of residential and mixed-use commercial, medical and research facilities in the tidal wetlands commonly known as Gadsen Creek and the proposed purpose is to serve and enhance existing functions of the Medical University of South Carolina and to advance development and improve the quality of life in the City of Charleston. The proposed work consists of impacting 3.835 acres of tidal and critical area wetlands, which are also considered Essential Fish Habitat under the Magnuson-Stevens Fishery Conservation and Management Act. These estuarine substrates and emergent wetlands are a functioning salt marsh providing habitat. DNR staff reviewed the project and provided a comment letter on June 18, 2018 recommending that the applicant consider pursuing less damaging alternatives to minimize or avoid impacts to these tidal wetland resources. On June 25, 2019, the project was re-public noticed for the same purpose with an increase in impact to a total of 3.923 acres of tidal waters and critical area wetlands. DNR staff reviewed the project and provided a comment letter on July 15, 2019 again recommending that the applicant consider pursuing less damaging alternatives to minimize or avoid impacts to these tidal wetlands resources. On January 19, 2021, the DNR provided comments on a

revised mitigation plan and continued to recommend that impacts to tidal resources are avoided and minimized to the greatest extent possible and that the DNR would not be opposed to the use of the currently proposed PRM in compensating for unavoidable wetland impacts. DNR project manager: Susan Davis daviss@dnr.sc.gov

I-526 East Lowcountry Corridor Improvements Project, Charleston County. See

<http://www.526lowcountrycorridor.org/>

I-526 Lowcountry Corridor EAST (I-526 LCC EAST), extends from the eastern terminus of the I-526 LCC WEST project (Virginia Avenue) to US 17 in Mount Pleasant. The I-526 LCC EAST project would address current and projected congestion and operational issues along this 9.9 mile segment of I-526. The project consists of two major river crossings that include the Don Holt Bridge (over the Cooper River) and the James B. Edwards Bridge (over the Wando River). The Planning and Environment Linkages (PEL) program will be used to evaluate this project and was developed by FHWA to assist the transportation decisionmakers by encouraging the incorporation of key elements that include environmental resources, community, and economic goals early in project planning and development phases. On January 9, 2020, OEP staff participated in a meeting to discuss the PEL Program and how it will be implemented for this project. On April 15, 2020 DNR accepted an Invitation to Participate on the Planning and Environmental Linkages Study for I-526 Lowcountry Corridor East DNR project manager: Susan Davis daviss@dnr.sc.gov.

I-526 Extension Project (Mark Clark Expressway), Charleston County. See

<http://www.scdotmarkclark.com/>

On August 22, 2019, OEP attended the kick-off meeting for this project. The project history was discussed, including the original FEIS signed in 1977 for the Charleston Inner Belt Freeway, SEIS and eventual construction of the 7-mile section from West Ashley to James Island in 1995, signed DEIS for the 7-mile section from West Ashley to James Island in 2010. The project was stopped in 2010 after the signing of the DEIS. A Re-evaluation of the West Ashley to James Island was prepared and signed by SCDOT and FHWA in 2016. The project was reinitiated in 2019 with the identification of funding through Charleston County and the SIB. Since there have been changes to land use, demographics, population and economic growth within the project area, and the availability of a new BCDCOG CHATS Travel Demand Model, it was determined that a SEIS would be prepared for the project. The project will not include re-scoping or redefinition of the project purpose and need. The 39 alternatives will be reanalyzed with updated and supplemented current data. The project area includes a new location 7-mile roadway from the existing I-526 terminus at US 17 (Savannah Highway) to the James Island Connector (SC 30). On March 26, 2020, OEP attended a meeting to discuss the development of the Supplemental Environmental Impact Statement (SEIS) for the Mark Clark Extension project using the evaluation process originally developed for the 2010 Draft Environmental Impact Statement (2010 DEIS) to reevaluate the 39 preliminary alternatives identified in the 2010 DEIS using current data. The preliminary alternatives were analyzed based on traffic performance and environmental impact criteria. The goal of this process was to screen the 39 alternatives originally presented in the 2010 DEIS to a smaller set of Reasonable Alternatives that will be further evaluated in the SEIS. On April 16, 2020, the DNR submitted comments on the SEIS Alternative Analysis Tier 1 Criteria Evaluation process, developed for the Mark Clark Extension project, stating that the DNR found the proposed approach to be rational in identifying a set of reasonable alternatives to be further evaluated in the SEIS. DNR project manager: Susan Davis daviss@dnr.sc.gov.

I-526 West Lowcountry Corridor Improvements Project, Charleston County. Federal Project Number P027507. See

<http://www.526lowcountrycorridor.org/>

The Federal Highway Administration (FHWA) in cooperation with the South Carolina Department of Transportation (SCDOT) are preparing a DEIS for improvements to the I-526 corridor. The purpose of this project is to increase capacity and improve operations at the I-26/I-526 interchange and along the I-526 mainline from Virginia Avenue to Paul Cantrell Boulevard. The project will follow One Federal Decision (OFD) in accordance with Executive Order 13807. On April 10, 2019, the DNR accepted an invitation to become a participating agency in the development of an EIS for this project. As a participating agency,

the DNR will identify, as early as possible, any issues of concern regarding the project's potential environmental impacts. As decisions are made through the OFD process, DNR will have the ability to concur, abstain, or not concur at each concurrence point. OEP staff submitted a letter of concurrence, May 3, 2019, on the Agency Coordination Plan (dated May 2019), the Purpose & Need Statement and the Permitting Timetable. DNR had no specific comments or concerns regarding these documents. On September 11, OEP staff participated in a meeting to discuss the mitigation needs assessment developed for the project. The DNR expressed that the protection of natural resources at Cainhoy Plantation would be DNR's priority in mitigating impacts for this project. On October 7, DNR submitted comments on the preliminary range of alternatives being considered and requested further analysis of the designs for avoidance and minimization of impacts such as reduce shoulder width and slopes and construction methods to avoid and minimize impacts. On December 11, 2019, OEP staff participated in a meeting to discuss the revised mitigation report and to further discuss mitigation options being considered. It was the consensus of the group that five options would be further considered, including Cedar Hill for freshwater and Jehossee Farms, a James Island spoil site, Noisette Creek and Filbin Creek for saltwater impacts. On March 11, 2020, OEP participated in a meeting on DOT's update on the mitigation needs assessment for the I-526 LCC West project. The DOT will continue vetting mitigation options including at Cedar Hill, Jehossee, Hermine, Noisette and others. On March 19, OEP sent a letter of concurrence on the proposed alternatives to be carried forward for detailed evaluation for the proposed I-526 West Lowcountry Corridor Improvements Environmental Impact Statement (EIS). On May 13, 2020 OEP staff participated in a meeting discuss the recommended Preferred Alternative. On June 8, 2020, DNR responded with concurrence to a Request for Concurrence on the Proposed Preferred Alternative to be carried forward for detailed analysis in the Proposed I-526 West Lowcountry Corridor Improvements Environmental Impact Statement (EIS). In August of 2020, the SCDOT circulated portions of the DEIS for preview and comment before finalizing the DEIS; OEP staff provided several recommendations. On October 22, 2020, the final DEIS for this project was submitted for review. On November 25, 2020, OEP staff provided comment on the permit request (SAC-2019-00593) for the proposed project with recommendations on construction methods and other BMPs to minimize project impacts. DNR project manager: Susan Davis daviss@dnr.sc.gov.

McClellanville 115 kV Transmission Project, Central Electric Power Cooperative, Inc. DEIS April 2014. Central Electric proposed to construct, operate, and maintain a new 115 kV electrical transmission line (Project) that would bring service to the proposed McClellanville Substation to serve Berkeley Electric members in the McClellanville area. The new transmission line would originate at one of two potential locations near the Winyah Generation Station. The transmission line would terminate at the proposed McClellanville Substation. Approximately 15-20 miles of new 115 kV transmission line is proposed to be constructed along with a new 115 kV substation. The Project area identified encompasses parts of Georgetown and Charleston counties. DNR has been involved in the environmental review of the proposed project for well over a decade, including the submittal of extensive comments during the preliminary planning and scoping stages and most recently with the submittal of comments dated July 2, 2014 in response to the DEIS. Throughout the review process DNR has maintained a consistent position that any overhead, high voltage transmission line adjacent to US Highway 17 across the Santee-Delta Wildlife Management Area (WMA) would, at a minimum, cause unacceptable and unavoidable impact to wetlands, sensitive species, intensively managed habitat, endangered species, migratory birds and result in avoidable view-shed impacts to a historic and culturally rich corridor. We have consistently recommended that any environmental review for the improved delivery of power to the McClellanville area fully consider alternatives that minimize or eliminate potential impacts to the Francis Marion National Forest, properties titled to the citizens of South Carolina through DNR, private properties protected by conservation easement, sensitive species/habitats and cultural and historic resources. Despite our efforts to emphasize the important of the Santee River Delta and to highlight the potential adverse impacts resulting from new transmission line construction through this sensitive area, all of the alternatives considered for review in the DEIS cross the Santee River Delta. DNR submitted comments on July 2, 2014 outlining fundamental flaws and inadequacies of the DEIS and recommended the existing DEIS be revised and/or supplemented prior to proceeding with the development of a FEIS for the project, including a focused effort to fully

reconsider less environmentally damaging alternatives to the McClellanville area. DNR staff met with Central Electric on August 18, 2014 to discuss alternatives that are less environmentally damaging. On April 15, DNR staff attended an interagency meeting to discuss Central Electric's re-evaluation of transmission line route alternatives and to present preliminary findings to the agencies before RUS and the cooperating agencies determine the next steps in the NEPA process. Following the agency meeting held in April 2015, Central Electric is moving forward with having an independent engineering study performed on the project. RUS has provided Central Electric a draft statement of work (SOW). Central Electric is handling the procurement side and will pay for the study. RUS solicited comments on the submitted SOW. No comments on the SOW were submitted by DNR. On February 28, 2017, DNR staff attended a meeting to discuss the results of the independent engineering study conducted for CEC. The results of the study determined that for various reasons the crossing of the Santee Delta was not a viable alternative and that the Jamestown to McClellanville was outlined as the preferred alternative. The Forest Service is initiating the next consultation meeting with Central Electric on March 21, 2017 to discuss survey requirements and initiate discussions on how to avoid impacts to endangered species, other sensitive species and habitats, private protected lands, and the Wilderness Area at Wambaw Creek. There will be a Supplemental DEIS prepared for the project that will focus on the Jamestown to McClellanville route as the preferred alternative. On August 23, 2019, a Supplemental Draft Environmental Impact Statement (DEIS) was published in the Federal Register (<https://www.rd.usda.gov/publications/environmental-studies/impact-statements/mcclellanville-115kv-transmission-line>) The Supplemental DEIS addresses the construction, operation and maintenance of Central Electric's proposed Project. The Project includes the construction of a new 115 kV transmission line needed to energize the new McClellanville Substation located near the McClellanville service area. The Supplemental DEIS considers three alternatives, encompassing three potential corridor locations with one corridor including two different alignments. The overall project area encompasses parts of Berkeley, Georgetown and Charleston counties in coastal South Carolina, and potentially crosses the Francis Marion National Forest. On October 28, 2019, OEP staff submitted comments on the SDEIS. DNR recommended that no alternatives crossing the Santee Delta be considered in the Final EIS (FEIS). DNR also recommended that the FEIS include information that adequately describes and evaluates the potential environmental impacts of the proposed project and provides for a full comparative environmental analysis of alternatives and that the selection of a preferred alternative be based on those alternatives that minimize or eliminate potential impacts to the Francis Marion National Forest (FMNF), private land conservation easement (CE) properties, sensitive species/habitats and cultural and historic resources. The FEIS is anticipated early in 2021. DNR project manager: Susan Davis DavisS@dnr.sc.gov

Riverport Development SAC-2010-00064. See

https://www.sac.usace.army.mil/Portals/43/docs/regulatory/publicnotices/May_2020_PN/SAC-2010-00064-Jasper-County-Riverport-Development.pdf?ver=2020-05-27-091515-030.

The proposed work consists of the construction of a mixed-use development including industrial, commercial, civic and residential uses. In detail, the proposed project is a master planned development at the 4,368.81-acre Riverport Tract situated north and south of I-95, with improvements to the existing two-lane Purrysburg Road as well as a new interchange with I-95 at Mile Marker 3. Residential development, including 3,339 residential dwelling units, would occupy the project area north of I-95, with commercial and civic development situated along both sides of the new interchange and within the southern portion of the site, including over 10.6 million square feet of industrial warehouse space and 2.6 million square feet of commercial space (restaurant and hotel, grocery store, hospital, and office/retail space). The proposed work would require the placement of fill material into 35.17 acres of wetlands to accomplish road crossings for internal project access as well as for improvements to Purrysburg Road and I-95 where Exit 3 is proposed. The applicant has proposed to offset impacts to wetlands and other waters of the United States by implementing an on-site permittee-responsible compensatory mitigation plan, including the buffered preservation of all remaining wetlands on the site and restoration of approximately 150 acres of pine plantation to historic wetland condition. The project purpose is to construct a development in Jasper County, South Carolina, incorporating residential, commercial and industrial uses with direct access to Interstate 95 to meet projected future growth associated with the existing Port of Savannah and Jasper Ocean Terminal. On June 19, 2020, DNR asked that the permit be held in abeyance until comments addressing additional protections for the adjacent Savannah National Wildlife Refuge are addressed and

additional information is provided regarding the proposed mitigation plan. On January 29, 2021, a revised notice was issued for this project, including a reduction in wetland impacts, as a result of a reevaluation of the jurisdictional status of wetlands on-site and a revised mitigation plan involving the purchase of mitigation credits from an approved mitigation bank. The SCDNR provided comment on this notice on February 9, 2021 and recommended that all undisturbed, excluded wetlands are included in the acreage to be preserved on-site and that mitigation is provided for all impacts to these areas. The SCDNR asked that the permit not be issued until all previously expressed concerns and recommendations were addressed. DNR project manager: Susan Davis daviss@dnr.sc.gov.

Savannah River below Augusta Restoration Feasibility Study. Under the authority of a resolution passed on 1 August 1990 by the U.S. House of Representatives Committee on Public Works and Transportation and by Section 1201(29) of the Water Resources Development Act of 1986, the SRBA Ecosystem Restoration Study considers modifications to restore hydraulic connectivity for ecosystem restoration to river meanders that were cut off to aid commercial river navigation. Of the 46 cutoff meanders that the study originally identified, the study team used detailed screening criteria to focus on an array of alternatives at seven sites that show potential to provide the greatest ecosystem restoration benefits. The USACE-Savannah District and the Savannah Riverkeeper have initiated a study to evaluate the feasibility of restoring natural bends (oxbows) in the Savannah River below Augusta. DNR staff are serving on the Task Force that will guide the feasibility study and evaluate the environmental impacts of the proposed restoration project. A total of \$12.5 million has been dedicated to this project through the Savannah Harbor Expansion Project (SHEP) Settlement Agreement, but the release of those funds will not occur until dredging begins in the inner harbor. The feasibility study is expected to be completed in 2019, when dredging of the inner harbor is expected to begin. Non-federal matching funds (\$1.5 million) to complete the oxbow restoration project are being solicited from state and local agencies and non-governmental organizations. The Task Force met on March 7, 2017 and identified several issues that should be addressed in the Feasibility Study. These include impacts on upstream migration of sturgeon; impacts on spawning habitat for sturgeon and robust redhorse; impacts on endangered freshwater mussel species; maintenance of stable channel configurations after the initial restoration; effects on sedimentation, geomorphology, hydrology, and water quality; and property ownership issues, including potential flooding. A field trip for Task Force Members to examine potential oxbow restoration sites was conducted April 24, 2017. In February 2019, it was announced that funding had been received to resume the Savannah River Below Augusta study. DNR staff participated in a web conference kickoff meeting held on February 26, 2019. DNR staff attended the Corps Savannah District Charrette Meeting held on March 12, 2019 at the Lower Savannah River Alliance Education Center in Allendale. DNR submitted comments on the proposed restoration study on April 18, 2019. DNR staff attended the Alternatives Milestone meeting May 22, 2019. DNR staff participated in a webinar and conference call for restoration project updates on June 5, 2019. DNR staff conducted a site visit to the seven oxbows being considered for restoration on August 26, 2019. Staff will be attending a stakeholder meeting on March 30, 2021 regarding this project. The USACE study team, with assistance from the National Ecosystem Restoration Planning Center of Expertise, is in the process of determining costs and benefits of the various alternatives at each site and will perform a cost effectiveness and incremental cost analysis to help determine the National Ecosystem Restoration Plan. **Staff attended a stakeholder meeting on March 30, 2021 regarding this project. The USACE study team, with assistance from the National Ecosystem Restoration Planning Center of Expertise, is in the process of determining costs and benefits of the various alternatives at each site and will perform a cost effectiveness and incremental cost analysis to help determine the National Ecosystem Restoration Plan.** DNR project manager: Stacie Crowe crowes@dnr.sc.gov.

Savannah Harbor Navigation Project Mitigation Recovery. A Draft Environmental Assessment (EA), placed on public notice in November 2016, evaluated the potential impacts of the USACE's proposal to make specific improvements to selected wetland impoundments at the Savannah National Wildlife Refuge (SNWR) in order to enhance the effectiveness of those sites as bird habitat. The proposed action is intended to compensate for past and future short-term deficits in mitigation credits for the Savannah

Harbor Navigation Project (which addresses long-term operation and maintenance requirements for the Harbor). Mitigation was required due to wetland impacts resulting from the impoundment of Dredged Material Containment Area (DMCA) 14A in 2006. In the Draft EA, USACE evaluated four alternatives for enhancing bird habitat in the SNWR and selected the least cost alternative as their preferred alternative, rather than the alternative recommended by SNWR staff. In our comment letter on the Draft EA (submitted December 8, 2016), DNR supported the selection of the alternative preferred by Refuge staff. DNR project manager: Stacie Crowe crowes@dnr.sc.gov.

Savannah Harbor Expansion Project (SHEP).

<http://www.sas.usace.army.mil/Missions/Civil-Works/Savannah-Harbor-Expansion/>

DNR project manager: Stacie Crowe crowes@dnr.sc.gov

1. Dissolved Oxygen (DO) Injection System. OEP staff attended a stakeholder meeting at the USACE Savannah District Headquarters on September 28, 2017 to discuss the proposed sampling and analysis plan to evaluate the efficacy of the SHEP DO injection systems (Speece Cones). The injection systems are being constructed at two locations on the Savannah River to mitigate for reduced oxygen levels due to harbor deepening. Modeling results indicate that a total of 40,000 lbs. of DO per day needs to be diffused into the Savannah River to compensate for the incremental reduction in DO. Construction began on the DO Injection System in February 2016 and the Hutchinson Island location was completed in March 2019. The first initial test, the Transfer Efficiency Study, which identifies the amount of oxygen being absorbed by the water column for each pound of oxygen introduced into the water, was conducted from February 17-March 3, 2019. The 60-day Water Collection Transfer Efficiency test run data collection occurred from March 17-May 16, 2019 and a data report is expected in mid-July 2019 for public comment and review. The Water Column Transfer Efficiency Report for the Dissolved Oxygen Facility Environmental Testing for the Savannah Harbor Expansion Project report was released August 15, 2019 for public comment. DNR staff reviewed the report and determined that the results of the tests indicate that the Corps met the standards they outlined in the settlement agreement. Water Column Transfer Efficiency Data Collection for the Upper System has been rescheduled to occur from July 6, 2020 – July 10, 2020 and a data report is now expected on August 1, 2020 for public comment and review. This is a slight change due to COVID-19.

As a part of a settlement agreement reached in 2013, prior to commencing the dredging of the Inner Harbor Channel, the USACE will also conduct additional tests to evaluate the downriver DO Injection System located at Hutchinson Island to demonstrate its ability to mitigate DO impacts of the SHEP project. The entire Oxygen Injection System must be operated, and instream DO must be monitored continuously for a period of 59 days (2 lunar cycles), of which at least one 29.5 day testing (one lunar cycle) must occur in July, August, or September immediately following the installation of the Oxygen Injection System. Continuous daily water quality monitoring must be conducted during this period at locations specified in and pursuant to the monitoring plan. This 59-day period of operation is referred to herein as the "Start-up Run." The Start-up Run has been rescheduled to begin on July 25, 2020 – September 11, 2020. Due to warranty (mechanical) issues with the Upriver DO plant and the COVID-19 impacts, the USACE has added 14 additional days of data collection to extend the Start-up Run through September 23, 2020. On October 28, 2020, USACE distributed the QAQC'd DO System plant raw data collected from July 13 – September 23, 2020, which includes the Start Up Run data. Only raw data was distributed and a full report summarizing the data is still expected in early 2021.

Following the Start-up Run and analysis of the modeling results and monitoring data, the USACE will provide a report comparing the monitoring data collected during the Start-up Run to the modeling results to the Conservation Groups (including DNR), Commission, and DHEC for review to assess whether the DO Injection System will work to mitigate the impacts of the SHEP project. The Startup Run Data Collection and Modeling Report was made available by the Corps for review on May 3 2021 and is currently under review.

- 2. Excavation and Placement of Cadmium-Laden Sediments.** A Draft Supplemental Environmental Assessment (SEA), placed on public notice in December 2016, proposes to modify the currently authorized plan for handling cadmium-laden sediments as described in the Final Environmental Impact Statement (FEIS) for the Savannah Harbor Expansion Project (SHEP). The purpose of the proposed action is to place cadmium-laden sediments that will be dredged as part of SHEP in a manner that reduces risk to wildlife without causing dike failure in Dredged Material Containment Areas (DMCAs) 14A and 14B. The Draft SEA describes ten alternatives for the disposal of these cadmium-laden sediments. Seven of the ten alternatives were eliminated during the initial screening evaluation due to one or more factors, including a high cost of construction, high cost of mitigation, high risk of dike failure, or unacceptable risk to wildlife from exposure to cadmium-laden sediments. The USACE preferred alternative (Alternative 10) would place cadmium-laden sediments from SHEP into DMCAs 14A and 14B and maintain these sites in a “moist” (saturated) rather than “flooded” (inundated) condition during placement, followed by shallow flooding with 6 to 12 inches of water until the site could be capped with 2 feet of clean dredged material. The currently authorized alternative described in the FEIS would have maintained these DMCAs in a more deeply flooded condition (4 to 6 feet of water) until the cadmium-laden sediments are capped. In our comment letter, dated February 2, 2017, the DNR acknowledged the USACE’s need to develop an alternate plan for disposing cadmium-laden sediments due to the risk of dike failure under the currently authorized plan; however, we recommended that Alternative 9 be implemented rather than Alternative 10 because it would more effectively limit the exposure of birds and other wildlife to cadmium-laden sediments. Alternative 9 would involve the construction of finger dikes within DMCAs 14A and 14B to create smaller impoundments that could be filled and capped more quickly than Alternative 10.
- 3. McCoy’s Cut Flow-Rerouting Plan.** A Draft Supplemental Environmental Assessment (SEA) and Finding of No Significant Impact (FONSI) for proposed modifications to the McCoy’s Cut flow-rerouting feature of the Savannah Harbor Expansion Project (SHEP) was released on May 24, 2017 for public comment. The draft SEA supplements the 2012 Final Environmental Impact Statement (FEIS) and Record of Decision (ROD) for SHEP. The proposed modifications would extend the dredging area within the upper Middle River to ensure sufficient freshwater flow to intended areas, as well as save space in the upland Dredged Material Containment Areas (DMCAs) by using some of the dredged sediments to convert open-water manmade cuts (McCoomb’s Cut and Rifle Cut) to freshwater wetlands. These cuts are already planned to be plugged with recycled concrete material (from the former Highway 17 Bridge) and rock in order to prevent saltwater from the Savannah River from flowing into the Back River and adjacent tidal wetlands. The proposed modifications also include increasing the dredging depth at the mouth of Union Creek by four feet to account for potential future shoaling and constructing a temporary pile-supported platform on the edge of existing tidal wetlands in the Back River to access the construction site for the McCoy’s Cut diversion structure. Comments on the draft SEA/FONSI were submitted June 26, 2017. Construction of McCoy’s Cut flow re-routing feature began construction July 2018. It is anticipated to be complete in October 2019.
- 4. Monitoring, Adaptive Management, and Status Reports.** In February 2018 the USACE-Savannah District released a Fiscal year 2017 Construction Monitoring Report for the Savannah Harbor Expansion Project (SHEP). This report covers the third year of construction monitoring. OEP staff are currently reviewing the FY 2017 report. In March 2018, USACE Savannah announced that they have reached the midpoint of the project with the completion of the entrance channel dredging. OEP staff attended a SHEP FY 2017 Monitoring Meeting on October 10, 2018 in Savannah, GA which reviewed the contents of the 2017 Construction Monitoring Report released in February 2018.
- 5. New Savannah Bluff Lock and Dam.** The SHEP mitigation agreements, in compliance with the Endangered Species Act, require the USACE – Savannah District to reduce or mitigate impacts to sturgeon. Removal of New Savannah Bluff Lock and Dam (NSBLD) would benefit sturgeon by providing access to historic spawning areas. The USACE funded DNR Diadromous Fish staff to conduct pre-construction monitoring of sturgeon distribution and movement through the use of telemetry and sonic transmitters. This work was completed in 2014. Construction of the bypass channel originally proposed was not anticipated to occur until 2021. However, in December 2016, the Water Infrastructure Improvement for the Nation (WIIN) Act was signed into law. The WIIN Act deauthorized the NSBLD and repealed/replaced language in the Water Resources Development

Appropriations Act of 2000/2001 with requirements to fulfill fish passage mitigation under the SHEP. The WIIN Act outlines two options:

- A) Repair the NSBLD lock wall and modify the structure such that it is able to:
- Maintain the pool for navigation, water supply and recreational activities, and
 - Allow safe passage over the structure to historic spawning grounds of shortnose and Atlantic sturgeon and other migratory fishes.
- B) Construct at an appropriate location across the Savannah River of a structure that is able to maintain the pool for water supply and recreational activities and remove the NSBLD on completion of construction of the fish passage structure.

The Corps Savannah District presented five alternatives to be considered for the project to the public in June 2018 and plan to release the selected alternative in Fall 2018. OEP Staff attended the public meeting hosted by the Corps Savannah District in North Augusta, SC on November 14, 2018. The recommended plan for replacing the New Savannah Bluff Lock and Dam was announced. Of seven alternatives offered, the recommended plan chosen is a higher fixed crest weir with a dry floodplain bench. The plan involves the demolition of the current lock and dam and construction of a fixed weir with an in-channel fish passage and a floodplain bench that enables the passing of higher flows. With this design, the Corps Savannah District estimates the water level will decrease one to two feet in the downtown Augusta area under average flow conditions. River flows between 5,000 and 8,000 cubic feet per second (cfs) are considered average flows. Flows above 5,000 cfs occur approximately 77% of the time. This is a contentious issue for the community with concerns regarding maintaining the pool created by the current lock and dam for drinking water supply and recreational use. In response to concerns regarding pool height with the recommended plan, the Corps Savannah District conducted a drawdown to exhibit the height of the pool for the tentatively selected plan for local observation in February 11-14, 2019. In conjunction with the drawdown, the Corps Savannah District released the Draft Integrated Post Authorization Analysis Report (PAAR) and Supplemental Environmental Assessment (SEA), Fish Passage at New Savannah Bluff Lock and Dam (NSBLD), and Draft Finding of No Significant Impact (FONSI) for public review on February 27, 2019. DNR staff, the public, and other resource agencies and conservation groups will have 60 days to review the details of the tentatively selected plan and provide comment by April 16, 2019. DNR submitted comments on the PAAR and SEA for the NSBLD on March 27, 2019. Additionally, staff also reviewed and provided comments on the Draft Fish and Wildlife Coordination Act Report on the NSBLD to the USFWS on March 26, 2019. On October 29, 2019, the Corps announced its decision on the future of the fish passage at NSBLD. The Corps selected alternative 2-6d, a fixed weir with an in-channel fish passage and a floodplain bench that enables the passing of higher flows. The plan calls for removal of the lock and dam. On November 4, 2019, the South Carolina Attorney General on behalf of the South Carolina Department of Health and Environmental Control and the Savannah River Maritime Commission filed a lawsuit against the United States Army Corps of Engineers Savannah District in regard to the elevation of the pool that should be maintained. DNR OEP staff attended a public meeting held in Augusta on November 13, 2019. On December 6, 2019, the City of Augusta filed a motion to intervene in the lawsuit filed by the State of South Carolina. On January 2, 2020, the Georgia Ports Authority also filed a motion to intervene in the lawsuit. On November 23, 2020, US District Judge Richard Gergel ruled in the Lock and Dam case. Judge Gergel entered an order in favor of the State of South Carolina and the City of Augusta and permanently enjoined the defendants (USACE and Georgia Ports Authority) from tearing down the NSBLD and required a mitigation alternative that keeps the pool level at 114.76 ft. On January 19, 2021, the US Army Corps of Engineers, a federal defendant in the case, filed a notice of appeal to the US Court of Appeals for the Fourth Circuit.

- 6. Wetland Mitigation Lands Acquisition.** The USACE-Savannah District released a draft Final Report documenting the acquisition and preservation of two tracts of land in partial fulfillment of wetland mitigation requirements for the Savannah Harbor Expansion Project (SHEP). Flow-rerouting features within the Savannah River estuary are expected to mitigate most of the impacts to

freshwater wetlands due to SHEP (see item on McCoy's Cut below); however, the remaining impacts are required to be mitigated by the acquisition and preservation of 2,245 acres of existing wetlands within the estuary. In the 2012 SHEP Final EIS, the USACE stated it would acquire lands designated as high priority in the Savannah National Wildlife Refuge Acquisition Plan and provide them to the USFWS to manage as additions to the Refuge. The USFWS will manage these properties using funds obtained through the Department of Interior's normal budget process. The first property, a 175-acre mostly upland tract known as SLF III, was acquired by GADOT and transferred to the USFWS in 2015. The second property, Abercorn Island, is a 2,081-acre tract consisting mostly of non-tidal forested wetlands. Abercorn Island was identified by the USFWS as its top priority for acquisition. The GADOT acquired Abercorn Island in February 2017 and comments on the draft Final Report were submitted on May 30, 2017. Abercorn Island was transferred to the Refuge in June 2017.

Savannah River Training Wall Removal Study – Augusta. The U.S. Army Corps of Engineers, Savannah District, has initiated a study regarding a training wall in the Savannah River at Augusta, Georgia conducted under the authority of Section 216 of the Flood Control Act of 1970. The purpose of this type of study is to determine whether a water resources development project operated and maintained by the Corps of Engineers should be deauthorized, and if the associated property should undergo disposal. The training wall was constructed as part of the federally authorized project, Savannah River Below Augusta (SRBA), in the early 1900s. The wall, and associated structures, helped prevent formation of sandbars on the Georgia side of the river which impeded commercial navigation at the time. However, commercial navigation effectively ceased by 1980 and maintenance of the channel in that area was discontinued, the last known maintenance activity having been completed in December 1980.

The study area extends between Augusta's 13th Street Bridge and Palmetto Parkway Bridge (Interstate 520). Currently, the training wall, including underwater portions and those exposed during low flow periods controlled by the J. Strom Thurmond Dam, could be a navigational hazard. The study will determine if there remains Federal interest in this navigational feature of the SRBA project and if not, whether disposal of the wall is feasible. DNR submitted comments on the proposed study on October 28, 2019. On April 6, 2020, the USACE Savannah District released a draft Integrated Disposition Study (IDS)/Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) under the authority of Section 216 of the Flood Control Act of 1970 (Public Law 91-611) for the Savannah River Below Augusta, Training Wall Disposition, Augusta, Georgia and North Augusta, South Carolina. The draft IDS/EA included the evaluation that the Corps performed to determine whether federal interests exist to retain or dispose of the Training Wall and its associated navigation features. The study evaluates three alternatives: (Alternative 1) Future Without Project Condition (FWOP)/No Action Alternative (NAA); (Alternative 2) Removal of the Training Wall; and (Alternative 3) Removal of the Training Wall and Sediment at Gardner's Bar on the South Carolina downstream bank. The recommended plan, Alternative 2, consists of the removal of the training wall and its associated navigation features and would allow for the natural release of sediments accumulated behind the wall back into the river system. DNR staff provided comments on the report on April 30, 2020. DNR provided comments on the Draft Fish and Wildlife Coordination Act Report to the USFWS Georgia Ecological Services Office. The USFWS Georgia Ecological Services Office provided the Final Fish and Wildlife Coordination Act Report on the Training Wall on June 22, 2020. DNR project manager: Stacie Crowe crowes@dnr.sc.gov

Stormwater Infrastructure General Permit, S.C. Department of Health and Environmental Control's Office of Ocean and Coastal Resource Management (DHEC OCRM), GP-2019-SW11, GP-2019-SW12 & GP-2019-SW13. DHEC OCRM is proposing to issue a general permit to streamline the authorization process for State Agencies, County Governments and Local Municipalities for public Storm Water Infrastructure improvement projects within DHEC OCRM Direct Permitting Authority (Critical Area), in accordance with the Coastal Zone Management Act (48-39-10 et.seq.). This GP will authorize State agencies, county governments and local municipalities to conduct activities required for the re-establishment, improvement or maintenance of existing public stormwater conveyance systems in the tideland. The purpose of this GP is to provide a simplified and expeditious means to authorize routine public stormwater infrastructure projects undertaken by state agencies, county governments and local

municipalities that are similar in nature and result in only minimal individual and cumulative impacts to the tidelands critical area within the State of South Carolina.

In a letter dated April 23, 2019, DNR expressed various concerns regarding the issuance of this GP and the potential significant and cumulative impacts to important estuarine resources. DNR staff provided recommendations for minimizing potential impacts. Staff also participated in a follow-up meeting to further discuss concerns of the various commenting agencies. This GP was officially noticed in August of 2020; OEP staff made additional recommendations for minimizing potential impacts. DNR project manager: Susan Davis daviss@dnr.sc.gov.

Stormwater Management General Permit Tidal Waters, USACE General Permit P/N SAC-2020-00959.

https://www.sac.usace.army.mil/Portals/43/docs/regulatory/publicnotices/Aug_2020_PN/SAC-2020-00959_Proposed_Stormwater_Conveyance_General_Permit_PN.pdf?ver=2020-08-14-095638-890 The Charleston District proposes to issue a General Permit (GP) to federal, state, or local government agencies authorizing certain stormwater management activities located in tidal waters within the boundaries of the Critical Area Tidelands of the Coastal Zone of Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Horry, and Jasper Counties in South Carolina. The GP would authorize the excavation/dredging of existing, maintained stormwater conveyances, expansion of existing, maintained stormwater conveyances, and installation of new stormwater conveyance and/or the re-establishment of non-maintained stormwater conveyances through tidal waters. The GP would also authorize the discharge of dredged or fill material and/or excavation/dredging to facilitate the installation of new and/or the maintenance, repair, replacement and/or extension of existing water control structures, pipes and culverts in tidal waters. In a letter dated September 3, 2020, DNR expressed various concerns regarding the issuance of this GP and the potential significant and cumulative impacts to important estuarine resources and provided recommendations for minimizing potential impacts. DNR project manager: Susan Davis daviss@dnr.sc.gov.

US 278 Corridor Improvements Project, Beaufort County. Federal Project Number P030450. See: <https://www.scdot278corridor.com/>

The Federal Highway Administration (FHWA) in cooperation with the South Carolina Department of Transportation (SCDOT) are preparing an EA for improvements to the US 278 corridor. The purpose of this project is to increase capacity and reduce congestion along US 278 from Moss Creek Drive to Squire Pope Road. As a part of the corridor improvements project, the eastbound Mackay Creek Bridge, which crosses the Intracoastal Waterway, would be replaced as a part of SCDOT's bridge replacement program and the remaining three bridges in the study area would also be studied for potential improvements. In addition, the access to Pinckney Island National Wildlife Refuge and the C.C. Haigh, Jr. boat ramp would also be studied for possible improvements. On April 10, 2019, the DNR accepted an invitation to become a participating agency in the development of an EA for this project. As a participating agency, the DNR will identify, as early as possible, any issues of concern regarding the project's potential environmental impacts. DNR will also be involved in the issue resolution process and provide meaningful and timely input on unresolved issues. In a letter dated September 20, 2018, the DNR has already provided scoping comments on this project, including preliminary comments on potential impacts to natural resources in the study area. In a letter dated April 10, 2019, the DNR accepted the invitation to become a participating agency and asked that the DNR's role in dispute resolution be clarified in the Final ACP. DNR reviewed the Draft Purpose and Need statement and had no comments or concerns. On June 13, 2020, the DNR participated in a meeting to discuss the alternative evaluation criteria, range of alternatives, and provide a coordination point for agencies as required by the EA process. On March 19, 2020, OEP staff participated in a meeting to discuss the following: the reasonable alternatives and revisions since the last agency meeting; the preliminary Essential Fish Habitat assessment; and future mitigation planning. Seventeen preliminary alternatives were developed originally and were narrowed down to six reasonable alternatives. On May 14 staff participated in an ACE meeting to discuss project updates, discuss the

alternatives matrix and the recommended preferred alternative. DNR project manager: Susan Davis daviss@dnr.sc.gov

Hydroelectric Energy Projects

Under the Federal Energy Regulatory Commission's (FERC) regulatory authority under the Federal Power Act, natural resource agencies have an opportunity to negotiate and collaborate with utilities to minimize and mitigate impacts to natural resources affected by the operation of hydroelectric facilities. OEP staff serve as the DNR representative as a part of the relicensing process and implementation of the license. DNR FERC Coordinator: Elizabeth Miller millere@dnr.sc.gov

Augusta Canal Hydroelectric Project (FERC Project No. 11810). The City of Augusta, Georgia, filed a license application with FERC on June 20, 2003, which is pending signatures to a Settlement Agreement and the completion of NMFS Section 7 endangered species consultation regarding hydro project impacts to shortnose and Atlantic sturgeon; DNR signed the Settlement Agreement. The Settlement Agreement and the license application propose upstream and downstream fish passage and operations of the Augusta Canal that will provide for seasonal minimum flows that will enhance aquatic habitat and recreational activities in the Savannah River at Augusta Shoals. On July 9, 2014 the City of Augusta submitted a request to DHEC for 401 Water Quality Certification (WQC) of its license application to FERC to which DNR provided comments to DHEC on Sep 11, 2014. On July 8, 2015 DHEC issued a 401 WQC of the City of Augusta's FERC license application, and the WQC is consistent with the DNR stream flow objectives. NMFS and FWS drafted a revised joint prescription for fish passage in November 2017 and again in March 2018. A draft joint fish passage prescription was issued in September 2019, which was also reviewed by DNR staff. On October 23, 2019, the City of Augusta filed for a trial type hear to resolve disputed issues regarding the Second Modified Prescription. In July 2020, the NMFS and the USFWS each filed Reservations of Authority, replacing the Second Modified Prescription for the Project. The agencies are jointly working to file a Third Modified Prescription for the Augusta Canal Project.

Cherokee Falls Hydroelectric Project (FERC Project No. 2880). Cherokee Falls Hydroelectric Project, LLC emailed a draft license application to DNR on March 18, 2019 requesting agency review and comments by June 17, 2019. DNR submitted comments to the FERC on June 14, 2019. Enel submitted their Final License Application to the FERC on July 31, 2019. The FERC issued Scoping Document 1 for the Cherokee Project on March 6, 2020 and comments were submitted by DNR on April 3, 2020. DNR submitted comments on the Notice for Ready for Environmental Analysis (REA) to the FERC on May 18, 2020. On April 20, 2020 Cherokee Falls Hydroelectric Project, LLC submitted a request to DHEC for 401 Water Quality Certification (WQC) of its license application to the FERC. DHEC issued a public notice on April 30, 2020 requesting comments regarding the proposed application. DNR submitted comments to DHEC for the 401 WQC on June 1, 2020. DNR and DHEC submitted additional questions to the licensee regarding Project operations for clarification before issuance of the WQC. On December 15, 2020, Hydroland Omega LLC. took ownership of Cherokee Falls Hydroelectric Project, LLC and intends to continue to pursue the subsequent license. The ownership change is at the parent company level and the primary licensee of the Project will remain the same. The licensee responded to and addressed DNR and DHEC's additional questions and concerns regarding project operations related to the issuance of the WQC. After consulting with DNR personnel, DHEC issued the WQC to the Cherokee Falls Hydroelectric Project on March 9, 2021. **The FERC issued the Environmental Assessment for the Cherokee Falls Project on April 16, 2021 and solicited public comment on the document. The SCDNR is preparing agency comments to be submitted by May 17, 2021.**

Coneross Hydroelectric Project (FERC Project No. 6731). Coneross Power Corporation filed a draft license application with the FERC on October 22, 2018. DNR staff reviewed the document and provided comments and recommendations before the January 20, 2019 comment period deadline. The applicant proposed a decrease in the minimum flow requirement of 25 cfs year-round to the bypass reach for the project and stated that it would be an enhancement to the project. DNR disagrees and finds that the change to this new flow regime would be a negative impact for aquatic resources. The current flow

requirement in the previous license requires a minimum flow in the bypass reach at 35 cfs from February 1 – May 31 and 25 cfs from June 1 – January 31 or inflow to the Project's impoundment, whichever is less. They are also required to maintain a minimum flow of 36 cfs or inflow, whichever is less, downstream of the confluence between the tailrace and the bypass reach to support navigation. To address DNR's concerns, it was agreed that the applicant would fund studies to determine proper minimum flow requirements for their project. The final license application was submitted to the FERC on February 28, 2019. DNR submitted a follow-up letter in April 2019 to address the study needs required to determine adequate flow downstream of the project. The Project filed the Final License Application on January 23, 2020. The FERC issued the Scoping Document 1 (SD1) for the Project on February 20, 2020. The FERC issued an extension to the SD1's comment period on March 6, 2020 and comments were submitted by DNR staff on April 9, 2020. The FERC issued the Ready for Environmental Analysis for the Coneross Project on April 21, 2020. DNR staff reviewed the request and submitted comments and 10j recommendations on June 19, 2020. DHEC issued a public notice seeking comments on the Coneross Project's application for a 401 Water Quality Certification. DNR staff submitted comments on July 6, 2020 to DHEC recommending measures to provide protection, mitigation and enhancement for fish and wildlife resources affected by the Project. On December 15, 2020, Hydroland Omega LLC. took ownership of the Coneross Power Corporation and intends to continue to pursue the subsequent license. The ownership change is at the parent company level and the primary licensee of the Project will remain the same. **DHEC issued a Notice of Department Decision regarding the Coneross Project's 401 Water Quality Certificate on April 23, 2021.**

Parr-Fairfield Hydroelectric Project (FERC Project No. 1894). The Parr-Fairfield Hydroelectric Project was issued a new license on November 25, 2020. SCDNR staff worked collaboratively with the licensee, federal and state agencies, and other stakeholders throughout the relicensing process that began in September 2012. In June 2018, a Comprehensive Relicensing Settlement Agreement (CRSA) detailing how the Project should be managed under a new FERC license was finalized and signed by SCE&G (now Dominion Energy South Carolina (DESC)) and relicensing stakeholders, including SCDNR. The FERC incorporated most of the agreed upon terms of the CRSA into license requirements. However, DESC, in good faith and to uphold the agreed upon terms of the CRSA, has agreed to follow through with terms that were not incorporated into the license. DESC will be providing several beneficial services to the state's residents and aquatic resources as part of their new license requirements and CRSA terms. There are a variety of benefits associated with the project including:

- Benefits for aquatic resources with improved flow regimes that will reduce reservoir fluctuations and stabilize flows during fish spawning season.
- Data collected, and information gained, as a part of a freshwater mussel monitoring plan and an American eel Monitoring Plan.
- Improved water quality downstream of the Project with increased minimum flows and the implementation of a Turbine Venting Plan to enhance dissolved oxygen below Parr Shoals Dam.
- Development of a Shoreline Management Plan and Erosion Monitoring Plan to protect the Project's natural, scenic, recreational, and cultural resources over the term of the new license.
- Establishment of a Habitat Enhancement Program to enhance aquatic habitat in addition to the installation of habitat structures in Lake Monticello.
- Existing recreation sites within the Project at Parr and Monticello reservoirs, as well as the Recreation Lake or Sub-Impoundment (a 300-acre lake adjacent to Monticello Reservoir, constructed by the licensee for the sole purpose of recreation) will see enhancements at new and existing recreation sites such as new courtesy docks and fishing piers. A new canoe portage trail around the Parr Shoals Dam will also be formalized.
- Continued protection and public use of approximately 9,000 acres of land and water within the Project boundary in the Wildlife Management Area (WMA) Program.

The project website is <http://parrfairfieldrelicense.com/index.html>

Saluda Hydroelectric Project (FERC Project No. 516). SCE&G filed with FERC a license application for the Saluda (Lake Murray) Project on August 27, 2008 and a Comprehensive Relicensing Settlement

Agreement (CRSA) on July 31, 2009. A new FERC license for this project is pending the completion of NMFS Section 7 endangered species consultation regarding hydro project impacts to shortnose and Atlantic sturgeon. The CRSA and license application propose important protection and enhancement measures for Lake Murray and downstream sections of the Saluda and Congaree rivers. Measures include the establishment of minimum flows and striped-bass spawning enhancement flows, low-inflow drought plan, a plan for dissolved-oxygen enhancement to improve water quality, increased protection of threatened and endangered species, enhancements in fish and wildlife habitat protection and increased recreational opportunities. On January 3, 2019, SCANA/SCE&G merged with Dominion Energy South Carolina, LLC. The project website is <http://www.saludahydrorelicense.com/>.

Santee Cooper Hydroelectric Project (FERC Project No. 199). S.C. Public Service Authority (SCPSA) filed with FERC a license application on Mar 15, 2004 and a Final Settlement Agreement (FSA) on May 24, 2007. The license application and FSA propose flows through the project to enhance aquatic habitat and water quality, a low-inflow/drought plan, fish passage and protection prescriptions, plans to protect sensitive species, shoreline management plan, recreation plan, and enhancements at the Santee National Wildlife Refuge. FERC issued its Final EIS in October 2007. A new FERC license for this project is pending the completion of National Marine Fisheries Service (NMFS) Section 7 endangered species consultation regarding hydro project impacts to shortnose and Atlantic sturgeon. DNR staff continues to participate in the Santee Cooper-NMFS consultation process regarding sturgeon protection measures. DNR provided comments on July 23, 2012 to address a Santee Cooper proposal to NMFS for sturgeon passage at the Project. NMFS resumed consultations with Santee Cooper and DNR staff on April 25, 2017, to address sturgeon passage issues and planned steps for revising the draft biological opinion. In July 2019, DNR staff received a draft of the Biological Opinion and Fishway Prescription from the NMFS Section 7 endangered species consultation for review. DNR staff attended a site visit and meeting on September 30 and October 1 to discuss the NMFS draft Biological Opinion. Staff reviewed the draft Biological Opinion and draft Second Modified Prescription for Fishways and submitted comments to the FERC on December 17, 2019. NMFS issued the final Biological Opinion on January 22, 2020 and the final Second Modified Prescription for Fishways on January 27, 2020.

Spartanburg Water Proposed Hydroelectric Projects. Spartanburg Water has been granted approval by FERC on July 7, 2014 to begin the licensing process in order to establish hydroelectric facilities at two existing Pacolet River dams on Lakes Blalock and Bowen and restoration of an abandoned hydropower facility at Fingerville on the North Pacolet River. DNR staff are providing input and assistance with study plans being implemented at the project sites. Spartanburg Water has paused its pursuit of these licenses pending resolution of related economic issues. The project website is: <http://www.sws-sssd.org/lakes/index.php>.

Stevens Creek Hydroelectric Project (FERC Project No. 2535). On January 3, 2019, SCANA/SCE&G merged with Dominion Energy. Dominion Energy conducted public outreach meetings on January 10, 2019 to address the upcoming relicensing process for Stevens Creek Hydroelectric Project located on the Savannah River downstream of Lake Thurmond in Edgefield County, SC and Columbia County, GA. DNR staff attended a site visit on May 15, 2019 to survey the project area and recreational facilities provided by the project. DNR staff attended a draft Pre-Application Document (PAD) meeting on August 22, 2019. DNR is involved in several Resource Conservation Groups and has attended meetings with the different groups in preparation for the draft PAD. The current FERC license for the Project expires on October 31, 2025. Dominion Energy submitted their Pre-Application Document and request to use the Traditional Licensing Process (TLP) on May 15, 2020. DNR filed a concurrence letter in support of the use of the TLP for the Project. DNR staff participated in the Joint Agency Meeting and virtual site visit on September 3, 2020. DNR submitted comments on the Pre-Application Document and a study request for consideration on November 2, 2020. The project website is <http://stevenscreekrelicense.com>.

Upper Pelzer (FERC Project No. 10254), Lower Pelzer (FERC Project No. 10253), and Piedmont (FERC Project No. 2428) hydroelectric projects. Enel Green Power North America, Inc. was granted

approval by FERC on April 5, 2013 to begin a relicensing process for these 3 run-of-river hydro projects located on the Saluda River in Greenville and Anderson counties. Three Final License Applications were submitted to FERC by Enel in late November and December, and DNR staff reviewed the documents and submitted comments to FERC on January 28 and February 17, 2016, recommending additional studies to address information needs for these projects. DNR also submitted comments and recommendations to DHEC regarding Enel's applications for 401 Water Quality Certification for these three projects. FERC issued a Ready for Environmental Analysis notice in November 2017 and is developing its Draft Environmental Assessment for the three projects. In January 2018, DNR submitted recommendations to FERC on licensing measures for protection, mitigation and enhancement of fish and wildlife resources affected by the Projects. FERC issued a Draft Environmental Assessment (DEA) on the three projects on July 16, 2019. DNR submitted comments to the Commission regarding their findings and recommendations in the DEA on August 30, 2019. The FERC reviewed DNR's comments and did not adopt any of DNR's 10j recommendations in the Final Environmental Assessment issued in October 2013. 10j under the Federal Power Act requires consideration of recommendations by fish and wildlife agencies for the protection, mitigation of damages to, and enhancement of fish and wildlife affected by the development, operation and management of a FERC project. The Piedmont Project license was issued on April 15, 2020. The Upper Pelzer Projects license was issued on June 30, 2020. The Lower Pelzer Project was issued a new license on August 6, 2020. Staff attended a site visit at the Piedmont Project on September 30, 2020 to review the draft Recreation Management Plan (RMP) for the Project. The licensee is required by Article 405 of their license to provide an informal fishing site and a canoe portage around the dam. **Staff submitted comments on the draft Piedmont RMP on October 9, 2020, draft Upper Pelzer RMP on December 8, 2020, and draft Lower Pelzer RMP on March 31, 2021.**

Natural Resource Damage Assessment (NRDA).

Under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) or the Oil Pollution Act (OPA), natural resource trustees seek damages for injury to natural resources that are a result of releases of hazardous substances or oil. OEP staff serve as the DNR representative as a part of the Natural Resource Trustees. DNR project manager: Stacie Crowe crowes@dnr.sc.gov

Exxon Mobil Corporation. The NRDA Trustees reached a settlement with the Exxon Mobil Corporation for approximately \$6.6 million for claims related to the release of hazardous waste at nine phosphate fertilizer plant sites located in Charleston, Beaufort and the Greenville area between 1900-1950. Remedial actions started around 2007-2008. The Consent Decree was filed on May 2, 2019 and entered into final judgement on June 26, 2019. Environmental impacts typically associated with phosphate-based fertilizer manufacturing facilities include elevated concentrations of metals, particularly lead and arsenic in soil, groundwater and sediment, as well as acidic pH conditions. The NRDA Trustees will now begin the Restoration Planning process where restoration actions will be designed to return impacted resources to baseline condition. The Trustees signed the funding resolution in January 2020. The settlement funds are anticipated to be used for marsh and oyster restoration projects in the Charleston and Beaufort areas.

Koppers Company Inc. The NRDA Trustees reached a settlement with Beazer East, Inc., the responsible party, for the Koppers Company site for approximately \$3 million. The Consent Decree was filed on January 7, 2019. Starting as early as 1942, wood treatment and fertilizer manufacturing facilities located at Koppers in Charleston released hazardous substances into wetland and riverine habitats in and near the Ashley River. Approximately 140 acres of tidal marsh and creeks were impacted by the contaminants released, which included polycyclic aromatic hydrocarbons (PAHs) and heavy metals. Beazer East, Inc. worked cooperatively with the EPA to clean up the contamination and remedial activities were completed in 2003. The Trustees conducted a NRDA and determined that both intertidal and subtidal habitats were affected by the contamination. Contaminant concentrations would have been toxic to benthic invertebrates (including grass shrimp), and possibly fish, birds and mammals. The Trustees have released the Final Damage Assessment and Restoration Plan, as well as the Environmental Assessment for the Koppers Site, which describes restoration projects focusing on salt marsh restoration at sites on the Ashley River and Long Branch Creek in Charleston. The comment

period on the Draft Restoration Plan closed on February 12, 2020 and no public comments were received. A Trustee resolution to accept an oyster restoration project as the preferred alternative was circulated on February 26, 2020. The Trustees signed the Trustee Resolution approving the Final Supplement's release on March 12, 2020. The salt marsh restoration project at Drayton Hall will begin on March 15, 2021.

MV Everreach. On September 30, 2002, the container ship M/V Everreach spilled approximately 12,500 gallons of oil into the waters of the Cooper River in Charleston, South Carolina. While the oil was concentrated in the vicinity of the North Charleston Terminal and the Old Navy Base, oiling occurred in tidal creeks and backwater areas of James Island, Shutes Folly, Crab Bank, Morris Island, Folly Beach, and Sullivan's Island, totaling approximately 30 linear miles of shoreline. NOAA and the Trustees worked with the Responsible Party to restore over 11 acres of salt marsh habitat at the site of the former Charleston Naval Base golf course in North Charleston. The NRDA Trustees reached a settlement with the responsible party for a salt marsh restoration project and an additional \$121,000 for damages to recreational facilities and lost use of natural resources. The Consent Decree was filed on October 24, 2012. The Noisette Creek Restoration Project restored tidal flow through berm breaches and excavation of a tidal creek network and was completed in 2018. To address the lost recreational uses, the Trustees evaluated three restoration alternatives, including a no action alternative. These alternatives were presented in a Draft Restoration Plan and Environmental Assessment, released for public comment June 27 through July 27, 2019. No public comments were received. The Trustees selected one project to compensate the public for the injury to recreational fishing. The selected project will provide additional and improved fishing access through the installation of a fishing pier at the Sol Legare Boat Landing on James Island, South Carolina. Implementation is expected to begin in 2020. The Sol Legare Boat Landing improvements were completed in June 2020 and include a new floating dock and fixed crabbing and fishing pier.

Mitigation Banks and Interagency Review Team

Under the 2008 Mitigation Rule, natural resource agencies have an opportunity to participate collaboratively with resource and regulatory agencies on the Interagency Review Team (IRT) to oversee and provide feedback on mitigation bank or in-lieu fee development. The IRT process ensures that mitigation banks are sited appropriately and provide ecological value, in addition to functional uplift of aquatic resources to offset the loss of aquatic resources associated with U.S. Army Corps of Engineers Section 404 permits. A majority of the OEP staff serve on the IRT to provide expertise on stream restoration and wetland enhancement during this process. The following are a list of recent banks that are under review; this does not include existing banks that are also reviewed during the monitoring phases of the bank's life.

Audubon Silver Bluff Mitigation Bank Prospectus

The proposed project consists of establishing a 475-acre freshwater stream and wetland mitigation bank in the Middle Savannah River watershed (8-digit HUC 03060106) located in the Southern Outer Piedmont Ecoregion near Spartanburg, Spartanburg County (34.837678, -82.057584). The proposal is to restore 6,036 linear feet of Curry Branch. Approximately 292.8 acres of wetlands will be enhanced or restored through plugging ditches and vegetative enhancements. The bank is owned by the National Audubon Society and sponsored by Audubon South Carolina. The long-term steward will be Audubon South Carolina and the conservation easement holder will be the Lowcountry Land Trust. Prospectus comments were submitted to the USACE by DNR on December 17, 2020. DNR project manager: Tom Daniel

Ben's Creek Mitigation Bank Prospectus

The proposed project consists of establishing a freshwater stream and wetland mitigation bank in the South Tyger watershed (8-digit Hydrologic Unit Code 03050107) located in the Southern Outer Piedmont Ecoregion near Spartanburg, Spartanburg County (34.837678, -82.057584). The proposed 430-acre mitigation bank includes approximately 28,900 linear feet of stream channels and 103.5 acres of

wetlands. The proposal is to preserve 20,550 linear feet of stream, and either enhance or restore 8,350 linear feet of streams by stabilizing stream channels and reconnecting streams to their floodplain. Approximately 99.1 acres of wetlands will be enhanced or restored through removal of fill, berms and roadbeds. Approximately 4.4 acres of wetlands will be preserved on site. The bank is owned by Mr. David Keller of Moore, SC and sponsored by Southern Oaks Land and Water. Southern Oaks Land and Water will be the long-term steward. The conservation easement holder has not yet been identified. Prospectus comments were submitted to the USACE by DNR on February 19, 2020. DNR project manager: Tom Daniel

Big Dutchman Creek Mitigation Bank Draft Mitigation Banking Instrument

The proposed project consists of establishing a freshwater stream and wetland mitigation bank in the Lower Catawba watershed (8-digit Hydrologic Unit Code 03050103) located in the Level III Piedmont Ecoregion near the Rock Hill, York County, SC (35.00422, -81.08689). The proposed 106 acre bank site is located within the 800 acre Harper Farm. The proposal is to restore approximately 17,600 linear feet of stream and enhance 3.82 acres of wetlands. The bank owners and long-term stewards are Mr. Richard C. Harper and Mr. Craig Harper and the conservation easement holder is the York County Soil and Water Conservation District. Prospectus comments were submitted to the USACE by DNR on September 6, 2017 and DMBI comments were submitted on April 3, 2020. DNR submitted comments on the Design Plans for the proposed bank on September 10, 2020. DNR project manager: Greg Mixon

Brosnan Forest Coldwater Branch Mitigation Bank Mitigation Banking Instrument

The proposed bank is located in the the Four Hole Swamp watershed (8-digit Hydrologic Unit Code 03050205) in the Middle Atlantic Coastal Plain ecoregion. The proposed 1,106 mitigation site is located in Norfolk Southern Railway Company's Brosnan Forest, a 14,405-acre corporate conference center and outdoor recreation facility. The proposal is to restore 299.2 acres of headwater wetlands, 2.3 acres of isolated wetlands, 123.2 acres of streamside wetlands, 21 acres of restored impounded wetlands, and 46.3 acres of formerly impounded wetlands that will be hydrologically enhanced. All wetlands will be protected by a 150-foot average width upland buffer. In addition, 34,488 linear feet of stream will be restored or preserved with 300-foot average width upland buffers. The bank is owned and sponsored by Norfolk Southern Railway Company and will be protected by a conservation easement held by Lowcountry Land Trust, Inc. Prospectus comments were submitted to the USACE by DNR on February 4, 2019 and DMBI comments were submitted on June 2, 2020. DNR staff reviewed a revised DMBI dated September 2020 and submitted comments on October 27, 2020. DNR. Project Manager: Greg Mixon

Catawba Mitigation Bank Prospectus

The proposed bank is located in the Lower Catawba watershed (8-digit Hydrologic Unit Code 03050103). The proposed 623-acre mitigation site includes approximately 28.3 acres of freshwater wetlands and 48,294 linear feet of streams. The proposal is to preserve approximately 38,429 linear feet of streams and 12.47 acres of palustrine forested wetlands. In addition, 15.53 acres of freshwater wetlands will be enhanced through removal of loblolly pine and replanted in native species. 11,766 linear feet of stream will be restored/enhanced through removal of two dams utilizing natural channel design techniques. The bank owner, sponsor and proposed long-term steward is SCP Catawba, LLC. The identity of the conservation easement holder has not been finalized. DNR received the public notice including the prospectus on April 16, 2021 and will provide comments by May 28, 2021. DNR project manager: Greg Mixon

Catfish Farm Mitigation Bank Prospectus

The proposed bank is located in in the Little Pee Dee and Great Pee Dee watershed (8-digit Hydrologic Unit Code 03040204 and 03040201) located in the Middle Atlantic Coastal Plain Ecoregion. The proposed 1,199-acre mitigation site would preserve 4,098 linear feet of stream. In addition, 2,418 linear feet of stream will be enhanced by re-routing flow back into relic channels. Approximately 12,807 linear feet of stream will be restored by stabilizing stream channels, reconnecting streams to their floodplain, removal of existing impoundments, and creating new channels where needed. Buffers will be enhanced by planting a mix of native trees to improve vegetative diversity. Approximately 596.69 acres of wetlands

will be enhanced by re-establishment of native hardwood species. 252.48 acres of wetlands will be restored by removing existing pine plantation, restoring hydrology through grading and ditch plugging, and re-establishing forested wetland vegetative communities. Approximately 42.31 acres of wetlands will be preserved on site. The bank owner and proposed long-term steward is Catfish Farm, LLC and the conservation easement holder is anticipated to be Pee Dee Land Trust. Draft Prospectus comments were submitted to the USACE by DNR on May 8, 2017 and final Prospectus comments were submitted on May 5, 2020. DNR project manager: Greg Mixon

Caw Caw Mitigation Bank Draft Mitigation Banking Instrument

The proposal consists of establishing a freshwater wetland mitigation bank in the Stono River watershed (USGS 8-digit Hydrologic Unit Code 03050202) and the Middle Atlantic Coastal Plain ecoregion of South Carolina. The proposed 668.7-acre mitigation site includes 658.8 acres of freshwater wetlands and 9.87 acres of upland roads. The mitigation work plan includes the enhancement/restoration of 197.1 acres of palustrine forested wetlands by the removal of pine species and the planting of bottomland hardwood seedlings; and the preservation of 445.3 acres of palustrine forested and scrub shrub wetlands. The bank will be protected with a conservation easement held by Ducks Unlimited. Prospectus comments were submitted to the USACE by DNR on February 12, 2015 and DMBI comments were submitted on May 14, 2020. Project manager: Susan Davis

Corley Mill Mitigation Bank Final Mitigation Banking Instrument

The proposed project consists of establishing a freshwater stream and wetland mitigation bank in the Saluda River watershed (8-digit Hydrologic Unit Code 03050109) located in the Level III Piedmont Ecoregion near Lexington, Lexington County, SC (34.0278, -81.1647). The proposed 116.07-acre bank includes the lower portions of both Twelve Mile and Fourteen Mile Creeks approximately 0.65 miles upstream from the confluence with the Saluda River. The site includes 8,234 linear feet of streams and 72.64 acres of wetlands that are proposed to be restored, enhanced and preserved. The bank owners are Mrs. Lenna C. Young and Mrs. Cindy C. Waters. The long-term steward is the Corley Mill Preservation Group LLC and conservation easement holder is Congaree Land Trust. Prospectus comments were submitted to the USACE by DNR on December 17, 2016 and DMBI comments were submitted on May 5, 2020 and again on July 24, 2020 on the MBI document dated June 29, 2020. DNR staff reviewed a revised DMBI dated September 23, 2020 and provided comments dated December 9, 2020. DNR project manager: Greg Mixon

Crane Creek Mitigation Bank Draft Mitigation Banking Instrument

The proposed project consists of establishing a freshwater stream and wetland mitigation bank in the Lower Broad River watershed (8-digit Hydrologic Unit Code 03050106) located in the Level III Piedmont Ecoregion near Columbia, Richland County, SC (34.076905, -81.038011). The proposed 309.32-acre bank includes restoration and buffering of 12,031 linear feet of Crane Creek, 4,007 linear feet of associated tributaries, and 134.5 acres of palustrine forested, scrub-shrub and emergent wetlands and open water. The bank owner and long-term steward is Crane Creek Mitigation LLC and the conservation easement will be held by Congaree Land Trust. Prospectus comments were submitted to the USACE by DNR on August 24, 2017 and Draft MBI comments were submitted to the USACE by DNR on April 27, 2020. DNR staff reviewed a revised DMBI dated August 12, 2020 and submitted comments October 23, 2020. DNR project manager: Greg Mixon

Daniel Island Saltwater Mitigation Bank Draft Mitigation Banking Instrument

The proposed project consists of establishing a saltwater mitigation bank in the Cooper River watershed (8-digit Hydrologic Unit Code 03050201) in the Sea Island/Coastal Marsh Ecoregion. The 134.76-acre mitigation site is a portion of a former confined disposal facility and prior to 1970 was used to manage dredged material. According to the Prospectus, the mitigation site consists of 25.67 acres of existing salt marsh and 109.09 acres that were used for the placement of dredged material and farming activities. The long-term steward for the proposed mitigation bank will be the property owner SC Ports Authority. The third-party conservation easement holder for the site will be The Lord Berkeley Conservation Trust. Prospectus comments were submitted to the USACE by DNR on January 1, 2017 and DMBI comments were submitted August 11, 2020. DNR project Manager: Susan Davis

French Quarter Creek Mitigation Bank Draft Mitigation Banking Instrument

The French Quarter Creek (FQC) Site is in Berkeley County, South Carolina within the Cooper River Basin (8-digit HUC 03050201). The FQC Site is owned by Environmental Banc & Exchange, LLC a wholly owned subsidiary of Resource Environmental Solutions, LLC (RES) and has an estimated acreage of approximately 445 acres. The proposed bank includes both wetland and stream restoration, enhancement, enhancement by upland buffering, and preservation. In detail, the project proposes to restore approximately 70.5 acres of bottomland hardwood forest by filling ditches and raising the water table of the affected area; enhance approximately 206 acres of various wetland habitats through planting of native species and land management practices; and approximately 1,200 feet of stream restoration. The DNR has been proposed as the long-term steward of the bank and the site will be protected with a conservation easement held by Lowcountry Land Trust. Prospectus comments were provided to the USACE by DNR on March 7, 2019 and DMBI comments on March 30, 2020. DNR project manager: Susan Davis

Goose Pond Mitigation Bank Draft Mitigation Banking Instrument

The proposed project consists of establishing a freshwater wetland and stream mitigation bank in the Congaree watershed (8-digit Hydrologic Unit Code 03050110) located in the Level III Southeastern Plains Ecoregion. The proposed 1,185-acre mitigation site includes approximately 20,076 linear feet (LF) of streams and approximately 676 acres of freshwater wetlands. The proposal is to preserve 11,163 LF of stream and restore 9,940 LF of stream. The proposal would also enhance 437.7 acres of bottomland hardwood wetlands and preserve and additional 238.8 acres of bottomland hardwood wetlands. The bank owner and sponsor are Southern Oaks Land & Water, LLC and the long-term steward is proposed to be Palmetto Environmental Consultants. The conservation easement holder is proposed to be Congaree Land Trust. Prospectus comments were provided to the USACE by DNR on October 8, 2018. A DMBI, dated July 2020, was reviewed and comments submitted on August 28, 2020. Project Manager: Greg Mixon.

Grove Creek Mitigation Bank Phase 3 Restoration Plan

The proposed project consists of designing and constructing Phase 3 at the existing mitigation bank in the Saluda watershed (8-digit Hydrologic Unit Code 03050109) located in the Level III Piedmont Ecoregion. The 512.73-acre site includes a Phase 1 and Phase 2 restoration that have been previously constructed. Phase 3 will consist of the restoration of 4,182 linear feet of the main stem of Grove Creek on approximately 100 acres within the existing bank. The owner and sponsor are Hollingsworth Funds, Inc. and the conservation easement holder is Upstate Forever. DNR previously provided comments on the Phase 3 Restoration Plan on July 20, 2016. DNR staff reviewed the proposed Phase 3 Restoration Plan dated June 2020 and provided comments on September 18, 2020. DNR staff participated in a site visit on October 22, 2020 and provided additional comments dated November 13, 2020. Project Manager: Greg Mixon

Halidon Hill Mitigation Bank Draft Mitigation Banking Instrument

The proposed project consists of establishing a freshwater wetland and stream mitigation bank in the Cooper River watershed (8-digit Hydrologic Unit Code 03050201) located in the Level III Middle Atlantic Plains Ecoregion. The proposed 1,744.5-acre mitigation site includes approximately 1,074.6 acres of wetlands, 22.8 acres of non-wetland waters, and 647.1 acres of uplands. The proposal is to preserve 175.14 acres of freshwater wetland and 802 linear feet of stream. In addition, 222.93 of freshwater wetlands will be enhanced through removal of loblolly pine and replanted with native hardwood species; 94.36 acres of wetland will be enhanced through filling ditches, breaching/removal of berms, removal of roads and culverts; 418.81 acres of wetland will be enhanced through removal of loblolly pine, replanting native species, and removing hydrological impairments and 16.91 acres of freshwater wetland will be restored by removal of loblolly pine and restoring natural hydrology. In addition, 21,881 linear feet of stream will be restored through removal of undersized culverts, bank stabilization, and construction of a new channel. The bank sponsor, using a conservation easement (Ducks Unlimited), will protect the mitigation bank site. Prospectus comments were provided to the USACE by DNR on October 10, 2019 and DMBI comments were submitted on May 21, 2020. Project manager: Susan Davis

Landsford Canal Mitigation Bank Prospectus

The proposed project consists of establishing a freshwater wetland and stream mitigation bank in the Lower Catawba watershed (8-digit Hydrologic Unit Code 03050103). The proposed 250-acre mitigation site includes approximately 27.18 acres of wetlands and 30,131 linear feet of streams. The project will preserve approximately 16,712 linear feet of streams and 24.91 acres of palustrine, forested wetlands, restore approximately 3,674 linear feet of streams by establishing a new channel and reconnecting the stream with the abandoned floodplain bench at the current stream elevation, enhance approximately 9,745 linear feet of streams by stabilizing of the existing channel and the creation a floodplain bench at the current stream elevation restoration, and enhance approximately 2.5 acres of freshwater forested wetlands through restoration of a native hardwood community. The bank owner, sponsor and proposed long-term steward is Landsford Mitigation Bank, LLC. The identity of the conservation easement holder has not been finalized. DNR received the public notice including the prospectus on March 8, 2021 and provided comments on April 7, 2021. DNR project manager: Greg Mixon

Lower Broad Mitigation Bank Prospectus

The proposed project consists of establishing a freshwater stream and wetland mitigation bank in the Lower Broad watershed (8-digit Hydrologic Unit Code 03050106) located in the Southern Piedmont Ecoregion. The proposed 259.78-acre mitigation bank includes approximately 28,876 linear feet of stream channels and 2.37 acres of wetlands. The proposal is to preserve 11,167 linear feet of stream, enhance 442 linear feet of stream, and restore 8,994 linear feet of stream by raising streambed elevations, primarily by stabilizing stream channels, grading streambanks and reconnecting streams to their floodplain. Buffers will be enhanced by planting a mix of native trees to improve vegetative diversity. Approximately 2.37 acres of wetlands will be preserved on site. The bank owner, sponsor and proposed long-term steward is SCP Lower Broad, LLC. The identity of the conservation easement holder has not been finalized. DNR received the public notice including the prospectus on March 17, 2021 and provided comments on April 16, 2021. DNR project manager: Tom Daniel

Minkum Creek Mitigation Bank Draft Mitigation Banking Instrument

The proposed project consists of establishing a freshwater stream and wetland mitigation bank in the Broad River watershed (8-digit Hydrologic Unit Code 03050105) located in the Level III Piedmont Ecoregion near Gaffney, Cherokee County, SC (34.981895, -81.620860). The proposed 435-acre mitigation site includes approximately 36,600 linear feet of stream channels and approximately 10 acres of freshwater wetlands. The proposal is to restore or enhance 10,010 linear feet of perennial and seasonal streams. All streams within the bank are currently proposed for some level of restoration. The bank is owned by Heritage Preservation Holdings, LLC and sponsored by Sandy Creek Partners, LLC. The property owner, Heritage Preservation Holdings, LLC, will also be the long-term steward. The conservation easement holder has not yet been identified. Prospectus comments were submitted to the USACE by DNR on June 7, 2019. The DMBI, dated July 2, 2020, was reviewed and comments submitted August 25, 2020. DNR project manager: Greg Mixon

Mountain Bridge Passage Mitigation Bank Prospectus

The proposed bank would consist of three parcels in Greenville County, South Carolina located within the Saluda River watershed (HUC 03050109). The three parcels encompass approximately 568.72 acres, containing approximately 45,948 linear feet (8.70 miles) of stream channels. The restoration work will occur on only one of the three tracts, the site of the former Holiday Lake/Civitan Camp (35.079475, -82.574669). This work consists of 4,217 linear feet of stream restoration, 3,772 feet of stream enhancement, and 37,959 feet of stream preservation. The bank is owned and sponsored by Naturaland Trust and will be protected using a conservation easement held by Upstate Forever. The property owner, Naturaland Trust, will be the long-term steward. Prospectus comments were submitted to the USACE by DNR on June 12, 2019. DNR project manager: Tom Daniel

Palmetto Umbrella Mitigation Bank: Edisto River Mitigation Site Draft Instrument Modification (DIM)

The proposed bank is located in the Edisto River watershed (8-digit Hydrologic Unit Code 03050206) located in the Middle Atlantic Coastal Plain Ecoregion within the ACE Basin. The proposed 1,291-acre mitigation site includes approximately 12,877 linear feet of stream channels and 429.5 acres of wetlands.

The proposal is to preserve 3,911 linear feet of stream and to restore 8,966 linear feet of stream by redirecting flow from channelized portions back into on-site relic channels. Wetland enhancement of 35.4 acres will include establishing native vegetation where commercial pine plantations have encroached or where vegetation has been disturbed. Approximately 395.6 acres of wetlands will be restored by removal of ditches, roads and berms. Native vegetation will be restored in areas that are in commercial pine production. Approximately 359.5 acres of wetlands will be preserved on site. The bank is owned and sponsored by Weyerhaeuser NR Company and will be protected using a conservation easement held by Lord Berkeley Conservation Trust. DIM comments were submitted to the USACE by DNR on March 19, 2020. Project Manager: Susan Davis

Palmetto Umbrella Mitigation Bank: Great Swamp Mitigation Site Draft Instrument Modification (DIM)

The proposed bank is located in the Salkehatchie watershed (8-digit Hydrologic Unit Code 03050210) located in the Coastal Plain Ecoregion. The proposed 3,067-acre mitigation site includes approximately 53,570 linear feet of stream channels and 1,411.5 acres of wetlands. The proposal is to preserve 7,035 linear feet of stream and enhance 1,283 feet of stream by stabilizing stream channels and reconnecting natural hydrology upstream. Restoration of 38,152 linear feet of stream will be achieved by removing spoil piles, utilizing available relic channels, and adding appropriate in stream structures to maintain dimension, pattern, and profile. Wetland enhancement will include establishing native vegetation where commercial pine plantations have encroached or where vegetation has been disturbed. Approximately 848.4 acres of wetlands will be preserved on site. The bank is owned and sponsored by Weyerhaeuser NR Company and will be protected using a conservation easement held by Lord Berkeley Conservation Trust. DIM comments were submitted to the USACE by DNR on February 12, 2020. Project Manager: Susan Davis

Red Bluff Mitigation Bank Prospectus

The proposed project consists of establishing a freshwater and saltwater wetland and freshwater stream mitigation bank in the Lower Savannah and Calibogue Sound/Wright River watersheds (8-digit hydrologic Unit Codes 03060109 and 03060110). The proposed 5,514.74-acre mitigation site includes approximately 427.63 acres of freshwater wetlands, 4,704.74 acres of tidal wetlands, 5,514.74 linear feet (lf) of non-wetland waters, and 382.37 acres of uplands. The proposal is to preserve approximately 904.9 lf of streams, 163.3 acres of palustrine, forested wetlands, and 4,677.7 acres of tidal wetlands through the permanent protection of a conservation easement. In addition, 151.9 acres of freshwater wetlands will be enhanced through removal of loblolly pine and replanted in native species, 75.6 acres of freshwater wetlands will be enhanced through removal of loblolly pine, replanting native species, and removing hydrologic impairments, 3.9 acres of freshwater wetland will be restored by filling the ditches, removing the roads, and re-planting the area with native wetland species, 0.8 acres of tidal wetlands will be restored or enhanced by increasing tidal flow through breaking or removal of berms to allow for full range of tidal flows, 26.2 acres of tidal marsh will be created in areas that were converted to agricultural lands and 4,139.3 lf of streams will be enhanced through removal of undersized culverts, bank stabilization, and construction of new channels. An upland buffer will be placed around all wetland resources. The Bank is owned by Pelican Capital, LLC and the bank sponsor is Red Bluff Mitigation Bank, LLC. The bank site will be protected using a conservation easement held by the Beaufort County Open Land Trust (BCOLT). DNR Project Manager: Susan Davis

Reedy Run Mitigation Bank Prospectus

The proposed project consists of establishing a freshwater stream and wetland mitigation bank in the Saluda River watershed (8-digit Hydrologic Unit Code 03050109) located in the Piedmont Ecoregion. The proposed 275-acre mitigation bank includes approximately 25,835 linear feet of stream, and 78 acres of freshwater wetlands. The proposal is to preserve 17.9 acres of palustrine forested and emergent wetlands, enhance 60.1 acres of freshwater wetlands, preserve approximately 10,170 linear feet of Bush River and restore approximately 15,665 linear feet of streams. The bank owner and long-term steward is Mr. Trip Taylor with Reedy Run Real Estate in Greenville, SC and the proposed conservation easement holder is the Newberry Soil and Water Conservation District. The Corps of Engineers public noticed a Prospectus on November 4, 2020 and DNR provided comments on November 30, 2020. DNR project manager: Tom Daniel

Roberts Swamp Mitigation Bank Prospectus

The proposed project consists of establishing a freshwater stream and wetland mitigation bank in the South Fork Edisto River watershed (8-digit Hydrologic Unit Code 3050204) located in the Level III Southeastern Plain Ecoregion near the Town of Norman, Orangeburg County, SC (33.454108, -81.075959). The proposed 255+ acre bank includes approximately 12,612 linear feet of streams and 165 acres of wetlands. The bank owners are West Stone 123 LLC and Mr. Robert Johnson. The long-term steward will be Roberts Swamp MB, LLC and the (tentative) conservation easement holder is Congaree Land Trust. The USACE public noticed the Prospectus on June 19, and DNR provided comments on July 15, 2020. DNR project manager: Greg Mixon

Rocky Creek Mitigation Bank Mitigation Banking Instrument

The proposed project consists of establishing a freshwater stream and wetland mitigation bank in the Lower Catawba River watershed (8-digit Hydrologic Unit Code 03050103) in the Piedmont ecoregion. The proposed 131-acre former cattle farm consists of three impoundments, seven unnamed tributaries, two freshwater wetlands, Rock Creek, Little Rocky Creek, upland and riparian buffers and an existing utility easement. The mitigation work plan includes planting existing pasture with hardwood species, restoring natural hydrology in wetlands and restoring channelized and impounded headwater streams on-site. The property owner, Cowland LLC will also be the long-term steward and the conservation easement is proposed to be held by Katawba Valley Land Trust. DNR reviewed a Prospectus dated September 9, 2014 and provided comments dated October 22, 2014. DNR staff reviewed a DMBI dated December 19, 2016 and comments were provided on March 1, 2017. DNR has received a revised MBI dated October 5, 2020 and provided comments dated November 16, 2020. DNR project manager: Greg Mixon

South Carolina Department of Transportation (SCDOT) In-Lieu Fee Program Prospectus

The proposed project consists of establishing a Statewide In Lieu Fee (ILF) Mitigation Program initially in the Lower and Upper Catawba and Wateree River Watersheds (HUCs 3050101, 03050103, and 03050104) in the Piedmont ecoregion. The SCDOT ILF Program proposes to generate freshwater stream compensatory mitigation credit through the replacement of perched or undersized culverts within the SCDOT's transportation system in watersheds that are not currently served or are underserved by existing mitigation banks. The SCDOT will identify projects and provide funding for the ILF Program. Projects will be selected as mitigation needs require and will implemented pending IRT approval. Credits will only be used for SCDOT transportation projects. It is anticipated that the ILF Program will be used to offset impacts for smaller roadway improvement projects. Prior to submitting the permit application, the SCDOT will determine if the purchase of credits is practicable from an existing mitigation bank in the watershed. If credits are not available, the SCDOT will utilize credits from the ILF Program. The SCDOT will request the use of credits from the ILF Program when the permit application is submitted for the project. The ILF Program will likely be amended to allow additional service areas when Compensation Planning Frameworks are completed for these areas, eventually becoming a statewide ILF program. This ILF program would become South Carolina's first and only ILF program. The Prospectus was public noticed by USACE on October 19, 2020 and DNR provided comments on November 11, 2020. DNR project manager: Tom Daniel

Swamp Thing Mitigation Bank Draft Mitigation Banking Instrument

The proposed project consists of establishing a freshwater wetland mitigation bank in the Cooper River watershed (8-digit Hydrologic Unit Code 03050201) located in the Level III Lower Coastal Plain Ecoregion. The proposed 1,018.76-acre mitigation site includes approximately 997.67-acres of freshwater wetlands to be restored, enhanced, and preserved. According to the prospectus, the proposal is to restore 7.29-acres of hardwood forested wetlands that are currently trail roads; enhance 578.67-acres of hardwood forested wetlands that are currently inundated with loblolly pine; and, preserve 412.99-acres of bottomland hardwood forest. The project will be accomplished through the removal of planted pine, grading, planting native species, filling and plugging ditches, and the installation of a weir. The bank sponsor, using a conservation easement, will protect the mitigation bank site. Prospectus

comments were submitted to the USACE by DNR on May 17, 2017 and DMBI comments were submitted on June 18, 2020. Project manager: Susan Davis

Tyger Watershed Mitigation Bank Draft Mitigation Banking Instrument

The proposed project consists of establishing a freshwater stream and wetland mitigation bank in the Tyger watershed (8-digit Hydrologic Unit Code 03050107) located in the Level III Piedmont Ecoregion. The proposed 405-acre mitigation site includes approximately 60,308 linear feet of stream channels and 10.89 acres of freshwater wetlands. In addition, 5,987 feet of streams and 0.163 acres of wetlands will be enhanced and restoration of 37,436 linear feet of Cane Creek, Motley Branch, and associated tributaries. The proposal is to preserve 14,397 linear feet of stream, including 12,355 linear feet of the Tyger River and 2,042 linear feet of stable tributary streams and preserve 3.44 acres of functioning forested wetlands. The bank owner and proposed long-term steward is Wiley Fork Legacy LLC and the conservation easement holder is Spartanburg Area Conservancy (SPACE). Prospectus comments were submitted to the USACE by DNR on January 23, 2019 and DMBI comments were submitted on July 20, 2020. DNR project manager: Tom Daniel

Monthly Division Reports

EXECUTIVE OFFICE

OFFICE OF THE DIRECTOR

MARCH 2021 HIGHLIGHTS

Director Robert Boyles participated in Governor Henry McMaster's weekly conference calls on the COVID-19 pandemic and participated in the COVID-19 Vaccine Allocation Plan and State Employees WebEx meeting. He also participated in daily telephone conversations/meetings with staff, Deputy Directors, Board Members, legislators, and constituents.

Director Boyles chaired the monthly WebEx meeting with the Deputy Directors-Senior Staff and chaired the monthly WebEx meeting with the Deputy Directors in preparation for the March Board Meeting.

Director Boyles represented SCDNR and participated in the 2021 Southeastern Association of Fish & Wildlife Agencies (SEAFWA) Spring Directors Meeting held virtually.

Director Boyles participated in the March Lunch & Learn event – "Meet the Boats of MRD"- hosted by Erica Connery and boat captains of the Marine Resources Division, who highlighted the boats of MRD and all that they do. The event was well attended and informative.

Director Boyles participated in House and Senate Committee/Subcommittee meetings in March including the Senate Fish, Game & Forestry Committee, the Senate Fish, Game & Forestry Subcommittee, the House Wildlife Subcommittee, the House Agriculture & Natural Resources Committee, and the House Regulations Committee, that included legislation affecting SCDNR and natural resources.

Director Boyles met with Deputy Director Ken Rentiers, Van Whitehead, Sean Taylor, and Brian Long on Fort Frederick. Director Boyles met with Deputy Director Emily Cope and staff to discuss waterfowl. He participated in the Wildlife & Freshwater Fisheries End of Waterfowl Season Staff Luncheon at Bonneau Ferry and congratulated staff on their dedication and hard work keeping waterfowl season going during the pandemic.

Director Boyles represented SCDNR during the North American Wildlife & Natural Resources Annual Conference held virtually, including participating in the Association of Fish & Wildlife Agencies (AFWA) Director's Forum, the AFWA Annual Meeting and Awards Committee Meeting, the Ocean Resources Policy Committee, and the AFWA Business Meeting during the conference.

Director Boyles participated and spoke at the Wildlife Technicians Virtual Staff Meeting. Director Boyles had a conference call meeting with Senator Tim Scott's staff about natural resource issues in South Carolina. He also met with Ways & Means Chairman Murrell Smith about legislation. Director Boyles met with Representative Phillip Lowe on legislation.

Director Boyles represented SCDNR at the Senate Finance Natural Resource Subcommittee Meeting for the SCDNR Budget Hearing with Chairman Norman Pulliam and Vice Chairman Mike Hutchins in attendance as well.

Director Boyles and Colonel Chisolm Frampton traveled to Sheldon and met with Board Member Duane Swygert and constituent Lin Wood about youth hunting opportunities.

Director Boyles met with Shannon Bobertz, Van Whitehead and outside counsel Benton Williamson to discuss the Dewees Island Conservation Easement. Director Boyles met with Senator Shane Martin regarding constituent concerns. He also met with Senator Chip Campsen about legislation.

Director Boyles participated in the SCDNR Board Meeting held virtually and in the Board Room in the Dennis Building on March 18.

Director Boyles met with Deputy Director Phil Maier and staff at the Marine Center. While in Charleston, he participated in the DNR monthly internal online event "Coffee & Conversation with Director Boyles" during which staff are invited to reserve time to talk with the Director about anything and to facilitate discussion and communication among staff.

Director Boyles represented SCDNR and participated in the Law Enforcement Training Council Monthly Meeting held virtually. He had a telephone meeting with Mallory Martin, US Fish & Wildlife Service Coordinator, Southeast Conservation Adaptation Strategy (SECAS) about SECAS.

Director Boyles participated in the Southeastern Association of Fish and Wildlife Agencies (SEAFWA) Executive Committee conference call meeting. He participated in the Forest Legacy Capacity Team – Leadership Committee Zoom Meeting.

Director Boyles traveled to Clemson and met with Clemson Office staff including Tom Swaynham and Captain D.J. Riley. Director Boyles spent the night in Clemson and participated in the Anderson/Greenville County Press Conference event held in Anderson announcing the return of the Bassmaster Classic to Lake Hartwell on March 4-6, 2022.

EXECUTIVE OFFICE

OFFICE OF THE DIRECTOR

April 2021 HIGHLIGHTS

Director Robert Boyles participated in Governor Henry McMaster's weekly conference calls on the COVID-19 pandemic. He also participated in daily telephone conversations/meetings with staff, Deputy Directors, Board Members, legislators, and constituents.

Director Boyles chaired the monthly WebEx meeting with the Deputy Directors-Senior Staff and chaired the monthly WebEx meeting with the Deputy Directors in preparation for the April Board Workshop.

Director Boyles met with agency staff and representatives of NatureServe at Lewis Ocean Bay Heritage Preserve to discuss the importance of managing SC's biodiversity. He met with former Board Member Keith Hinson in Myrtle Beach and expressed his appreciation for his service on the Board.

Director Boyles, Representative Jeff Johnson, Senator Kent Williams, Senator Greg Hembree, members of the Horry County Council, the Mayor of Aynor, DNR Board members Dr. Mark Hartley, Duane Swygert, and Jerry Lee, agency staff and agency friends and partners participated in the ribbon-cutting ceremony for the new Aynor Titling and Registration Office in Horry County.

During April, Director Boyles attended the Senate Fish, Game & Forestry Subcommittee meeting as well as full Senate Fish, Game & Forestry Committee that included flounder, bear hunting over bait and electronic title liens legislation. Director Boyles and Deputy Director Ken Rentiers attended the Joint House and Senate Agriculture Committee meeting for a presentation on flooding issues in Horry-Georgetown Counties. Director Boyles attended the House Agriculture Committee meeting. Director Boyles, Kevin Ryan and Scott Speares attended the Senate Finance Committee meeting for budget deliberations. Director Boyles and Board Chairman Norman Pulliam monitored the Senate budget debate on April 27 at the State House. Director Boyles spoke at the Senate Medical Affairs Subcommittee meeting on S.2 about DHEC restructuring.

Director Boyles toured the Yawkey Center and met with staff. Director Boyles chaired the SC Litter Commission Meeting at the Marine Center in Charleston.

Director Boyles met with representatives of the Corps of Engineers, the Town of Mt. Pleasant and congressional staff of Senator Graham, Senator Scott and Congresswoman Mace for an update on Crab Bank.

Director Boyles participated in the April Lunch & Learn event – "Year-End Closeout"- hosted by Donna Maples, Finance Director, and Valerie Duncan, Procurement Director, about gearing up for year-end closeout and all that involves and answering questions. The event was well attended and informative.

Director Boyles visited staff in the Communications Center at Styx to thank them for all they do and recognize them during National Public Safety Telecommunications Week.

Director Boyles participated in a telephone call with Leo Miranda, FWS Regional Director, and Mallory Martin, FWS SECAS Coordinator, to discuss landscape scale conservation.

Director Boyles spoke at the Dedication and luncheon event in recognition of deceased retired LT Ulysses Flemming for whom Highway 378 between US 601 and the Wateree River has been named in his honor.

Director Boyles, Deputy Director Emily Cope, Chief of Fisheries Ross Self and staff met with representatives of Pure Fishing at the Cohen Campbell Fish Hatchery to discuss industry partnership opportunities.

Director Boyles and Lt. Col. Jamie Landrum met with Attorney General Alan Wilson, Senator Brad Hutto, Representative Jeff Johnson and Representative Chris Wooten on boating safety.

Director Boyles and Audits Manager Caleb Cohoon and staff participated in the US Department of Interior, Office of Inspector General, Wildlife Sport Fish Restoration Audit Exit Conference.

Director Boyles participated in the SCDNR Board Workshop held at C.F. Evans in Orangeburg on April 22.

Director Boyles participated in the DNR monthly internal online event "Coffee & Conversation with Director Boyles" during which staff are invited to reserve time to talk with the Director about anything and to facilitate discussion and communication among staff.

Director Boyles participated virtually in the Association of Fish & Wildlife Agencies' Legislative/Administrative Updates meeting.

Director Boyles had a telephone discussion with Dr. Edward Simmer, the new Director of SCDHEC. Director Boyles and Lorianne Riggin met at Shem Creek with Senator Lindsey Graham and representatives of the Town of Mt. Pleasant and the Corps of Engineers for a briefing on the resolution of the Crab Bank issue.

Director Boyles and Lorianne Riggin had a virtual meeting with Tom Mullikin, Duane Parrish of SCDPRT, and Dr. Paul Gayes of Coastal Carolina University to discuss Waties Island.

Director Boyles represented SCDNR and participated in person at the Law Enforcement Training Council Monthly Meeting at the Criminal Justice Academy.

Director Boyles participated in the second Forest Legacy Capacity Team – Leadership Committee Zoom Meeting.

Marine Resources Division

Marine Resources Research Institute (MRR)

Grant Proposals

Funded: Darden, T, D. Farrae, J. Ballenger, W. Bublely, and L. Bowman. Improving shortnose sturgeon aging techniques via multi-approach evaluation of known-age specimens. NMFS Species Recovery Grants to States (Section 6). 2 years, \$89,318 federal, \$22,671 match.

Funded: Smart, T.I. and W. Bublely. Expansion of a fishery-independent, deep-water snapper-grouper survey to optimize abundance and life history information provided to stock assessments in the South Atlantic region. Funded by NOAA MARFIN. Year 3 of 3 was awarded \$174,554 (no match required).

Funded: Bublely, W. and D. Wyanski. Making Full Use of Biological Samples: Obtaining Age and Reproductive Information for Reef Fish Species from Previously Obtained Samples. Funded by NOAA MARFIN. Year 3 of 3 was awarded \$174,021 (no match required).

Submitted & Funded: Ballenger, J. C. & M. Kendrick. Submitted. Leveraging long-term fishery-independent monitoring to evaluate estuarine finfish communities: Port Royal Sounds versus St. Helena Sound. Spring Island Trust 2021 Research Funding Priorities. 1 Yr Project (Federal = \$25,119; Match = \$0).

Submitted: Facilitating and implementing the removal of derelict crab traps (DCTs) in South Carolina estuaries. Peter Kingsley-Smith, Gary Sundin & Graham Wagner. FY2022-2024 South Carolina Sea Grant Consortium Concept Letter, 2-year project, \$108,520 requested (\$58,500 match).

Submitted: Physiological effects of age and temperature on blood chemistry, metabolism, and mortality of harvested horseshoe crabs, *Limulus polyphemus*. Daniel Sasson (PI), Jody Beers (CofC), Fabio Casu & Michael Kendrick. FY2022-2024 South Carolina Sea Grant Consortium Concept Letter, 2-year project, \$159,035 requested (\$90,044 match).

Submitted: Sea level rise impacts on juvenile blue crab (*Callinectes sapidus*) use of salt marsh. Michael Kendrick, Jeff Brunson & Peter Kingsley-Smith. FY2022-2024 South Carolina Sea Grant Consortium Concept Letter, 2-year project, \$151,166 requested (\$82,105 match).

Submitted: Using small, unoccupied aerial systems (sUAS) to understand erosional marsh loss in South Carolina estuaries. Gary Sundin, Peter Kingsley-Smith, Graham Wagner & Alex Braud (CofC). FY2022-2024 South Carolina Sea Grant Consortium Concept Letter, 2-year project, \$106,308 requested (\$53,822 match).

Submitted: Investigating climatic and environmental drivers of reproductive phenology and refining reproductive assessment protocols to better inform South Carolina white shrimp (*Penaeus setiferus*) fishery management. Jeff Brunson, Michael Kendrick, Peter Kingsley-Smith & Graham Wagner. FY2022-2024 South Carolina Sea Grant Consortium Concept Letter, 2-year project, \$147,910 requested (\$74,870 match).

Submitted: Bacterial contamination in Charleston-area tidal creeks: applying new genetic tools to identify management targets. Andrew Tweel, Larry Bowman, Jr., Denise Sanger & Tanya Darden. FY2022-2024 South Carolina Sea Grant Consortium Concept Letter, 2-year project, \$155,699 requested (\$83,147 match).

Submitted: Assessment of stormwater pond performance and connectivity to estuarine habitats under varying development and precipitation scenarios. Andrew Tweel, Kim Sitta & Denise Sanger. FY2022-2024 South Carolina Sea Grant Consortium Concept Letter, 2-year project, \$131,176 requested (\$73,521 match).

Submitted: Development of population genetic tools for Southern Flounder management. Larry Bowman, Jr., Matt Walker & Tanya Darden. 2021. FY2022-2024 South Carolina Sea Grant Consortium Concept Letter, 2-year project, \$110,229 requested (\$55,182 match).

Submitted: Bacterial contamination in Charleston-area tidal creeks: applying new genetic tools to identify management targets. Andrew Tweel, Larry Bowman Jr., Denise Sanger & Tanya Darden. FY2022-2024 South Carolina Sea Grant Consortium Concept Letter, 2-year project, requested \$155,699 requested (\$83,147 match).

Submitted: Investigation of the metabolic effects of black gill disease on white shrimp, *Penaeus setiferus* in South Carolina using NMR-based metabolomics. Fabio Casu, Michael Kendrick & Peter Kingsley-Smith. FY2022-2024 South Carolina Sea Grant Consortium Concept Letter, 2-year project, \$149,942 requested (\$77,419 match).

Submitted: Characterization of the impact of environmental stressors on the metabolic profiles of the eastern oyster, *Crassostrea virginica* in the Charleston coastal area using NMR-based metabolomics. Fabio Casu & Denise Sanger. FY2022-2024 South Carolina Sea Grant Consortium Concept Letter, 2-year project, \$109,982 requested (\$61,596 match).

Submitted: Investigation of the effects of prebiotic supplementation on metabolic profiles of juvenile cobia fed diets containing high levels of soybean meal and soybean oil by NMR-based metabolomics. Fabio Casu, Aaron Watson, Michael Denson & Gibson Gaylord (USFWS). FY2022-2024 South Carolina Sea Grant Consortium Concept Letter, 1-year project, \$79,250 requested (\$39,626 match).

Submitted: Determining the seasonal prevalence of the invasive American eel (*Anguilla rostrata*) swimbladder parasite (*Anguillicoloides crassus*) to inform fisheries and aquaculture impacts. Aaron Watson, Michael Kendrick & Peter

Kingsley-Smith. FY2022-2024 South Carolina Sea Grant Consortium Concept Letter, 2-year project, \$153,270 requested (\$77,809 match).

Submitted: Live feed nutritional profiling to maximize production in warm water marine fish larvae. Aaron Watson, Fabio Casu, Jason Broach & Erin Levesque. FY2022-2024 South Carolina Sea Grant Consortium Concept Letter, 2-year project, \$159,025 requested (\$79,907 match).

Submitted: Development and testing of in-pond cage/raceway systems and pond bank-based systems to extensively culture marine fish larvae. Jason Broach, Erin Levesque, Aaron Watson & Michael Denson. FY2022-2024 South Carolina Sea Grant Consortium Concept Letter, 2-year project, \$140,532 requested (match \$70,266).

Submitted: Evaluating the extensive production potential of sheephead *Archosargus probatocephalus* for food fish and stock enhancement purposes. Jason Broach, Erin Levesque, Aaron Watson & Michael Denson. FY2022-2024 South Carolina Sea Grant Consortium Concept Letter, 2-year project, \$135,802 requested (\$67,901 match).

Submitted: Multi-species responses to human disturbance, climatic change, and weather events: Investigating and predicting responses for the identification of rapid management strategies. Joseph Ballenger, Elizabeth Vinyard & Michael Kendrick. FY2022-2024 South Carolina Sea Grant Consortium Concept Letter, 2-year project, \$93,464 requested (\$46,732 match).

Submitted: Application of Fourier transform near infrared spectroscopy to non-lethal ageing structures: Expanding the scope of this emerging, innovative technology for fisheries management. Joseph Ballenger. FY2022-2024 South Carolina Sea Grant Consortium Concept Letter, 2-year project, \$83,098 requested (\$41,549 match).

Submitted: Using unmanned aerial systems (UAS) technology to understand the relationship of microhabitat to economically- and ecologically-important estuarine fish species. Joseph Ballenger & Peter Kingsley-Smith. FY2022-2024 South Carolina Sea Grant Consortium Concept Letter, 2-year project, \$112,842 requested (\$56,421 match).

Submitted: The use of roadside ditches by conservation priority crayfishes in South Carolina. Michael Kendrick, Tanya Darden & Larry Bowman, Jr. SCDOT project proposal. \$73,219 requested.

Publications

Accepted (with minor revisions): Carnegie, R.B. S.E. Ford, R.K. Crockett, P.R. Kingsley-Smith & E.M. Bureson. A rapid phenotype change associated with increased virulence caused a historically significant marine disease emergence. *Scientific Reports*.

Published: Pickens, C., T. Smart, M.J.M. Reichert, G.R. Sedberry & D. McGlenn. Evaluating the effectiveness of marine protected areas for reef fish species in the U.S. southeast Atlantic. *Regional Studies in Marine Science*.

Published: Erickson, K. A., J. West, M. A. Dance, T. M. Farmer, J. C. Ballenger, & S. R. Midway. 2021. Changing climate associated with the range-wide decline of an estuarine finfish. *Global Change Biology*.
<https://doi.org/10.1111/gcb.15568>.

Presentations

Tracey Smart, Wally Bublely, Dawn Glasgow & Marcel Reichert. Spatial Distribution and Habitat Use Changes in Red Porgy off the Southeast U.S. Atlantic Coast. Annual Meeting of the South Carolina Chapter of the American Fisheries Society. March 4, 2021. 40 professional attendees.

Erin Levesque. EFR Science Discussion, flounder temperature dependent sex determination paper review and discussion. Technical, 25 attendees. March 1, 2021.

Bryan Frazier. EFR Science Discussion – great white shark use of right whale carcass off SC. Technical, 25 attendees. March 8, 2021.

Peter Kingsley-Smith, Gary Sundin, Michael Hodges, Elizabeth Vernon Bell & Kim Counts Morganello. Creating living shorelines to support habitat resiliency and ecosystem services in the urbanized watershed of Charleston County, South Carolina, USA. 2021 Annual Meeting of the National Shellfisheries Association (virtual), March 22-25, 2021 (approx. 400 attendees).

Gary Sundin, Peter Kingsley-Smith, Evan Cook, Graham Wagner & Ben Dyar. Unoccupied aerial vehicles (UAVs): a new tool to improve the restoration and management of intertidal oysters (*Crassostrea virginica*) in South Carolina, USA. South Carolina Shellfish Growers Association Meeting, GoToMeeting platform, 12 attendees. March 15, 2021 2021 Annual Meeting of the National Shellfisheries Association (virtual), March 22-25, 2021 (approx. 400 attendees).

Graham Wagner, Gary Sundin, Ben Dyar & Peter Kingsley-Smith. Using a multi-year, statewide demographic assessment of eastern oysters (*Crassostrea virginica*) in South Carolina as a tool to support restoration and management. South Carolina Shellfish Growers Association Meeting, GoToMeeting platform, 12 attendees. March 15, 2021 & 2021 Annual Meeting of the National Shellfisheries Association (virtual), March 22-25, 2021 (approx. 400 attendees).

Ben Dyar, Lee Taylor, Graham Wagner, Gary Sundin & Peter Kingsley-Smith. Reactive to proactive: A goal for improved shellfish resource conservation and management. South Carolina Shellfish Growers Association Meeting, GoToMeeting platform, 12 attendees. March 15, 2021 & 2021 Annual Meeting of the National Shellfisheries Association (virtual), March 22-25, 2021 (approx. 400 attendees).

Michael Hodges, Ben Dyar, Holly Hillman, Holly Kight-Sommers & Peter Kingsley-Smith. Engaging stakeholders and partners for the successful implementation of a community-based oyster restoration program over the past 20 years in South Carolina, USA. 2021 Annual Meeting of the National Shellfisheries Association (virtual), March 22-25, 2021 (approx. 400 attendees).

Michael Kendrick, Jeff Brunson, Amy Dukes, David Whitaker & Peter Kingsley-Smith. 2021 Annual Meeting of the National Shellfisheries Association (virtual), March 22-25, 2021 (approx. 400 attendees).

Jeff Brunson, Graham Wagner, Elizabeth Gooding, Michael Kendrick & Peter Kingsley-Smith. Refining reproductive assessment protocols to better inform management of the South Carolina white shrimp (*Penaeus setiferus*) fishery. 2021 Annual Meeting of the National Shellfisheries Association (virtual), March 22-25, 2021 (approx. 400 attendees).

Michael Thienes & Michael Kendrick. Patterns and drivers of female blue crab (*Callinectes sapidus*) size at maturity in South Carolina, USA 2021 Annual Meeting of the National Shellfisheries Association (virtual), March 22-25, 2021 (approx. 400 attendees).

Jeff Good, Michael Kendrick & Peter Kingsley-Smith. Investigating the life history of the Atlantic brief squid, *Lolliguncula brevis* from the Charleston Harbor estuary, South Carolina, USA. 2021 Annual Meeting of the National Shellfisheries Association (virtual), March 22-25, 2021 (approx. 400 attendees).

Jamison, M. 2021. American Eels: South Carolina estuarine life history. EFR Science Discussion. 3/22/21. 25 people; technical audience.

Daniel Farrae. Update on redeye/Bartrams bass genetic structure. FWF Meeting. 3/25/24. 6 attendees, technical.

Outreach

Larry Bowman facilitated the DISTEM meeting on 02 March 2021 12:30-14:00 and 08 March 2021 15:30-17:00. The topic for these meetings was Mental Health in the Workplace. T. Darden, M. Denson, M. Arendt, E. Levesque, and J. Binz were volunteer facilitators for small group discussions.

Larry Bowman completed manuscript peer-reviews for Water and Proceedings of the Royal Society B.

Larry Bowman was requested to serve on a National Science Foundation Sustainability Task Force whose goals are to: 1) generate ideas to sustain the vision of biology teaching/education programs, unconstrained by current practices and without original grant funding and 2) identify the affordances and challenges of current practices and suggest how to retain the affordances and address the challenges.

Aaron Watson participated in a Steering/Program committee meeting for Aquaculture America 2021 on March 12, 2021.

Aaron Watson participated in a CRO "Outside In" Webinar entitled "SCDNR Mariculture: Stocking Fish Species in South Carolina's Waters" on March 11, 2021.

Erin Levesque gave a virtual talk for the Coastal Discovery Museum March 15th for 10 participants entitled: "Biology and Conservation of Diamondback Terrapins."

Aaron Watson gave a 1.5 hr virtual lecture for Dr. Sook Chung's "Marine and Environmental Biotechnology" course at the Institute of Marine and Environmental Technology (IMET) entitled: "Designing Better Fish Feeds."

Frazier, B. 2021. The Diversity of Sharks in South Carolina's Estuarine and Nearshore Waters. SCDNR Bringing the Outside in lecture series. 3/21/21. 60 people; non-technical.

Volunteers

Progress Report and Activities

Coastal Research Section

Funding for year-3 (of 3) for two MARFIN proposals was received. Funding from these projects is mostly to support staff and some vessel days.

Mike Arendt scheduled the MRRI Auditorium for the 2021 MRD Conference (8-9 December) as well as assisted as a facilitator for the DISTEM webinar on 2 March.

We submitted the drafts of the scope of work, budget, and budget narrative for the next 5-year cooperative agreement for SCDNR's SEAMAP-SA to Kelly Donnelly on March 11 for NOAA review. The RFA will open for submission in grants.gov once the review process is completed. The new 5-year grant period starts on July 1.

Several staff attended the DiSTEM webinar.

The Trawl Survey has operated with three staff members since October of last year. We posted an internal Wildlife Biologist-II position within the Trawl Survey to bring the Coastal Trawl Survey staff back up to the minimum needed for normal operations.

Reef Fish Survey (MARMAP and SEAMAP-SA):

Preparations for the 2021 field season continued. A COVID protocol was submitted to Mike Denson for review and approval. We are still planning to sample with a reduced crew, but as staff is getting vaccinated, we may start planning cruises with a normal crew size to return to normal operations. Marcel Reichert and Byron White had a meeting with Paulette Mikell (Vessel Ops) and Chris Brown (R/V Palmetto Captain) on March 9 to discuss the cruise schedule. Byron White completed the cruise schedule and distributed it to Section staff.

Stephen Long is working on the paperwork to acquire underwater stereo camera set-ups and software for use in the 2021 Reef Fish Survey season.

Dawn Glasgow, Stephen Long, Tracey Smart, and Michelle Willis met 3/9 to plan changes to the R/V Palmetto wet lab to increase social distancing for the 2021 field season. Changes include repositioning computer screens and placement of fish work-up stations. Tracey Smart conducted the annual random selection of chevron trap and short bottom longline stations for the 2021 field season and created navigation files (and shared with SEFIS partners). 2400 chevron trap stations were selected instead of the usual 1500 due to the potentially increased number of sea days available in 2021. Scientific computers from the R/V Palmetto are being updated by IT.

Dawn Glasgow, Tracey Smart, and Kevin Spanik continued with SAFMC Citizen Science FISHstory photo validation.

Several staff attended the on-line South Atlantic Fisheries Management Council meeting March 1-5.

Walter Bubley, Tracey Smart, Byron White and Marcel Reichert attended a Vessel Ops. meeting with Paulette Mikell, Mike Denson, Tom Salisbury and Tim Snoots on March 1 to discuss cruise season, schedules, staffing issues on Palmetto and Lady Lisa, and other topics.

Marcel Reichert had a conversation with Dr. Will Patterson, the lead PI of the South Atlantic Red Snapper Project (SARSRP) about samples that program needs to complete that project.

Walter Bubley took part in a meeting with collaborators from Texas A&M Corpus Christi and NMFS Panama City lab to determine means of obtaining additional fin clips from Red Grouper, Speckled Hind, and Yellowedge Grouper. A combination of state and federal port samplers, in addition to fishery-independent surveys is the preferred path to obtaining the remaining samples.

Tracey Smart joined the SECOORA "Making Data Work for You" webinar discussing data comparison tools within the SECOORA online data system 3/23/2021.

Tracey Smart completed the setup of the Palmetto Chief Scientist computer and worked with IT to purchase a replacement back-up PC.

Short Bottom Longline Survey (MARFIN):

Tracey Smart drafted the semi-annual progress report and converted reconnaissance deployments from 2020 to stations for the 2021 field season.

Data Management:

Jeanne Boylan, Tracey Smart, and Michelle Willis provided updates for the SEAMAP-SA 5-year Scope of Work. Jeanne Boylan and Tracey Smart drafted the new subrecipient contract for the Florida Fish and Wildlife Research Institute portion of data management.

Southeast Deep-water Longline Survey (SADLS):

Wally Bubley and Marcel Reichert continue to participate in weekly calls with NMFS Beaufort partners. Details about funding, sampling design, and potential collaborators were discussed. The decision was made to make the SADLS program a separate 5-year cooperative agreement with NOAA (it is currently under the MARMAP grant). Marcel and Walter drafted and submitted a budget and scope of work for this new grant.

Walter Bubley prepared bid solicitations to reach the sampling goals of the survey. Paperwork for the bid solicitation for a commercial fisher to sample the area off North and Central Florida was submitted. A semi-annual progress report was submitted for the CRP funded pilot study for this project.

Wreckfish:

Staff continue to make good progress in ageing and reproductive staging of Wreckfish samples obtained from the commercial fishery. Tracey Smart and Kevin Spanik counted roughly 2,300 increments over two days of ageing specimens. A semi-annual progress report was submitted.

Life History Backlog project:

Staff continue to make good progress in ageing, reproductive staging, and fecundity processing. A semi-annual progress report was submitted.

Coastal Trawl Survey (SEAMAP-SA):

Staff drafted COVID-19 mitigation protocols for use on the R/V Lady Lisa for day trips during their Spring Cruise window to allow set up and testing of new net mensuration gear and investigate catch variability.

Given the fact that there is not yet a new Captain for the R/V Lady Lisa, we made the decision to reduce the number of “training” days in the spring. We may use a limited number of days to test the new mensuration equipment that was recently installed in our Coastal Trawl Survey net. As a result, Mike Arendt will move the turtle sampling days to earlier in the season.

Amy Zimney has continued to format historic data and add it to the archive database, has conducted other QA/QC on the database, and is working on preparations for a manuscript. She also has performed data analyses to compare the abundance, biomass, and species richness of inshore vs offshore catches.

Pearse Webster refined draft day trip protocols for proposed spring sampling by the Survey, reviewed draft statement of work and budget narrative for Coastal Trawl Survey in the next 5-year SEAMAP grant proposal, and has met with our Simrad rep to work through initial configuration of trawl sensors and software with will allow us to begin logging door spread and headrope height during our trawl tows. Jonathan Jones has completed processing of all remaining mackerel and Bluefish diet samples from 2012-2013, is working on keying in the resulting data, has pulled and conducted QC review of 80 additional mackerel otoliths from the archive for analysis via NIRS, checked current stock of field specimen bags and gloves, and assisted with gear setup for the first trial of our trawl sensors in the boat slip.

In-water sea turtle research:

Mike Arendt prepared and submitted two 6-month progress reports for NMFS. Confirmed UGA efforts are underway to line up a captain for July cruises and applied to renew the GADNR Scientific Collection Permit for GA. Mike Arendt submitted a request to extend the USC genetics agreement to April 2022 and coordinated trawl windows and personnel for RV Lady Lisa cruises. He also prepared a modified sampling scope of work and budget restructuring request that was sent to NMFS SERO to review prior to formal submission online. Mike Arendt also formally submitted the second of six sea turtle manuscripts slated for journal review as part of the restructuring of the NA19* award for the missed 2020 field season, and received journal edits for the first. Mike Arendt participated in the first (3/22) of two invited workshops sponsored by Duke University and University of Exeter, on the topic of data sharing of loggerhead sea turtle telemetry data in the NW Atlantic. The second workshop is scheduled for April 22nd.

Diamondback terrapin research:

Three citizen-scientist reports of the year were received, two of which pertained to hatchling/YOY emergence and a third documented an adult female on land. Mike Arendt promptly thanked all respondents. Janelle Johnson revised and re-submitted a manuscript from her thesis work (CofC, 2016) following a 3.5-year hiatus post first journal referee review.

Coastal acoustic receivers (multiple funding sources):

Annual dive gear inspection/repair was completed, and Christopher Evans picked up gear for diver acquisition. Christopher Evans also solicited diver availability for the spring/summer (Apr-Jul) field season.

Mitigation Reef Monitoring:

Christopher Evans ensured operational readiness of baited frames, GoPro cameras, etc. for field work set to commence on 31 March aboard the RV Silver Crescent should the weather cooperate.

Stock Assessment activities:

SEDAR Best Practices Indices Workshop: Wally Bubley and Tracey Smart participated in the first SEDAR Procedural Combining Indices Workshop webinar 3/17/2021. The workshop will be focused on developing best practices for combining spatially-explicit, spatially-overlapping, and gear-specific indices of abundance for assessments in the Caribbean, Gulf of Mexico, and South Atlantic. Wally is serving as an SSC representative to this workshop.

SEDAR 68 Scamp Research Track: Marcel Reichert and Tracey Smart attended a Webinar on March 22. Wiley Sinkus, Dawn Glasgow, Joe Evans, Margaret Finch, Michelle Willis were observers on this webinar.,

SEDAR 66 Tilefish Standard Assessment: There will be an Assessment webinar on Feb. 18.

SEDAR 71 Gag standard assessment: Marcel Reichert, Wally Bubley, Keilin Gamboa-Salazar, Dawn Glasgow, David Wyanski, and Michelle Willis participated in an Assessment webinar on March 10. The results of the sensitivity runs and other analyses was discussed. None of these had a major effect on the stock status. The assessment seems to indicate that gag is overfished and overfishing is occurring. The assessment team is drafting a report and the Council’s Scientific and Statistical Committee will review the assessment next.

SEDAR 73 Red Snapper operational assessment: Staff is reviewing the stock assessment report and have provided feed-back to Kathleen Howington, SEDAR coordinator and Kyle Shertzer, the SEFSC Lead Stock Assessment Analyst.

Estuarine Finfish Research Section

American Eel Life History: The SWG American Eel grant final report has been submitted. A draft of the SWG Final Report has been compiled and is currently undergoing internal review. It will be submitted to the funding authority by March 28. The project updated the life history of American Eel based on coastal South Carolina specimens as well as compared two ageing methods for American Eel. Results suggest bias between ageing methods with regards to age determinations, with significant under ageing using the whole otolith method, which results in a biased understanding of growth and other aged-based life history parameters. Based on the more precise ageing method, we updated growth curves (by sex), maturity ogives, explored effect A. crassus and other environmental parameters had on maturity-at-size/age, and developed an age translation table between the two methods.

Adult Red Drum and Shark Longline Survey: Two days in early April have been scheduled to sample sand tiger sharks with GA Aquarium staff.

COASTSPAN: A schedule for the 2021 season has been posted, field days will begin in late April (27th). Gear construction efforts continue with half of new gear constructed. .

Electrofishing Survey: All electrofishing strata (Combahee, Edisto, Ashley, Cooper, and Winyah Bay) were successfully sampled in March. Four strata are scheduled for April sampling.

Estuarine Trawl Survey: Local trawls in the Charleston estuary were completed Mar 12. Fish catch was recorded at all four stations. The most numerous species recorded were Atlantic croaker, bay anchovy, and spot. Catches of spot and whiting were higher than the long-term mean for this time of year, while catches of weakfish and croaker were similar to the long-term average. A south cruise with sampling locations in the Edisto, Saint Helena Sound, Port Royal Sound, and Calibogue Sound was completed Mar 15-17. One Inshore staff member (Katie) aided the Crustacean Section in sampling, but fish catch was not recorded. This is consistent with data collections in previous years.

NIR Spectroscopy and Fish Ageing: Michelle finished edits on creating Calibration Curves. A shortnose sturgeon species recovery grant was funded, with one component of the grant being to use NIRS of fin rays of known age specimens to develop an age calibration curve.

RECFIN Semi-Annual Report: Construction of the RECFIN semi-annual report is underway, with a performance period of September 1, 2020 - February 28, 2021. This will be the 1st performance report using the modified Trammel Net and Electrofishing Survey sampling designs.

Red Drum Stock Assessment: The 1st Red Drum Simulation Assessment Stock Assessment Workshop was held March 1-4. Significant progress was made on the simulated populations with final decisions made regarding the underlying population dynamics and projection scenarios. Further, significant progress was made developing the structure of the simulation models we will use to assess the ability of the different models to track changes in population abundance, recruitment, spawning stock biomass, and fishing mortality rates. Each simulated population (n = 100 subjected to 7 different projection scenarios) will be assessed using three different modeling frameworks: Stock Synthesis (most complex), Statistical Catch-@-Age (used last few assessments) and a traffic light approach (used to manage Spot and Atlantic Croaker).

Reproductive Studies: Michelle finished reading 2019 RD, 2017 & 2018 miscellaneous species, finalizing reads to be entered into the database. Michelle is reviewing literature discussed in the MARVLS meeting. Katie is reading resources that were highlighted in the 2021 MARVLS workshop. Katie has also started cutting 2020 Spotted Seatrout histology samples. Katie, Michelle, Maggie, and Liz all took place in an internal 'MARVLS wrap-up' meeting to ensure consistency in how certain structures are interpreted when reading histology slides.

Southern Flounder: We received an update from Jeff Buckel and B Stevens at North Carolina State on an ongoing project to evaluate Southern Flounder gear selectivity using tag-recapture data, including tag-recapture data collected by SCDNR. Thus far they have preliminarily estimated the selectivity of the harvest and release portion of the catch from South Carolina, though based on initial feedback preliminary estimates are to be revised.

Trammel Net Survey: Four trammel strata have been completed thus far in March. Three remaining strata are scheduled for late March.

White Shark Tagging: A trip by staff was made to a right whale carcass floating off of the S. Santee river (8 miles offshore). Staff working with a local charter captain tagged 12' and 15' foot female white sharks with acoustic and PSAT tags. In addition the 12' female was tagged with a SPOT tag, for real time tracking data. Tags were provided by the Atlantic White Shark Conservatory, with data analysis conducted by the Massachusetts Division of Marine Fisheries.

SC Aquarium Dolphin Survey: Michelle and Jonathan participated in the dolphin survey in coordination with the SC Aquarium in early March.

Onlines Courses and webinars: Michelle, Katie, and Maggie attended the final session of the MARVLS histological meeting online. Michelle attended a portion of the Red Drum Stock Assessment workshop. Katie completed several 'species profile' pages for the Inshore website update.

SCAFS Virtual Conference: Several section staff attended both sessions of the 2021 SCAFS Virtual Conference.

Amberjack Collaboration: Budget information was submitted for SCDNR to be a sub-recipient on a greater amberjack proposal. Staff will be responsible for acoustically tagging amberjack if proposal is funded. The bulk of the work will be conducted in the summer of 2022.

Yellow Perch UWM Collaboration: Processed 21 yellow perch liver samples from a feeding trial conducted by collaborators at the University of Wisconsin-Milwaukee (under contract with SCDNR) to evaluate the effects of different levels of carbohydrates (wheat and corn flour) in feeds on yellow perch hepatic metabolite profiles. NMR spectra are currently being acquired to be analyzed using NMR-based metabolomics. The second invoice for contract between UWM and SCDNR was submitted to UWM.

SRAC Artemia Replacement: The tank of pinfish larvae during the third round of experiments developed an infestation of jellyfish in the culture tank and dramatically reduced larval numbers. The larval system is now being bleached and baitfish will be injected to spawn for the fourth time this season.

SCSG Tripletail: We have obtained a P.O. to pay for tripletail collection in Florida. We are still waiting on approval through the FWC for the collection permit. An egg collector has been placed in the 10-ft tank with 6 broodfish to monitor volitional spawning activity as temperatures and photoperiod naturally change/are adjusted from now until late summer.

SCSG Brewery By-Product Evaluation: Aaron Watson discussed feed formulations, concepts, and formulation software with Dr. Gibson Gaylord (USFWS) in preparation for formulating and manufacturing feeds for the digestibility and graded inclusion trials of the project. Feeds will be made on-sight at MRRI. Brewery spent grains are still being collected, dried, and homogenized to determine nutritional composition between breweries and over time.

SRAC Baitfish: Pinfish and spot are done spawning for the year. Pigfish still have oocytes appropriate for induced spawning, but they have also been spawning volitionally. We currently have two batches of larvae to be used for non-replicated trials and a large batch that may be used for replicated trials starting in less than two weeks.

Cobia Broodstock WMC: With temperatures now increased to 24 C, broodfish in the 12-ft and 20-ft tanks have become more active and are exhibiting biting/chasing/and nudging near the vents of certain individuals.

Cooperating Angler Program: Expanding cobia, tripletail, and flounder genetic sampling program to the public in the Northern coast. Currently have 3 interested captains. Reached out to all previous anglers who have provided fin clips to gauge interest and began sending out kits. Spoke with a captain that has donated almost 100 cobia samples from inshore to give him an update on the samples he provided. Of the 55 samples that have been genetically run, 7 were hatchery fish from 2 release years. His assistance is extremely valuable since we have very few inshore samples since the 2016 closure in SC state waters. These inshore samples are the only way to determine hatchery success of our cobia program. He was extremely appreciative of the information and is willing to continue to assist with genetic and broodstock collection.

MRRI Mariculture Facilities: Chiller issues in the OWL have been resolved and temperatures are back on schedule. Staff were trained on the calibration and upkeep of our YSI monitors that evaluate our broodstock systems and control our lighting and temperature controls. Continue to train Molly our new hourly on husbandry and systems at MRRI. Staff assisted Coley at HML with the removal of aquaculture equipment in rooms that will be utilized by staff moving from the NOAA lab. Equipment will be transported to WMC where it will be used for future aquaculture systems. Staff calibrated emergency oxygen systems on all broodstock tanks before last week's thunderstorms. New system temperature control plumbing and wiring is almost complete, this will finish this system and staff will move on to constructing a hatcher system in the old algal room.

WMC Mariculture Facilities: Work this month will be directed towards completing the heating/chilling system for the wet lab. Took hauling trailer and truck to WMC for use in picking up broodstock tripletail from Florida. Silver Chevy truck sent to maintenance due to severe shaking while driving. All 2020 Pond Water Quality Data has been updated to the server. Preparation for the 2021 production season continues at WMC with ditch burning to improve drainage, pond supply and equipment orders and general pond repairs. Erin Levesque is ordering supplies for terrapin season as well as planning for collection of females. Progress has been made with connecting heat pump units to reservoir tanks and water pumps as well installation of pipe hangers to support the lines running above head around the lab.

Cobia CRP: Received replacement satellite tag from Wildlife Computers. Need to paint and send back to Georgia. Florida collaborators are beginning to see cobia show up. Multiple trips have been made but only undersized fish were tagged with acoustic tags and no new satellite tags have been deployed. Interim report for our CRP cobia grant was completed and submitted, staff have been in contact with collaborators for report updates.

Red Drum: We harvested S12 for an additional 182 red drum 2017YC released into the Colleton. Filmed by Bland Kiser for his YouTube channel. Fish in great shape and all had spots.

Zebra Mussel Containment: Jake and Erin have been assisting in gathering moss balls contaminated with zebra mussels. They will be transferred to FW division tomorrow.

Spotted Seatrout Mariculture and Stock Enhancement: Work is continuing on the individual-based-modelling Sea Grant project for seatrout populations, incorporating genetics and demography; we completed and submitted our annual progress report to Sea Grant. Genetics staff have completed the genotyping and data analyses of the 2018 pond samples; a report is in preparation. Collation of life history data for the model is ongoing.

Cobia Sex Determination: Sequencing is now in the final QA/QC stages and should be returned to us soon for analyses. We completed our annual progress report for the project and submitted it to Sea Grant.

Shortnose Sturgeon: We completed our first annual progress report on the cSWG microsatellite development project and submitted it to USFWS. Our collaborators at WVU are continuing to screen putative informative loci for our panel development. Project PIs met with NMFS award monitors for our newly awarded shortnose sturgeon aging project to address reviewer and budget questions. Revised documents have been prepared and submitted to the agency for project processing and final approval.

Bartram's Bass: Data analyses to evaluate population structure within the Savannah Basin are ongoing and a presentation for SDAFS is in preparation.

Striped Bass: Genetics staff are continuing to genotype the 2020 Striped Bass samples from NCWRC.

White Seabass Genetics: Staff are continuing to isolate DNA from otoliths and genotyping field samples.

Crayfish Genetics: Genotyping of field samples with the new microsatellite marker panel is ongoing. Staff collaborated with M. Kendrick on a DOT proposal to explore utilization of roadside ditches by native crayfish.

Snakehead eDNA Tool Development: Staff have begun working on the development of an eDNA tool for detecting presence of multiple invasive snakehead species. Primers have been designed and should be ordered soon for testing. Museum collection specimens have been identified, requested, and received for testing of the proposed eDNA tool.

WSSV: Genetics staff have completed isolating shrimp samples for testing for WSSV. Analysis of those results will commence when qPCR capabilities resume. A report has been prepared and proofed for samples that have been processed to date.

Carolina Heelsplitters: Genetics staff are continuing to coordinate with Clemson collaborators to start work on a project to genetically identify glochidia present on fish gills.

Robust Redhorse eDNA tool: Work has begun on the development of a Robust Redhorse eDNA tool for detecting presence of the species. Primers have been designed and are being ordered for testing.

Robust Redhorse Conservation Committee: D. Farrae and T. Darden attended the Pee Dee TWG meeting to discuss plans for spring sampling/production. T. Darden also attended the first writing workshop to complete the RRCC status document for use by USFWS for its upcoming candidate listing review. D. Farrae and T. Darden attended the Savannah and Santee TWG meetings to discuss plans for spring sampling/production. Coordination is also ongoing for a multistate SWG proposal to continue our Robust Redhorse work throughout GA, SC, and NC.

ASMFC Cobia Contract: Staff are continuing sample genotyping.

Genetics Tissue Archive: Cownose ray samples from 2018-2020 have been subsampled for a tissue request from University of Massachusetts. A tissue request for diamond back terrapins has also been received from FLFWC. S. Harris accessed and organized the HML tissue archive to include all new samples received since the beginning of the pandemic.

Darters: L. Bowman met with Mark Scott (WFW), Brandon Peoples, and Thomas Near to discuss potential projects and collaborations for delimitation, population assessment, and ecological mapping of endemic SC darters. Work has begun on proposal preparation for a multistate SWG to address conservation concerns.

Smallmouth Bass: Genetics staff continue to receive samples, genotype, and analyze new potential smallmouth bass broodstock for Cheraw hatchery production to replace broodstock recently lost. Broodstock are being assessed for hybridization levels with other black bass species to ensure responsible stock enhancement.

Weakfish: Genetics staff made updates to the 2018 weakfish report.

Taq Transition: The Taq polymerase that the genetics group has used for years is no longer available/manufactured. Staff have begun testing new alternatives and have identified two promising candidates that they will begin testing across different species reactions for comparability to our previous enzyme.

HML Safety Committee: Safety reports for HML labs/spaces have resumed and were submitted for February 2021.

MRRF Facilities: The new qPCR thermocycler has arrived. HML and Grice Milli-Q water systems were down early in the month, but HML systems are back online. Genetics staff cleaned out the Genetics cage in the Q-hut, disposed of old equipment and chemicals, and transferred access to the Mariculture section. Inshore staff are working to clean out the Q hut cage; they broke down two old trammel nets, resulting in 7 boxes of mono sent out for recycling and a third net was donated.

HML: HML is continuing to operate in the limited Phase I reopening plan. Staff continue coordinating with other HML groups to allow for limited work within the building as well as assisting in the movement of staff into the building from CCHEBR. T. Darden cleaned and organized HML F107.3 in preparation for it to become a shared space with NOAA

collaborators; the space will now be under their jurisdiction for safety and chemical responsibilities. Staff have also cleaned out our assigned wetlab space for eDNA experiments and relocated genetics' field gear to our new allocated HML cage space.

NOAA -Omics Strategy: T. Darden participated in a conference call with HML partners and NOAA -Omics Lead Kelly Goodwin to discuss opportunities for HML partners to participate in upcoming implementation.

Personnel: On a sad note, Katie Anweiler has tendered her resignation from SCDNR, with an effective date of mid-to late-April. She is pursuing a job with the USFWS in Indiana on the Great Lakes. She will be sorely missed but we wish her the best in her future career. Inshore fisheries has agreed to mentor two first year Grice Program students, Lukas Troha and Elizabeth Bullard. Lukas will be evaluating our red drum tag data while Elizabeth will primarily be working on describing the estuarine finfish community of Port Royal Sound.

Ecosystem Research Section

SCECAP/NCCA: Staff sampled 42 sites in the summer of 2020 and samples are being processed. Kim Sitta has now sorted 23 of the NCCA samples out of 33. Catharine Parker has sorted 20 of the 51 SCECAP 2020 samples. Joe Cowan is identifying the species in the NCCA macrobenthic samples and has completed 20 so far. Denise Sanger has finally been successful with regard to paying NOAA for the 2019 sediment processing, thanks to a lot of help from grants management and procurement.

Shorebird Habitat Project: This project aims to quantify shorebird (piping plover, red knot) foraging habitat requirements through the assessment of benthic prey resources, fecal DNA analysis of diet (in collaboration with Genetics), and other geomorphic attributes. Initial planning and outreach meetings have begun. Shorebird populations are declining globally, and factors driving these declines are believed to stem from degradation of overwintering habitats, including those in South Carolina. Stakeholder outreach will be a significant component of this project, with a goal to promote better protection of key habitats through the permitting process and development of beach management plans. Andrew Tweel, Sharleen Johnson, Catharine Parker, and Joe Cowan sampled Seabrook Island on March 8, collecting benthic and sediment samples at 30 sites. Andrew Tweel, Sharleen Johnson, Catharine Parker, and Norm Shea sampled Hunting Island on March 10, collecting benthic and sediment samples at 35 sites. Andrew Tweel, Sharleen Johnson, Catharine Parker, and Joe Cowan sampled Deveaux Bank on March 12. There was a datum error in some of the bird sighting locations provided for the project which resulted in Catharine Parker and Sharleen Johnson returning to Hunting Island for additional sampling on March 26. A workshop for beach communities and other stakeholder groups involved with shorebird habitat management is being planned for March 31.

Kiawah Pond Project: The February sampling of the stormwater ponds was conducted on February 25, 2021 by Kim Sitta and Catharine Parker. The sunny/warm weather has definitely increased biomass in all the ponds. There was a bloom in K1, K18, and K75 all of the same species, *Chlamydomonas* sp. This is a green algae (Chlorophyte) flagellate. K18 had the largest bloom of the three ponds. Dissolved oxygen levels were very high across all the ponds we sampled. It was lowest at K18 (7.67 mg/L), and ranged from 7.67 to 14.61 mg/L. K 67 had a fair bit of the cyanobacteria *Oscillatoria* sp. but was not at a bloom level. Kim Sitta and Catharine Parker sampled the stormwater ponds on Kiawah on March 11. There was only one bloom in pond K18. It appears to be the same species blooming before, a green algae (chlorophyte) which last time I was looking at it I called it *Chlamydomonas* sp. It is a pretty small flagellate, less than 20 um, making it hard to distinguish some of its characteristics. To be conservative, I am calling it Chlorophyceae, likely being *Chlamydomonas* sp. or *Dunaliella* sp. Dissolved oxygen values ranged between 6.78 and 11.51 mg/L and water temperatures ranged between 15.1 and 18.9. The next algal sampling event is April 12.

Salinity Impacts to Benthic Community SWG: Benthic community analysis has revealed some interesting trends, some of which are consistent with previous assessments, along with some new findings. Species richness and the abundances of certain sensitive species were reduced in the highly impacted sites, which included altered salinity structure and increased pesticide loads. Norm Shea is nearly complete in determining the benthic biomass for key taxonomic groups at the 16 study sites. Sharleen Johnson has adapted the M-AMBI (index of integrity) for the benthic community analysis.

Myrtle Beach Reach 2 Area Monitoring: Sample processing is complete. Kim Sitta, Catharine Parker, and Ciera McQuaid put in a strong effort and have sorted all samples. Joseph Cowan has identified all of the benthic samples and entered the data. Catharine Parker has completed 3 of the 5 samples for QA on the taxonomic IDs. Sharleen Johnson processed the final set of sediment samples. Norm Shea conducted the QA on the sediment samples. Sharleen Johnson is working on the final report.

SECOORA: The Fort Johnson water quality site continues to collect data. The datasonde was swapped on March 25 by Nicole King and Sandra Upchurch. The Charleston Harbor site data has been archived with the SECOORA data portal. Catharine Parker, Joe Cowan, and Norm Shea conducted the harbor transect water quality sampling on March 23.

ACE Basin NERR: Denise Sanger and Lauton Sutley swapped the water quality datasondes at Edisto Island, St. Pierre, Jehossee Island, and Grove Plantation on March 4. They also worked on the telemetry system at Grove Plantation. They

replaced the battery, checked all voltages, and cables with no success at correcting the issues. Nicole King calibrated and post-calibrated the 4 YSI datasondes as required by the NERR system. Denise Sanger and Lauton Sutley swapped Mosquito Creek, Fishing Creek, Jehossee Island, and Grove Plantation sondes on March 24. Also on that day they collected grabs from the above sites as well as St Pierre where an ISCO was deployed for the tidal nutrient sampling. Nicole King collected the grab sampling from Edisto Island. Kim Sitta and Lauton Sutley swapped the datasondes at Edisto Island and St. Pierre and retrieved the ISCO. Nicole King calibrated and post-calibrated the 6 YSI datasondes as required by the NERR system. Saundra Upchurch and Kim Sitta processed the chlorophyll samples. Kim Sitta shipped the nutrient samples to CBL for analysis.

Nicole King, Lauton Sutley, Kim Sitta and Saundra Upchurch attended the week long (March 8-12) Technician Training Workshop (TTW) through the NERR Centralized Data Management Office (CDMO). The ACE staff is also preparing checklists and reviewing, updating as needed, SOP manuals. Staff are preparing the annual files for submission. Denise Sanger participated in a HiTIDER (History and Topography to Improve Decision-making for Estuary Restoration) Steering Committee meeting on March 10.

Miscellaneous: Andrew Tweel is coordinating with the Charleston County and Mount Pleasant stormwater engineers in support of ongoing research and new collaborative efforts. The Pew Foundation is developing a salt marsh focus with a recent partnership with SERPASS announced. Denise Sanger participated in the NCCA 2015 Report and Dashboard Steering Committee Call. Denise Sanger met with OEP, SCGS, and Army Corps Charleston District staff to discuss refining the focus of the SC Regional Sediment Management group. The new focus for the near term will be on the identification of beneficial use of dredge material on DNR properties, specifically impoundments. Denise Sanger participated in the Coastal Estuarine Science News (CESN) quarterly editorial board meeting to identify the articles from Estuaries and Coasts that have management relevance. Denise Sanger is participating on a NSC proposal related to shrimp and participated in several calls. Catharine Parker captained a dolphin survey with the SC Aquarium on March 16. Andrew Tweel participated in meetings for a Clemson University Living Shorelines effort and the spring meeting of the Atlantic Coastal Fish Habitat Partnership Steering Committee.

Shellfish Research Section

309 DHEC living shorelines contractual monitoring: Biologist Greg Rothman completed the processing of all the 2020 sediment samples. Graham Wagner and Gary Sundin have continued working on analyses of the 2020 monitoring data, and have completed all the main analyses that will be needed for the annual report. Graham has been working on drafting the initial sections of the report.

Unoccupied Aerial Vehicle (UAV) research: Molluscan Research and Monitoring Section (MRMS) staff worked with Ecosystem Research Section (ERS) staff to map plover foraging areas on Seabrook Island, Hunting Island, and Deveaux Banks, mapping 374 acres of habitat and providing both imagery and elevation data. MRMS staff helped DNR videographer Danielle Kent to record a short video about how the DNR is using UAVs for research. Gary Sundin participated in a call with the other members of South Carolina Interagency Drone Users Consortium's (SCiDUC) Board of Directors. Gary recorded a short video on using drones for shoreline change mapping to be shared on the SCiDUC website. Biologist Graham Wagner assisted Bill Roumillat in the collection of UAV photos of Grice Cove to assist in planning sampling activities there.

South Carolina Oyster Demographic Assessment (SCODA) survey: With assistance from Tim Snoots, Biologist Graham Wagner worked to find and interpret historical oyster disease data, collected in the 1970s - 1990s, as it is archived on MRD servers. This work will benefit a USC graduate student, Deja Best (Geoff Scott, major advisor; Peter Kingsley-Smith advisory committee member) that hopes to use these data in her thesis project. Graham has continued analyzing SCODA data, including data from the recent season, to explore variation in mortality and recruitment around the coast.

NMFS Community-Based Restoration project: Peter Kingsley-Smith recorded the final version of his introductory module for the salt marsh ecology online course to be offered by Clemson University this summer. One of the functions of this course will be to serve as an educational 'primer' for volunteers planning to participate in restoration days in the field as part of this broader project.

Greg Rothman and Tanner Malkasian have continued building and cement coating manufactured wire reefs (MWRs), including coating a new design built by SCORE volunteers, bringing the total ready for install to 22 in preparation for spring/summer building activity. MRMS staff have corresponded with Charles Towne Landing State Park managers and set a date next week to complete an MWR installation on the park shoreline.

Peter Kingsley-Smith hosted a conference call with Phillip Todd from Atlantic Reefmaker on March 18, 2021; Phillip reaches out to the group periodically to provide updates on the performance of some of his company's shoreline protection materials that may be of relevance to the section's research on living shorelines.

Dingell-Johnson / SRFAC funding: GIS manager Evan Cook and MRMS biologist Gary Sundin completed several shellfish permit maps for OFM and updated the public facing maps and associated web application. Biologist Tanner Malkasian began working again on finishing helicopter-based edits to the statewide oyster layer, using 2016-2017 imagery.

The section will be pursuing a 12-month no cost extension on their 2020-2021 DJ funding due to delay on fieldwork in the summer of 2020 resulting from the pandemic. This extension will enable the section to embark on oyster disease monitoring in the summer of 2021.

Estuarine trawl survey: The monthly Estuarine Trawl Survey aboard the *R/V Silver Crescent*, that samples stations in the Charleston Harbor and Ashley River, was conducted March 12. Additional sampling at 20 stations south of Charleston in the North Edisto, St. Helena Sound, Port Royal Sound and Calibogue Sound estuaries, was conducted March 15-17 as part of the “south trip”. While the catch of white shrimp was above average in all estuaries sampled, white shrimp size was near or below average in all estuaries. The presence of black gill in shrimp, although below 10% at all stations, was higher than the long-term mean. Blue crab catch was greater than the long-term mean in Calibogue Sound, but similar to the long-term mean in all other estuaries sampled. The catch of weakfish and croaker was similar to the long-term mean, while the catch of spot and whiting has higher than average. Overall, temperature and salinity were similar to, and lower than the long-term mean, respectively.

Creek trawl survey: Creek trawl sampling is scheduled for March 24 and 25. Stephen Czwartacki entered historical shrimp size and abundance data into the creek trawl database.

Blue crab (adult and juvenile) salinity gradient potting survey: The blue crab salinity gradient survey was conducted on March 9 and 10 in the Ashley River. The February catch of ten crabs was below the long-term (2016-2021) March mean (\bar{x} =25.7). A majority of the crabs in the catch (n=7) were immature male, most of which (n=5) were caught at a middle sampling station near I-526. Average salinity (\bar{x} =5.4psu) taken near low tide at all stations was the lowest recorded during March sampling. Average bottom temperatures (\bar{x} =12.8°C) of all stations was also the lowest recorded during March sampling. No juvenile crabs were caught again this month during the juvenile potting survey; no juvenile crabs have been caught in three of the last four months of sampling. Prior to December 2020, crabs were caught in every month sampled since April 2018. Next monthly sampling will occur April 1 and 2.

Savannah River Basin crayfish: All sites selected for the State Wildlife Grant Program-funded Savannah crayfish project have been sampled. The final sites were sampled on an overnight trip to the Piedmont ecoregion of the state by Michael Kendrick, Elizabeth Gooding, and Jeanette Huber on March 2-3. Michael Kendrick is in the process of identifying the crayfish collected from the project. Field observations suggest that the invasive red swamp crayfish, *Procambarus clarkii*, was caught at only one site within the broader project area.

Coastal plain crayfish: Elizabeth Gooding mailed native crayfish tissues collected as part of the State Wildlife Grant Program-funded invasive red swamp crayfish (*Procambarus clarkii*) project to Bronwyn Williams, a collaborator at the North Carolina Museum of Natural Sciences. Jeanette Huber is developing a sampling scheme to compare crayfish catchability between backpack electroshocking and dip net sampling.

Invasive species: On March 1, 2021 a PetCo employee notified USGS scientists that zebra mussels (*Dreissena polymorpha*) were found attached to and inside moss balls sold as aquarium plants. Zebra mussels are regarded as one of the most troublesome invasive species in North America. In spite of their small size, zebra mussels clog pipelines used for water filtration, render beaches unusable, and damage boats. They also negatively impact aquatic ecosystems by harming native organisms and modifying food webs. It is believed, at minimum, contaminated moss balls are being imported from the Ukraine, where it is believed they are produced within waters containing zebra mussels. Permits for importation have been issued by USDA APHIS for at least 18 countries for a total of 67 permit-by-country unique combinations. It is unknown whether contamination is also occurring within the supply, distribution and retail chains.

By March 10, 2021 zebra mussels found on moss balls had been reported from 32 different states in the U.S. from PetCo, PetSmart and independent retail stores. Aquarists may see products packaged as Betta Buddy Marimo Balls, Japanese Marimo Plant Balls, Moss Balls, and Shrimp Buddies, other packaged products, or purchased individually from tanks. Common brands for the moss balls include Imagitarium, Exoterra, Fluval, and Aquatic Arts. On March 4, staff from the Shellfish Research Section visited several PetCo and PetSmart stores in the greater Charleston area and found contaminated product at multiple locations, confirming that South Carolina was another state that has been impacted by this distribution of zebra mussels.

Efforts led by the Freshwater Fisheries section of the SCDNR, under the guidance of Ross Self, Lynn Quattro and Bill Post, are underway to have staff visit retail outlets across the state to attempt to secure contaminated product that may still be on the shelves and to inform the retailers about the situation and potential risks, as well as to share USFWS protocols for safe disposal and decontamination.

Elizabeth Gooding received a report of island apple snails in the Myrtle Beach area. This report will be sent to Wesley Daniel (USGS) to be included in the Nonindigenous Aquatic Species database (<https://nas.er.usgs.gov/>). Elizabeth also received a report of potential Asian green mussels on a Charleston County Parks and Recreation bio-rack. She has collected samples from the reporter to confirm the identification.

Another quarterly meeting of the Invasive & Injurious Wildlife Working Group was convened via GoToMeeting on March 16, with new participation from outside the SCDNR both from USGS Non-Indigenous Aquatic Species Program staff

(Wesley Daniel and Matt Nielson) as well as UGA's Center for Invasive Species and Ecosystem Health staff (Chuck Barger and Rebekah Danielle Wallace). The group are interested in creating a centralized website for reporting of unusual / exotic / injurious / invasive wildlife across all taxa, leveraging the existing EDDMaps platform (<https://www.eddmaps.org/>). SCDNR's creation and use of such a website will likely include the establishment of SCDNR taxa-specific verifiers of reported observations. Anna Smith has been engaged to help direct this component of the effort.

SERTC: Elizabeth Gooding completed requests for educational guides and posters. Elizabeth also continued locating additional collection specimens to loan to Craig Plante (CofC) to be used for educational purposes. Specimens were also loaned to Ella DiPetto with DNR's SCORE Program to be used in a virtual, educational bag dissection.

Horseshoe crabs: Dr. Daniel Sasson has purchased supplies for the upcoming field season for both work that will be done in SC and for C-SWG collaborators. Daniel received word from John Holloway that their dig permits for horseshoe crab fieldwork on Parris Island were approved. Staff have been working on contractor forms that will allow them access to the island. Daniel received a request from a member of Dr. Thommaso Pizarri's lab for data from a previous publication on the role of age on sperm traits in horseshoe crabs. These data will be used as part of a meta-analysis on the subject.

White Spot Syndrome Virus (WSSV): Daniel Sasson has begun acquiring imported live crayfish to screen for WSSV. He dissected out and preserved gill tissue for WSSV screening from live crayfish brought back to the MRRI by staff from a local crawfish boil event. Mariculture staff purchased and brought additional crayfish samples from a seafood market in Beaufort to Daniel. These samples consisted of 30 *P. clarkii* crayfish from Louisiana and 30 *P. troglodytes* crayfish from SC. Daniel preserved gill samples from these crayfish for WSSV screening.

Preparations for the National Shellfisheries Association Annual Meeting: Multiple staff and students from the Shellfish Research Section uploaded their conference presentations in advance of the March 8, 2021 deadline in preparation for the virtual 2021 Annual Meeting of the National Shellfisheries Association to be held March 22-25, 2021. MRMS staff Graham Wagner and Gary Sundin attended and presented their work at this meeting. Graham and Gary participated in judging student talks and posters for the meeting.

Peter Kingsley-Smith submitted a report for the Executive Committee (EXCOM) meeting summarizing activities of its Student Endowment Fund Committee, for which he serves as co-chair, to be held on March 21, 2021. These activities included the student registration waivers and student presentation awards arrangements related to the Association's upcoming Annual Meeting which will be held virtually on March 22-25, 2021. Peter Kingsley-Smith distributed the finalized informational packet for the presentation judges. At this year's meeting there will be 77 graduate student presentations that are eligible for the Thurlow C. Nelson Outstanding Oral Presentation Award and 24 graduate student poster presentations eligible for the Gordon Gunter Outstanding Poster Presentation Award. Largely through the opportunity to sign up to serve as a judge during the online meeting registration process, Peter has been able to secure 50 judges to evaluate these presentations.

Miscellaneous: The section upgraded 5 computers within the section this month through the purchasing of new machines. The section is grateful to the IT staff for their expeditious configuration and installation of this equipment.

The *R/V Miss Sookie* was taken to Seel's for an electrical issue and for the installation of navigation lights. Daniel Sasson worked with Dr. Michael Kendrick to complete his EPMS evaluation, having marked his one year anniversary with the Institute on March 17, 2021; Peter Kingsley-Smith served as the reviewing authority for this evaluation.

Peter Kingsley-Smith reviewed a Ph.D. thesis for MacQuarie University in Australia as the external examiner. The thesis was entitled "Oysters as fish habitat" and should yield multiple publications on the positive ecological impacts of both remnant natural reefs and shellfish aquaculture infrastructure in Australia for diverse and unique assemblages of recreationally- and commercially-important juvenile and adult finfish. Peter also served as reviewer for 10 Letters of Intent submitted to the Florida Sea Grant College Program 2022-2024 Applied Science Projects funding opportunity.

Daniel Sasson chatted with an undergraduate student at Tulane University about the possibility of gaining research experience by assisting with field work this summer. The student is from Charleston and has experience boating in local waters. He is planning to decide on his plans for the summer within the next few weeks.

Office of Fisheries Management (OFM):

Shellfish Management:

Culture Permits and State Grounds

5 permit holders requested verification of legally required shellfish culture permit plantings for 5 permits during March. Through calendar year 2021, permit holders have requested planting verifications on 11 permits with 8 completing planting quotas for 2021. A total of 12,083 U.S. bushels (8,656.4 U.S. bushels for credit & 3,426.6 in overages) of shellfish seed, green oyster shell, clam cover or approved cultch, cultivation, or equivalent has been planted (630 BU on state or public grounds). The assessed planting quota for the state's 101 culture permits is 94,902.8 U.S. bushels after taking into consideration permit cancellations, acreage reductions or increases, boundary modifications and approved variances, leaving

86,246.4 BU (91%) left to be planted in 2021. Shellfish seed may be planted throughout the calendar year; however, by S.C. law (§ 50-5-940), cultch must be placed between 01 May and 31 August to receive planting credit.

3 applications for culture permits were received and are being processed.

2 variance requests for use of alternate cultch were received, processed, and approved.

Monitored exploratory subtidal clam harvest with an escalator dredge on six areas in Charleston, Colleton, and Beaufort Counties. Very low clam populations were located except for S-252 Upper Hamlin where a small but commercially viable population was found. Above average seed numbers were recorded at many locations however.

Mariculture/Importation

Mariculture staff advised one potential floating gear applicant about application and expects application to be submitted soon.

Mariculture staff performed compliance check on M-277 and found it to be out of compliance. Permittee has been notified and was given 3 weeks for a follow up visit to ensure permit was back in compliance. Staff also performed 2 more compliance checks (M-294 and M-280) and found them both to be in compliance.

Mariculture staff completed 6 seed importation inspections. 2 for hard clams and 4 for oysters.

Mariculture staff virtually attended the State Marine Aquaculture Coordination Network meeting.

Work was done to create a draft version of an updated shellfish mariculture webpage on the SCDNR website. It will go live following feedback and approval.

SCORE – South Carolina Oyster Recycling and Enhancement

Shell recycling and planting; Recreational management

Shell Recycling

In the March recycling period, 4,110.75 bushels were recycled. The public drop off locations at Carrigg's Seafood, Charleston Outdoor Catering, Ft. Johnson, Gilligan's Seafood – Moncks Corner, Goose Creek, Summerville, and Johns Island, Trask Landing, St. Helena, Port Royal, Sol Legare, and Six Mile were emptied totaling 2,468 bushels. There were 25 events totaling 827.25 bushels. The restaurant route contributed 815.5 bushels across 26 partner restaurants. One new partner restaurant was added to the restaurant route. The Deli in West Ashley opened a raw bar that will anticipate contributing 2-6 bushels a week to our program all year. This restaurant was immediately added to the volunteer sign up due to its location and lower contribution averages. During the reporting period, The Windjammer, all three DIG locations, Tattooed Moose, Southern Roots Smokehouse, and Container Bar all had their final seasonal roasts for the 2020-2021 season. Their individual bushel counts were totaled, and each restaurant received a certificate of appreciation for their contributions.

Equipment maintenance continued during this recycling period. The barge, Indigo Princess, had yearly motor maintenance repairs done as well as annual rust removal and repainting of the deck. The two Honda water pumps from the Indigo Princess were taken to a small engine mechanic for an annual tune up before planting season begins. The dump truck, Rusty, has been repaired and has returned from the mechanic. Rusty had a sensor replaced and some electrical work done. The deck-over 185 had a flat tire replaced and had some electrical work done. A lowboy-90 bushel had a flat tire replaced.

Volunteer Oyster Shell Recycling Program (Beaufort, Charleston, Greenville, Columbia)

A total of 446.25 bushels of oyster shell was reported as recycled across the 4 community-based recycling teams. The Charleston Shell Recycling Team volunteer 34 hours to recycle a total of 245.5 bushels of oyster shell and serviced two oyster roasts. The Beaufort Shell Recycling Team recycled oyster shell from participating restaurants and serviced two oyster roasts. We are still waiting on the total hours and bushels recycled for this reporting period Beaufort volunteers served as SCORE educators and trash monitors for an event at the Moose Lodge 1855, in Beaufort. The Columbia Shell Recycling Team volunteered 12 hours to recycle a total of 40.75 bushels of oyster shell and serviced two oyster roasts. The Greenville Shell Recycling Team volunteered 48.5 hours to recycle a total of 160 bushels of oyster shell.

Shell Planting for State Managed Grounds

Paperwork for bid packages related to the purchase and delivery of 41,013 bushels of shucked oyster shell was submitted. We are still waiting on approval for the use of Water Rec Funds for a portion of these purchases. The list of planting sites for the 2021 season was submitted to DHEC-OCRM, as required for Army Corp General Permit SAC-2017-01776.

Scouting for planting sites were finalized and a list of all Non-PCN sites were sent to OCRM in accordance with SCDNR's Army Corp General Permit.

Grant and Contract-funded Projects

Community Based Restoration

SCORE hosted fifteen volunteer events, during this reporting period, totaling 376.5 volunteer hours. The first oyster reef construction event took place this month was held at Drum Island, March 13th with participants from Wounded Nature, Working Veterans, Warrior Surf Foundation and Simply Southern. A total of 900 oyster bags were deployed. We are working on scheduling more reef builds for the upcoming months. SCORE staff have been germinating, picking, and planting *Sporobolus alterniflorus* seedlings with the assistance of volunteers from Charleston Waterkeeper, Americorps, MUSC and James Island Charter High School. Three manufactured wire reef (MWR) fabrication events were with volunteers from Coastal Conservation League, Summerville Saltwater Anglers and Daniel Island Fishing Club. The 2021 bag and tray samples are beginning to be processed with the goal of completion being the end of April. Ella DiPetto filmed a oyster bag dissection webinar, for virtual learning opportunities, that will be disseminated to K-12 teachers.

Miscellaneous

Stephen Czwartacki was selected for the Bio II position for coordinating the SCORE Shell Recycling and Planting Program. Michael Hodges has been working with the Coastal Conservation League, Audubon-South Carolina and Pew Charitable Trust for the submission of a pre-proposal for funding through NFWF National Coastal Resiliency Fund. This 4-year project would focus on living shoreline installation and monitoring at 3 locations adjacent to the Beaufort River (Whitehall Park, Beaufort Naval Hospital and Cat Island). The Coastal Conservation League is taking the lead on submitting this pre-proposal.

Meetings:

Ben Dyar and Henry Davega attended a webinar for the State Mariculture Coordination Network which included mariculture regulators and extension personnel from other South Eastern States in order to facilitate communication and networking among State regulators.

Ben Dyar and Lee Taylor met with Southwith Associates, the DNR contractor for environment surveys, as well as TNC on continuing discussions for the implementation and funding for a recreational oyster harvesting survey as well as formulating questions for the survey itself.

Ben Dyar attended the final meeting for the collaboration of whelk fisheries and management among the Atlantic states in a coordinated workshop.

Henry Davega and Ben Dyar sat on interview panel for second round of interviews for the Sea Grant Aquaculture Specialist position.

Ben Dyar, Holly Kight-Sommers, Holly Hillman, Barry Sturmer, Henry Davega, Lee Taylor and Michael Hodges attended the National Shellfish Association Virtual Conference. Michael Hodges presented “Engaging stakeholders and partners for the successful implementation of a community-based oyster restoration program over the past 20 years in South Carolina, USA”. Ben Dyar presented “Reactive to proactive: A goal for improved shellfish resource conservation and management”.

Ben Dyar, Gary Sundin and Graham Gaines presented their NSA presentation to the SC Shellfish Growers Association for industry engagement and feedback. Good discussions and support from industry to take action for better resource management on SSGs resulted.

Finfish:

Artificial Reef Management and Development

Artificial Reef construction this month consisted of a fifty-foot-long tugboat and twenty-two 48-inch diameter concrete culvert pipes, all deployed on PA-34, the CCA-McClellanville Reef. The tugboat was purchased by CCA South Carolina and donated to the reef program for preparation and towing. The deployment received media coverage in the local newspaper (Charleston Post & Courier) and television (WCSC-TV, Charleston).

An online Marine Artificial Reef Program presentation, sponsored by the New York City based marine education group NYC H2O, was given by reef program personnel this month. Over 130 participants registered and attended the presentation.

Statistics:

- Delinquent letters for late submission of February 2021 mandatory logbooks were mailed on March 16th, 2021 (185 letters) to license holders for Wholesale Seafood Dealers and For-Hire Charter Vessels for February 2021 reports not yet received by the March 10th, 2021 deadline. The affidavit list was provided to Law Enforcement on March 31st, 2021.

- Several data requests were completed during this month for commercial data including the following annual species summaries: Overall landing by species grouping, and specifically on Greater Amberjack, peeler crabs, blue crabs, shrimp, flounder, Menhaden, Bluefish, and American eel. SCDNR charter database also had data requests including specific species catch and effort for Red Drum, Greater Amberjack, and vessel catch and effort.
- Staff continue to gain information to determine eligibility for the second allocation for the CARES Act funds. The agency had great success with the first allocations of funds, which were distributed to the state's commercial fishermen, wholesale seafood dealers and for-hire fishermen if the qualified for hardship during the COVID-19 pandemic.
- Staff continue to work diligently to increase electronic data collections and efficiency for both recreational for-hire and commercial data. The will improve data quality and timeliness.

Commercial Trip Interview Program

- During the month of March, OFM Port Agents intercepted 13 commercial trips and collected 273 length frequencies along with obtaining 263 associated age structures from primarily snapper grouper species.

Recreational Statistics Section Summary

- In the month of March 2021, OFM staff completed 36 APAIS assignments resulting in 205 interviews with recreational anglers.
- OFM staff attended a preseason meeting with horseshoe crab fishermen and Charles River Labs employees on March 15th.
- Additional activities during the reporting period included: working closely with commercial seafood dealers to ensure compliance with reporting, assisting the SCDNR oyster shell recycling and freezer program, distributing rules & regulations books and fish rulers to coastal businesses as requested.

Coastal Reserves & Outreach (CRO):

Public Outreach

Outreach to Coastal Residents and Visitors

- The Coastal Exploration Series is a series of public programs to inspire appreciation of our state's coastal wildlife and landscapes. Since April 2020, staff have translated this series into a virtual "Outside In" webinar series. In March, 218 viewers watched 3 webinars; SCDNR Mariculture, SCDNR Shark Research, and Managing water in your home landscape.
- Staff trained 4 Botany Volunteers to participate in a citizen science project called Caterpillar Count. Volunteers continued to monitor the Biodiscovery rack and the Weather STEM station, and participate in monarch tagging.
- The Diversity Outreach Section focuses on the inclusion of underrepresented populations through translating and interpreting existing material, event planning and promotion to build relationships with these communities. In March, diversity staff assisted ACE Basin NERR staff in documenting prescribed burns, archived messages and posts from the public, and provided content on the SCDNR's Diversity Facebook pages for 2021.
- Through the Marine Game Fish Tagging Program, 14 active participants tagged and released 232 fish, primarily sheepshead and red drum. Additionally, 112 anglers reported 119 recaptures, primarily red drum. Of these recaptures, 96% were re-released. Staff processed the tagging and recapture data, and rewards were mailed to anglers who reported recapture(s).
- Staff responded to an additional 6 fishing-related inquiries.
- Community members (28) volunteered to plant marsh grass seedlings as part of the From Seeds to Shoreline community salt marsh restoration effort. They will continue to help cultivate these plants until the summer, when they will restore areas of eroded salt marsh.
- Staff hosted an outreach event in partnership with the SC Oyster Restoration and Enhancement (SCORE) Program for the Coastal Conservation League. CCL members went on the Discovery with ACE Basin NERR staff to discuss the ACE Basin and living shorelines and helped SCORE prepare cages for a build.

Media and Communications

- In March 2021, media and communications staff continued work on an outreach campaign to collect public sightings of spawning horseshoe crabs, which will launch in early April.
- Staff published one press release, 'McClellanville-area reef expansion to provide marine habitat.'
- Staff spent three staff days in the field capturing multimedia of oyster reef construction, an artificial reef drop and Capers Island.
- Staff continued work on a series of interpretive signage for Botany Bay Plantation HP.
- Staff supported MRD by providing design, multimedia, and writing/editing services for six projects, including updates to the Sea Science publication series, the 'Outside In' webinar series and more.

- Staff worked to develop a package consisting of talking points, a fact sheet and a timeline addressing the state legislature's recent interest in the development of a flounder stocking program.
- Staff responded directly to 14 reporter inquiries on topics ranging from artificial reef construction to oyster farming.
- A total of 76 print, digital and broadcast media stories referenced division programs/staff in February, on topics ranging from artificial reef construction to jellyfish (two stories, one about jellyfish stranding and one about white sharks feeding on a whale carcass, made up the bulk of these numbers).

Students and Teachers

- The Carolina Coastal Discovery Programs focus on conservation of the state's coastal natural resources, as well as relevant science standards. Aboard the Educational Vessel (E/V) *Discovery*, and on land, staff provide science investigations using field sampling techniques and equipment that echo current research methods. In March, 339 students attended school programs, field trips, and/or virtual marine science programs.
- March marked the end of the first Marsh Madness Tournament! A weekly, online educational competition where students submit brackets predicting which species of South Carolina wildlife will win the fight for survival! Over 840 students participated, from public, private, and homeschools across the state.

Support for Coastal Communities and Partners

- The Boating Infrastructure Grant (BIG) Program is a competitive US Fish and Wildlife Service funded program providing funding for marina infrastructure to serve large transient recreational boats and provides access to recreational, historic and natural resources. Projects are considered public/private partnerships between the SCDNR, the US Fish and Wildlife Service, and the marina. In fall 2021, SCDNR submitted 4 projects for funding consideration, we expect awarded projects to be announced in April. These projects represent SHM Beaufort Marina, Seabreeze Marina, Palmetto Bay Marina, and Cooper River Marina. The application season for this year's projects begins April 15 with the SCDNR BIG Workshop for interested applicants.
- The Clean Vessel Act (CVA) provides USFWS funding to install and operate marine sanitary pumpout programs to divert overboard discharges and protect water quality. SCDNR presented the program to an association of marina operators at North Myrtle Beach in order to develop CVA programs and also foster relationships with the industry in that region.
- The Coastal Training Program (CTP) provides training, assistance, and resources to coastal decision-makers. In March, staff planned and implemented a stakeholder workshop to provide information and gather input for the SCDNR and USFWS project: "Identifying optimal foraging characteristics to inform piping plover and red knot habitat management."
- CTP staff continued to participate in a working group of partners to develop a comprehensive living shorelines website.
- The ecotour workshops are a series of events dedicated to providing the most up-to-date research, hands-on materials, and education to local ecotour businesses and guides. Topics include archaeology, fisheries, coastal management and shorebirds. During March, staff held the "Updates in Lowcountry Archaeology" and "Horseshoe Crab Tagging" virtual workshops with 15 participants. Staff also held an in-person "Shorebirds on Caper's Island" workshop with 7 participants.
- Staff continues to provide support and consultation on Motus Wildlife Tracking Systems for various federal, state and private partners. In March, SCDNR assisted Nemours, Harbor Island, Fort Moultrie, and Port Royal Sound Maritime Center, Spring Island Trust, Edisto Beach State Park, Audubon, Daufuskie Island, and Fripp Island with the construction, maintenance and data collection of Motus towers.

Coastal Reserves

- ACE Basin NERR staff continue to maintain South Fenwick Island to provide habitat management and public access opportunities. Trails and fields were mowed, sprayed and cleared of invasive species. Staff continued to build firebreaks and prepare for controlled burning.
- Staff conducted its first series of controlled burns on South Fenwick Island. They burned four burn plots totalling approximately 15 acres.
- Staff continue to monitor Chinese Tallow within the St. Helena Sound WMA and South Fenwick Island WMA.
- In March, staff distributed 9 camping permits for Otter Island and 4 camping permits for South Fenwick Island.
- In March, there were 274 campers on 57 permits which was an average month by the numbers. Day use beach surveys continue and many responses have been collected.
- In March, 10,430 people visited Botany Bay Plantation HP/WMA. Volunteers provided 155 hours of service, performing maintenance activities on the office building and property, participating in the Biodiscovery program, and maintaining blue bird boxes.

- A WeatherSTEM station was installed at Botany Bay Plantation HP/WMA by the SCDNR Climate Office with assistance from the Botany Bay volunteer Coordinator.
- The Section Manager provided a presentation to the Marine Advisory Committee about MRD's coastal managed lands.

Sea Turtle Nesting Program

- Four juvenile sea turtle stranding events were reported in March; three greens and one Kemp's ridley. One fresh dead turtle was entrained in the hopper dredge Ellis Island currenting operating in the Charleston Shipping Channel as part of the Post-45 Charleston Harbor Deepening Project.
- Staff members continue to provide 24 hour on-call coverage of sea turtle hotline during the week, weekends and on holidays as well as picking up live turtles and carcasses as needed.
- Biologist tagged 5 turtles undergoing medical treatment at a local facility.
- Staff met with South Carolina Aquarium staff for the annual stranding season meeting.
- Coordinator continues to work on QA/QC and data entry of historical nesting data into the database.
- Distributed annual publication *Loggerheadlines* to volunteers and partners.
- Staff transported an ATV to a barrier island for use by contract trapper in predator management activities.
- Coordinator and Biologist continue to work with NOAA regarding transfer of necropsy operations to new lab space on Fort Johnson campus.
- Biologist transported surplus boat, trailer and ATV to the Styx Compound in Columbia.
- Staff continues with annual pre-season prep work.
- Staff participated in an online volunteer network training session for the new season including 39 participants.
- Staff participated in day long in-water boat handling and trailering training with a professional boat captain at two off site locations.
- Staff worked with MRD media to complete an update of the program's trifold pamphlet distributed by volunteer network during outreach interactions.
- The Eagle Biologist provided technical assistance through emails and calls for four eagle nest territories and conducted three days of aerial surveys to check 179 territories. The eagle database was updated with 2021 data. The Eagle database is now housed under Heritage Trust under Joe Lemeris.

Marine Resources Division

Marine Resources Research Institute (MRRI)

Grant Proposals

Funded: Kingsley-Smith, P. R., Kendrick, M. R., Sundin, G. W., Wagner, G. A. & Perkinson, M. Facilitating and implementing the removal of derelict crab traps (DCTs) in South Carolina estuaries. FY2021 NOAA Marine Debris Removal FFO. September 1, 2021 - August 31, 2023. \$97,006 funds awarded; \$97,053 match provided.

Submitted: A multidisciplinary study to estimate US Atlantic and Gulf of Mexico Greater Amberjack population size, structure, connectivity, and dynamics. Subrecipients on full proposal by Dr. William Patterson; Dawn Glasgow and Marcel Reichert. FY2021-2023 National Oceanic and Atmospheric Administration's (NOAA)'s National Sea Grant College Program and the NOAA National Marine Fisheries Service (NMFS), 2-year project, \$189,718 requested for SCDNR (no match required).

Submitted: Arendt M, Darden T, Dukes A. Protected species interaction potential in the South Carolina shrimp trawl fishery. NMFS SERO, 5-year (Sep 2021 to Aug 2026), \$1,020,673 (federal), no match required.

Submitted: Dunn, R., Snyder, M., Stone, J., Kendrick, M., Guy, R., Sanger, D., Kimball, M., Harding, J., Collier, C., Whitaker, D., Gaines, G., Fluech, B., Incorporating environmental variability into ecosystem-based management for penaeid shrimp in the southeast US. NOAA NERRS Science Collaborative. 3-Year project (October 1, 2021 - September 30, 2024), \$599,959 (\$73,165 to SCDNR), no match required.

Submitted and funded for year 1: MARMAP. New 5-year grant July 1, 2021- June 30, 2026. Funding source NOAA National Marine Fisheries Service. Funding \$3,905,315 (no match required). Funding for year 1 is \$ 729,321.

Submitted: South Atlantic Deepwater Longline Survey (SADLS). Walter Bubley (PI). Submitted to NOAA Fisheries. Funding period May 1, 2021 – December 31, 2025. Requested funding \$2,231,151, no match required.

Submitted: As subrecipients on full proposal by Dr. William Patterson: "SCDNR Assistance to SARSRP efforts - Collection of DNA samples during SCDNR SERFS cruises". Funding period May 1, 2021 – December 31, 2022. Requested funding \$8,545, no match required.

Concept Letter - Full Proposal Encouraged: Bowman, Jr., L. L., M. J. Walker, and T. L. Darden. 2021. Development of population genetic tools for Southern Flounder management. SC Sea Grant Concept Letter FY22-24. Funds requested: 110,229 (State Match: 55,182).

Concept Letter- Full Proposal Encouraged: PI: F. Casu (SCDNR); Co-PIs: D. Sanger (SCDNR). Characterization of the impact of environmental stressors on the metabolic profiles of the eastern oyster, *Crassostrea virginica* in the Charleston coastal area using NMR-based metabolomics. SC Sea Grant. Submitted 3/5/21. 2 years 2022-2024. Federal: \$109,982; Match: \$61,596.

Concept Letter - Full Proposal Encouraged: PI: A. Tweel; K. Sitta, D. Sanger (SCDNR). Assessment of stormwater pond performance and connectivity to estuarine habitats under varying development and precipitation scenarios. SC Sea Grant, Submitted 3/5/21. 2 years. Federal: \$131,176 (\$73,521 match)

Concept Letter - Full Proposal Encouraged: PI: F. Casu (SCDNR); Co-PIs: A. Watson (SCDNR), M. Denson (SCDNR), G. Gaylord (USFWS). Investigation of the effects of prebiotic supplementation on metabolic profiles of juvenile cobia fed diets containing high levels of soybean meal and soybean oil by NMR-based metabolomics. SC Sea Grant. Submitted 3/5/21. 1 year 2022-2023. Federal: \$79,250; Match: \$39,626.

Concept Letter - Full Proposal Encouraged: Determining the seasonal prevalence of the invasive American eel (*Anguilla rostrata*) swimbladder parasite (*Anguillicoloides crassus*) to inform fisheries and aquaculture impacts. PI: A. Watson; Co-PIs: M. Kendrick, P. Kingsley-Smith. SC Sea Grant. Submitted 3/5/2021. 2 year 2022-2024. Federal: \$153,270; Match: \$77,809.

Concept Letter - Full Proposal Encouraged: Investigating climatic and environmental drivers of reproductive phenology and refining reproductive assessment protocols to better inform South Carolina white shrimp (*Penaeus setiferus*) fishery management. PI: J. Brunson; Co-PIs: Michael Kendrick, Peter Kingsley-Smith & Graham Wagner. SC Sea Grant. Submitted 3/5/2021. 2 year 2022-2024. Federal: \$147,910; Match: \$74,870.

Concept Letter - Full Proposal Encouraged: Development and testing of in-pond cage/raceway systems and pond bank-based systems to extensively culture marine fish larvae. J. Broach, E. Levesque, A. Watson, and M. Denson. SC Sea Grant. Submitted 3/5/2021. Federal: \$140,532.

Concept Letter - Full Proposal Encouraged: Evaluating the extensive production potential of sheepshead *Archosargus probatocephalus* for food fish and stock enhancement purposes. J. Broach, E. Levesque, A. Watson, and M. Denson. SC Sea Grant. Submitted 3/5/2021. Federal: \$135,802.

Concept Letter - Full Proposal Encouraged: Physiological effects of age and temperature on blood chemistry, metabolism, and mortality of harvested horseshoe crabs, *Limulus polyphemus*. PI: D. Sasson; Co-PIs: F. Casu, M. Kendrick, J. Beers (CofC). SC Sea Grant. Submitted 3/5/2021. Federal: \$159,035.

Submitted: Frazier, B.S., H. Medd, J.L. Brooks. Post-release mortality of Great Hammerheads, *Sphyrna mokarran*, in shore- and vessel-based recreational fisheries in the southeastern United States. Submitted to Bycatch Reduction Engineering Program. \$197,681.

Submitted: Kingsley-Smith, P.R., Darden, T. & Kendrick, M.R. USFWS State and Interstate Aquatic Nuisance Species Management Plan Program. Federal funds requested: \$93,962; \$39,800 match provided.

Publications

Accepted: Anstead, K., K. Drew, D. Chagaris, M. Cieri, A. M. Schueller, J. McNamee, A. Buchheister, G. Nessler, J. H. Uphoff, M. Wilberg, A. Sharov, M. Dean, J. Brust, M. Celestino, S. Madsen, S. Murray, M. Appelman, J. Ballenger, J. Brito, E. Cosby, C. Craig, C. Flora, K. Gottschall, R. J. Labour, E. Leonard, R. Mroch, J. Newhard, D. Orner, C. Swanson, J. Tinsman, E. D. Houde, T. J. Miller, & H. Townsend. The path to an ecosystem approach for forage fish management: a case study of Atlantic Menhaden. *Frontiers in Marine Science*.

Accepted: S White, D Kazyak, T Darden, D Farrae, B Lubinski, R Johnson, M Eackles, M Balazik, H Brundage, A Fox, C Hager, J Kahn, I Wirgin. Establishing a microsatellite genetic baseline for North American Atlantic sturgeon (*Acipenser o. oxyrinchus*) conservation and management. *Conservation Genetics*.

Accepted: Peoples, B., E.Judson, T.Darden, D.Farrae, K.Kubach, J.Leitner, and M.Scott. Modeling distribution of endemic Bartram's Bass: disturbance and proximity to invasion source increase hybridization with invasive Alabama Bass. *North American Journal of Fisheries Management*.

Submitted: Glasgow, D.M., M.J.M. Reichert, J. Quattro. Effects of environmental factors on reef fish assemblage structure in the southeastern U.S. Atlantic. Resubmitted with minor edits to *Marine Ecology Progress Series*.

Presentations

Andrew Tweel. Identifying optimal shorebird feeding habitat to inform management. Stakeholder Meeting and Shorebird Workshop, March 31, 2021. 50 attendees, mixed audience.

Andrew Tweel. Linking land use to physical changes in tidal creeks, Charleston, SC. National Water Quality Monitoring Conference (Virtual). April 22, 2021. 107 attendees, technical audience.

Daniel Farrae. Genetic diversity and population structure of Bartram's Redeye Bass in the tributaries of the Savannah Basin. American Fisheries Society—Southern Division. 8 April 2021. 50 attendees, technical audience.

Jackie Allen. Spotted Seatrout hatchery effective population size. EFR Science Discussion. 12 April 2021. 25 attendees, technical audience.

Denise Sanger. Science Informing Policy: My Lessons from the SC Coast. SEERS Annual Conference. 22 April 2021. 60 attendees, technical audience.

Casu, F. "Effects of partial fishmeal replacement with alfalfa protein on the metabolite profiles of juvenile Rainbow Trout (*Onchorhynchus mykiss*)". March 29, 2021. EFR Presentation, 20 attendees, technical audience.

Larry Bowman, Jr. Environmental DNA assay for monitoring endangered Atlantic sturgeon (Plough et al. 2021). EFR Science Discussion. 26 April 2021. 25 attendees, technical audience.

Jake Cashour. Thesis project update: bonnethead post release mortality. EFR Science Discussion. 19 April 2021. 25 attendees, technical audience.

Marcel Reichert gave a presentation in Craig Plante's College of Charleston Marine Ecology class on April 15. Audience: 15 graduate students.

Outreach

Denise Sanger presented on the ACE Basin NERR water quality data at the April 8th, 2021 "Outside In" Series titled "South Carolina's National Estuarine Research Reserves". Approximately 70 people virtually attended the event. Staff of our section participated in the April 15 SCDNR Outdoor-In Webinar Series in a roundhouse discussion regarding "Fish Handling 101." The goal was to educate the public on the best ways to handle fish to minimize post-release mortality.

Larry Bowman completed manuscript peer-reviews for Water (2) and CBE—Life Sciences.

Larry Bowman was asked to collaborate on a Citizen Science Month project with Smyth County Public Library (Marion, VA) to engage/inspire Appalachian students to pursue scientific careers by sharing personal anecdotes of Appalachians now in STEM fields.

The next DISTEM meeting will be May 4, 2021 (10:30-12:00) and the topic discussed will be Gender Identity.

On April 21, 2021, as Panel Chair, Peter Kingsley-Smith led the spring 2021 virtual meeting of the Gulf and South Atlantic Regional Panel on Invasive Species (GSARP), one of six regional panels that serve the Aquatic Nuisance Species Task Force. In preparation for this meeting, Peter also submitted the South Carolina state report, through his role as state representative. This report summarized recent invasive species research activities at the MRRI, including the following: 1) field surveys to document the spread of the red swamp crayfish, *Procambarus clarkii*; 2) assessing the potential for *P. clarkii* to act as a vector for white spot syndrome virus; 3) potential hybridization between *P. clarkii* and the native species, *P. troglodytes*; 4) hybridization between native red eye bass and Alabama bass; and 5) development of an eDNA tool for

snakehead. Collaborations between the Shellfish Research Section and the Genetics Research Section at the MRRRI continue to yield productive invasive species research insights.

Peter Kingsley-Smith completed the evaluations of graduate student presentations at the recent virtual National Shellfisheries Association Annual Meeting through his role as Co-Chair of the Student Endowment Fund Committee. Two students will be awarded the Thurlow C. Nelson Award for Outstanding Oral Presentations which comes with two years of paid membership to the Association.

Aaron Watson reviewed a manuscript for the journal "Animals".

Progress Report and Activities

Coastal Research Section

Two College of Charleston graduate students: Rebekah Ravago (Major advisor Marcel Reichert) and Brandon Reding (Major Advisor Walter Bubley), started their MS thesis research with the Section. Rebekah will focus on using the Near Infra-Red equipment to age Black Sea Bass and White Grunt using scales. Brandon will examine modeling of natural mortality in reef fishes.

As a member of the South Atlantic Fisheries Management Council's Scientific and Statistical Committee (SSC), Walter Bubley attended the SSC meeting via Webinar on April 27-29. Marcel Reichert, Tracey Smart, and David Wyanski attended all or part of this meeting as observers. The SSC reviewed the recently completed Red Snapper, Gag, and Golden Tilefish stock assessments, and reviewed drafts of the ABC control rule amendment.

We requested and received an extension of our Letter Of Acknowledgement (LOA) for the Reef Fish Survey (MARMAP and SEAMAP-SA) and the Coastal Trawl Survey (SEAMAP-SA) through June 30, 2021. Marcel Reichert is working with staff at the NMFS Southeast Regional Office on the LOAs for the new 5-year grants.

Marcel Reichert submitted one year no-cost extensions for the current 5-year MARMAP and SEAMAP-SA grants on April 20, 2021. Both current 5-year grants end on June 30, 2021.

Marcel Reichert (PI), Tracey, Smart, Dawn Glasgow, and Walter Bubley submitted the paperwork for the new MARMAP 5-year grant, and the application is currently under review.

Walter Bubley (PI) and Marcel Reichert submitted the paperwork for a new deep water long-term longline survey (SADLS) and this submission is also under review.

The Annual SEAMAP-SA Progress Report was submitted to NOAA on April 20. We highlighted the impact of the COVID-19 pandemic in this report.

Dawn Glasgow, Marcel Reichert and Walter Bubley attended the Gulf of Mexico Fisheries Management Council's SSC meeting held via webinar March 30-April 2. During this meeting the GOM SSC reviewed the Gulf of Mexico "Great Red Snapper Count" report.

Dawn Glasgow attended the Habitat Protection & Ecosystem-Based Management Advisory Panel Meeting on April 14

Dawn Glasgow, Tracey Smart, and Kevin Spanik continued with SAFMC Citizen Science FISHstory photo fish identification validation.

Dr. Brothers at the NOAA SE Fisheries Science Center submitted an abstract for a presentation at the American Fisheries Society annual meeting held November 6-10, 2021 in Baltimore, MD titled Using larval transport models to evaluate marine protected areas in the U.S. South Atlantic region as potential sources of snapper-grouper recruitment. M.J.M. Reichert, M. Karnauskas, C.B. Paris, A.C. Vaz, N. Bachelier, C. Collier, N. Farmer, M. Le Hénaff, S. Lowerre-Barbieri, and K.W. Shertzer will be co-presenters.

David Wyanski and Kevin Kolmos attended another SEDAR Best Practices webinar. A standard template for reproductive parameters was discussed. Another webinar is scheduled for May 6th.

Kevin Kolmos trained six staff from various sections in the histology lab on April 14th.

Tracey Smart participated in The Nature Conservancy's (TNA) Analysis and Visualization of Ocean Resources in the Context of Offshore Wind Energy Development Steering Committee Kick-Off Call April 27, 2021. TNC will be developing an online spatial planning tool for the Southeast which will include Coastal Trawl Survey and Reef Fish Survey data to define species' distributions and persistence.

Reef Fish Survey (MARMAP and SEAMAP-SA): Preparations for the 2021 field season continued. The first cruise, scheduled for departure on May 3, was split into two legs (1a and 1B) because there are only three Palmetto crew left. We discussed concerns about safety going to sea with only 50% of a regular vessel crew.

We held a pre-season meeting on April 12 and Tracey Smart presented an overview of sampling schedules, procedures, work plans, and data issues. Staff discussed issues and refined fieldwork plans. On April 13 we had a call with our SEFIS counterpart to discuss sampling logistics. SEFIS will conduct their first cruise in the last week of April.

All otoliths and reproductive tissue samples collected by our Southeast Fisheries Science Center partner (SEFIS) in 2010 through 2019 were examined and the QA/QC was completed. The data were included in the Reef Fish Survey data base and provided to SEFIS staff.

Walter Bubley, Tracey Smart, and Marcel Reichert had a conference call on April 20 with Todd Kellison and Nate Bachelor to discuss collaborations with Dr. Will Patterson and assist him with the recently funded Red Snapper research (SARSRP). SEFIS agreed to assist Dr. Patterson with the paired sampling component to calibrate ROV video and chevron trap gear in 2021 and 2022 (SEFIS will deploy chevron traps while Dr. Patterson's team will conduct a video survey). SCDNR will assist in the field only where needed to complete this calibration. This was further discussed with Dr. Patterson in a follow-up call that afternoon (April 20). Dr. Patterson may have some funding available to support these efforts and we submitted a scope and budget on April 19.

David Wyanski and Michelle Willis conducted QA/QC on histological data from 31,100 specimens of 13 reef fish species (including Black Sea Bass, Red Porgy, Red Snapper, White Grunt, Vermilion Snapper, and Gray Triggerfish) collected by the Southeast Fishery Independent Survey (SEFIS), our SERFS partners at the SE Fisheries Science Center in Beaufort, NC. These histological samples were collected during sampling on the R/V Savannah and NOAA Ship Pisces in 2010-2019 and the processing, examination, and data management related to these samples involved most SERFS staff. Additionally, we have completed age estimates for ~41,000 specimens from 47 species from these same collections and Michelle completed QA/QC on age estimate data.

Data Management: Michelle Willis successfully uploaded and imported the 2018 RFS data into the online database. Jeanne Boylan is coordinating with the Georgia Department of Natural Resources staff for importing their 2020 Coastal Longline data into the online database.

Southeast Deep-water Longline Survey (SADLS): Walter Bubley and Marcel Reichert participated in weekly calls with NMFS Beaufort partners to further discuss final logistics prior to resumption of sampling scheduled to begin this month. The bid for northern and central Florida was awarded for sampling to begin this month. The bid solicitation paperwork for the remaining regions, covering from the NC/VA border to the Dry Tortugas in the Florida Keys, is underway for submittal. Walter also submitted the scope and budget for a new 5-year SADLS grant. The submission deadline was April 23 and the start of the new grant is scheduled for May 1, 2021.

Short Bottom Longline Survey (MARFIN): Protocols were finalized and the deepwater cameras were loaded onto the R/V Palmetto to conduct some pilot deployments during the first leg of the Reef Fish Survey.

Wreckfish: Tracey Smart and Kevin Spanik have completed age estimates for all Wreckfish for the project. Histological staging is ongoing of the remaining specimens. No more port sampling events will be taking place.

Life History Backlog project: Due to uncertainty with age estimates obtained from Gray Triggerfish spines and Vermilion Snapper otoliths prior to completion of an ongoing validation study at the SEFSC Beaufort, NC lab, Walter Bubley and David Wyanski were permitted to substitute outstanding unaged specimens of Red Porgy (~14,000) in the project for ageing.

Coastal Trawl Survey (SEAMAP-SA): Staff of the Coastal Trawl Survey loaded project gear on the R/V Lady Lisa and got her rigged for trawling for the first time since fall of 2019. The first operational window for day trips was Sunday, April 4 to Tuesday, April 6. Bad wind forecast delayed first departure until Monday morning April 12. A few minutes into the first gear deployment the main cable on the starboard side broke. The port rig was immediately retrieved, and much of the rest of the day was required to retrieve the starboard rig and get it and the cable back onboard. Fortunately, all gear was successfully recovered. Many thanks to Fred Dockery for operating the vessel and to Palmetto crew Chris Brown and JD O'Brien for their assistance with this cruise. Homer Hiers joined the Coastal Trawl Survey team during this cruise window. On Tuesday April 13, Pearse, Amy, Jonathan, Margaret Walker Finch and Homer got the jumbled trawl rig straightened back out and cables pulled off the winch in preparation for getting the cables re-spliced. Pearse is still working to get cable splicing scheduled for Friday.

Additional fieldwork Tracey Smart reviewed and revised the index of abundance manuscript she and Amy Zimney have been developing.

In-water sea turtle research: Mike Arendt submitted the one-year no cost extension for the CY2021 award which was approved by NMFS SERO. Mike Arendt completed edits to the Kemp's ridley population structure manuscript and re-submitted to co-authors and other in-house review. Mike learned that the \$10k vendor limit had been reached for Biomark and notified colleagues who also rely on this vendor for PIT (passive integrated transponder) tags for identifying unique individuals; three vendor quotes were subsequently prepared, and a requisition request prepared. Mike is also editing the loggerhead population structure manuscript for resubmission to Population Ecology by the late May deadline.

Diamondback terrapin research: Seven citizen-scientist reports of the year were received (two from March, not previously submitted), most involving hatchling/YOY emergence but also including road crossing, beach (live and dead individuals), and in-water observations; Mike Arendt thanked all respondents. Mike also assisted with identification of a regurgitated diamondback terrapin (DBT) hatchling found by Lauton Sutley (CRO) on Edisto Island, not far from where a citizen-scientist photo-documented a gull attempting to eat a DBT hatchling.

Coastal acoustic receivers (DJ): A field crew (Joseph Evans, Wiley Sinkus, Homer Hiers) attempted to upload acoustic receivers in Winyah Bay on 7 April but discovered that the public boat ramp was out of commission, and the looming tide change precluded launching at an alternative and unfamiliar location. Christopher Evans, Wiley Sinkus, and Homer Hiers swapped acoustic receivers (and riggings) on Charleston ATONs. One receiver was lost during the deployment that began in June 2020 and several other receivers recorded zero or low numbers of detections despite numerous “pings”, suggesting a noisy and/or turbulent deployment cycle. Scientific divers (Christopher Evans, Joseph Evans, Kevin Spanik, Catharine Parker, Wiley Sinkus, Greg Sorg, Matt Davin) uploaded 18 acoustic receivers across three arrays between 23 and 28 April; one receiver (CHS S1) could not be located after multiple attempts. Mike Arendt prepared and submitted the FY22 DJ proposal, budget narratives, and other forms for further processing prior to the May submission deadline.

Mitigation Reef Monitoring: Christopher Evans and Homer Hiers deployed baited video frames from the R/V Silver Crescent on 14 April under optimal filming conditions. Homer and Wiley Sinkus began video data review in late April, with a goal to complete by the end of May (around various other fieldwork). Only one of eight days with suitable tide windows for MitReef filming was able to be completed due to inclement weather; but hopefully diver surveys (critical for invertebrate colonization documentation) can be completed in mid-May.

Stock Assessment activities: SEDAR 68 Scamp Research Track: Walter Buble, Tracey Smart and Marcel Reichert attended an assessment webinar on April 19. The panel discussed model configurations and progress on model development. The SEDAR 73 Red Snapper operational assessment, the SEDAR 66 Tilefish Standard Assessment, and the SEDAR 71 Gag standard assessment were completed. Several Section staff review drafts of the Stock Assessment Report, and the SSC reviewed these assessments during its spring meeting this month.

Ecosystem Research Section

SCECAP/NCCA: Staff sampled 42 sites in the summer of 2020 and samples are being processed. Kim Sitta and Denise Sanger have sorted 30 of the NCCA samples out of 33. Catharine Parker and Norm Shea have sorted 21 of the 51 SCECAP 2020 samples. Joe Cowan is identifying the benthic species in the NCCA macrobenthic samples and has completed 28 so far. Catharine Parker is identifying the benthic species in the SCECAP samples and has completed 18. Andrew Tweel is working with our DHEC partners to prepare for the 2021 season. A NCCA Quarter 3 report was submitted to DHEC. We are evaluating the SCECAP program and the number of sites needed to sample each year as well as how many benthic samples need to be collected. Sharleen Johnson conducted a suite of analyses to assess these two concepts. Andrew Tweel and Denise Sanger met with our DHEC partners to discuss the summer sampling efforts. DHEC stated that we needed to collect the 30 samples each year to have a 95% confidence in the findings.

Shorebird Habitat Project: This project aims to quantify shorebird (piping plover, red knot) foraging habitat requirements through the assessment of benthic prey resources, fecal DNA analysis of diet (in collaboration with Genetics), and other geomorphic attributes. A workshop for beach communities and other stakeholder groups involved with shorebird habitat management was held on March 31-- we received good input from various stakeholder groups including beach communities. We have also added a citizen science component to the project, as Mark Andrews from Seabrook Island has volunteered to collect fecal samples and monitor the salinity of a popular foraging lagoon. He provided his first four samples last week. Two fecal samples were sent off for genetic analysis by Larry Bowman (Genetics). Andrew Tweel participated in the Science Collaborative virtual workshop on April 29th.

Kiawah Pond Project: The April sampling of the stormwater ponds was conducted on April 12, 2021 by Kim Sitta and Catharine Parker. It has been getting quite warm, water temperatures were between 20.5 and 23.7°C. There were no blooms in any of the ponds but DO levels were low in two of the ponds, TCPE (1.63 mg/L) and K 67 (1.88 mg/L). DO levels ranged between 3.28 and 6.60 mg/L across the rest of the ponds. We will be out next the week of the 26th for bacteria sampling. Kim Sitta and Catharine Parker sampled the 100 stormwater ponds on Kiawah for Enterococci levels from 26-28 April 2021.

Salinity Impacts to Benthic Community SWG: Benthic community analysis has revealed some interesting trends, some of which are consistent with previous assessments, along with some new findings. Species richness and the abundances of certain sensitive species were reduced in the highly impacted sites, which included altered salinity structure and increased pesticide loads. Norm Shea is nearly complete in determining the benthic biomass for key taxonomic groups at the 16 study sites. Sharleen Johnson has adapted the M-AMBI (index of integrity) for the benthic community analysis.

Myrtle Beach Reach 2 Area Monitoring: Sample processing and analysis are complete and the draft final report was submitted on April 15th. There were several interesting findings resulting from the dredging monitoring. A shift from sand to finer material was observed, and this was followed by a large increase in opportunistic polychaetes, a decrease in community diversity, and a reduction in bivalve abundance. The bivalve abundance was reduced through the end of the project, 21 months following impact. Community analysis followed a similar pattern, and the overall community indicators were similar across the impact and reference areas by the end of the study.

SECOORA: The Fort Johnson water quality site continues to collect high quality data. The datasonde will be swapped the first week of May by Sandra Upchurch. Sharleen Johnson, Joe Cowan, and Norm Shea conducted a harbor transect water quality sampling event on 23 April 2021.

ACE Basin NERR: Nicole King calibrated and Saundra Upchurch post-calibrated the 6 YSI datasondes as required by the NERR system. Kim Sitta and Lauton Sutley swapped all six sites with calibrated datasondes on April 6th and 7th as well as the week of April 19th in association with reading the spring quarter SETS at Jehossee Island and Edisto Island. Nutrient samples were also collected on the 6th of April and the ISCO successfully collected nutrient and chlorophyll samples at St. Pierre over the two days. Saundra Upchurch, Denise Sanger and Kim Sitta processed the chlorophyll samples. Kim Sitta shipped the nutrient samples to CBL for analysis. Kim Sitta visited Bennetts Point field station to download the weather data as well as visit the Mosquito Creek water quality site with the help of Jessica Kinsella. Saundra Upchurch and Nicole King prepared the 2020 annual water quality files. Denise Sanger reviewed and submitted the 7 water quality data files with over 220,000 lines of data as well as the associated metadata. Kim Sitta has prepared the annual meteorological data file and metadata as well as the quarter 1 MET data and metadata for 2021. Denise Sanger reviewed them and submitted them early to the CDMO. Saundra Upchurch prepared the quarter 1 2021 water quality data and metadata files. Denise Sanger is reviewing them for submission by May 3rd.

Denise Sanger and Gary Sundin participated in a NERR Marsh Drone project meeting on April 13th. Saundra Upchurch participated in a NERR Marsh Synthesis Webinar on April 13th. The ACE Coordinators met to discuss the ACE NERR research priorities for the Margaret Davidson Fellowship and the NSC Research Priorities. Denise Sanger is also working with the SE regional NERRs to explore a shared Fellow. Denise Sanger worked with Michael Kendrick, David Whitaker and researchers from USC and CCU on a NERR National Science Collaborative proposal focused on white and brown shrimp. Denise Sanger participated in a call with the Kiawah Island Resilience specialist and other researchers at the NI-WB NERR to discuss marsh monitoring and the upcoming marsh capacity building effort.

Miscellaneous: Andrew Tweel is participating in the SC Environmental Awareness Award Committee and 19 nominees were under consideration. The Committee met to discuss the candidates and a recipient was decided on April 17. Peter Kingsley-Smith and Denise Sanger met with Mary Lucas regarding FOIA and sharing of data. Nicole King had a healthy baby girl last week. Denise Sanger participated in a Regional Sediment Management (RSM) discussion with other DNR representatives (Lorianne Riggins and Katie Luciano) and Army Corps of Engineer staff to discuss the future direction of the RSM effort. It was discussed that instead of trying to develop a full RSM plan for SC that we would instead focus efforts on the Corps exploring the potential of getting dredge material for some of the DNR waterfowl impoundments which are in need of sediment. Denise Sanger also spoke with the Corps about the Corps requesting support to explore a Thin Layer Placement option for SC that we could then find funding to monitor. The full RSM group met on March 31st to discuss the change of direction and the full group is continuing to meet and talk about shared interests related to sediment resources. Kim Sitta prepared a SOP for shipping dry ice for the Safety Office. Tom was very appreciative of her preparing the document in a very clear and illustrative format. He has been able to easily send the document for other staff to follow. Andrew Tweel, along with SRS staff and Evan Cook, participated in the SRS-led pre-nourishment characterization of Crab Bank on April 26.

Estuarine Finfish Research Section

Acoustic Receivers: Due to dock maintenance at Fort Sumter, section staff were forced to remove a hydrophone (passive acoustic receiver) at the location on April 15. This hydrophone is part of a USC-Beaufort led project looking at the Charleston Harbor Estuarine Soundscape, with section staff providing a supporting role. Dock repairs are on-going and staff are working with USC-Beaufort, the National Park Service, and Spirit Line Cruises to minimize the disruption to this receiver.

Age and Growth: Staff worked with a recreational fishermen to obtain samples from a potential new state record spinner shark. Staff worked with the fishermen to dissect the animal over phone video, and staff later picked up the samples (reproductive tract, and vertebrae samples) in the upstate.

American Eel: The American Eel life history project final report has been submitted. Next steps include a meeting with Diadromous fishes to go over research and findings. Staff are also working with the Crustacean and Shellfish Research and Mariculture Sections to solicit letters of support for a proposed Sea Grant project to look at the distribution of *Anguillicoloides crassus* larvae in planktonic samples.

Atlantic Menhaden: A joint meeting of the Atlantic Menhaden TC and Ecological Reference Point Committee was held 3/30. The meeting was convened to discuss how spatial dynamics could be incorporated into the assessment of Atlantic Menhaden and the multi-species ecological model to better inform spatial allocation of quotas and better predict the impact local depletion may have on Atlantic Menhaden and menhaden consumers. Much of this question arises around the validity or need for the Chesapeake Bay cap on harvest - whether it is needed at all, is adequate, or needs to be reduced to provide sufficient forage for Chesapeake Bay finfish and avian predators. Staff also participated in an Atlantic Menhaden Plan Review Team meeting on 4/15 to review annual compliance reports. While no major compliance issues were identified, the PRT continued to stress the need to look at the current Atlantic Menhaden allocation model as more of the resources seems to be available in the Gulf of Maine in recent years.

Bonnethead Post-Release Mortality Study: Work will begin at the end of the month. Tags for trawl-based trips have been transferred to our collaborators at Georgia Southern. An hourly employee, Emily Sapp, has been hired to work on this

portion of the project. Tags for the recreational portion have been ordered and sampling will begin at the end of the month. Staff have submitted the semi-annual report.

COASTSPAN: Gear construction is almost complete and sampling will begin at the end of the month. The first day (and only day scheduled in April) of the field season occurred on 4/27 in Bulls Bay with a somewhat rare catch of an 8 ft sand tiger shark in the net (released in good condition) as well as the earliest recorded sandbar pup with umbilical remains (newborn, likely 1-2 days old). The previous earliest date in past years was 5/10, though a sandbar pup with a fresh/open umbilical wound (likely 3-4 days old) was caught on 5/1 one year.

Diamondback Terrapins: Staff were able to support Diamondback Terrapin research by collecting 15 adult female Diamondback Terrapins as brood for this year's hatching program during sampling in the Ashley River. We also attempted collecting females in Port Royal Sound, but were unsuccessful there. Inshore staff will continue to collect mature females throughout the May in support of these efforts. 21 females will be assessed for egg development over the next several weeks. Oxytocin has been delivered so induction will begin when there are females with suitable clutches.

Dive Operations: Michelle was scheduled for 5 days of diving with the CRA project in April, though all days were not made due to weather and choice of alternative dive days.

Electrofishing Survey: All four strata scheduled to be sampled during April (Winyah Bay and the Combahee, Edisto and Cooper Rivers) have been successfully surveyed.

Estuarine Trawl Survey: Stations in Charleston, North Edisto, Saint Helena, Port Royal, and Calibogue estuaries were completed April 20-23. Data were collected on finfish at 18 of the 24 stations sampled, this includes the addition of fish workup at 3 southern stations which historically have only been sampled for shrimp and blue crab. Catch of Whiting was above the long-term average, while catch of weakfish, spot, and croaker were similar to the long-term average. Fish workup was conducted by Katie and Elizabeth at all southern stations, and by Katie and Brock at the Charleston stations. Brock is currently being trained on data cleanup, sharing, and entry into the database.

Laboratory Safety: Katie, Maggie and Michelle have been discussing lab safety tasks upon Katie and Maggie's departure. Michelle in the short-term will assume all lab safety responsibilities for the section with respect to section lab safety and as a representative of the group for the histology suite. Michelle and Maggie have completed their respirator training.

Microplastic Studies: Staff participated in a call with CofC Co-PIs to plan initial sample preparation and analysis. Following the call, staff have scheduled lab protocol training in early May with Gorka's lab. Thus far, approximately 100 samples of mixed specimens have been collected in support of this project.

NIR Spectroscopy and Fish Ageing: Michelle is scanning Red Drum otoliths with a cover to compare to uncovered scans. Staff participated in a NIRS update meeting with Michelle Passerotti as she is wrapping up her PhD. Michelle P. continues to offer assistance on NIRS related activities. Staff are also working with Bruker representatives to receive additional training on the analysis of spectra.

Semi-Annual Reports: Staff submitted semi-annual reports for SK bonnethead life history and CRP spinner shark stock structure and life history grants. Staff are currently preparing reports for the HMSRI bonnethead post-release mortality study, and providing content for the SEAMAP annual report.

Red Drum Stock Assessment: Progress continues on the Red Drum Simulation Assessment. Simulated populations (500) have been finalized under five different project scenarios and data are now being provided for assessment model development. Three types of models are being developed, with some preliminary metrics from a traffic light approach being presented during progress calls.

Reproductive Studies: Maggie has finished her reads of 2017 spotted seatrout (n=280) and is working on 2018 spotted seatrout. Katie updated the macroscopic maturity guide by adding certain phases of red drum and southern flounder. Katie trained Maggie on histology slide label set-up and printing. Michelle emailed training documentation and literature to Mariculture staff to prepare them for histology training.

Trammel Net Survey: Sampling of all scheduled strata were completed in March. All five scheduled trammel strata (Ashley, Port Royal, Winyah, Charleston Harbor, and Romain Harbor) have been completed in April.

Misc Shark Research: Two days were spent longlining in St. Helena Sound targeting sand tiger sharks for a collaborative research project looking at reproduction and genomics of sand tiger sharks. Sampling was successful, with 12 sand tigers captured, 6 were males (target sex) and reproductive samples (semen) were acquired from these individuals for captive breeding studies as well as genomic research.

CRA Diving: Michelle is scheduled for 5 days of diving with the CRA project in April.

SC Aquarium Dolphin Survey: Michelle and Katie co-captained the dolphin survey on April 6 and 20. S. Harris will be assisting with the dolphin survey upon Maggie and Katie's departures.

Online Courses and webinars: S. Harris attended the BGI genomics seminar on Metagenomics. Cameron completed the Hazardous Shipping Training course and can now serve as a backup in Tom's absence. Several staff attended a webinar entitled "Metabolomics for Biomarker Discovery Research: from discovery profiling to candidate validation" on April 27th, 2021 as well as a USAS sponsored webinar on in-pond raceway technologies on April 23rd.

Graduate Students: We continue the process of incorporating two new College of Charleston graduate students into our EFR family. Their major advisor and potential committee members participated in a preliminary proposal of their planned thesis research at the College of Charleston. Details for the projects are being developed with current focus shifted to proposal development and oral examinations.

Weakfish Management: Weakfish Management Plan for 2020 is being finalized by the Plan Review Team (Erin Levesque – TC Chair).

Yellow Perch UWM Collaboration: Processed 21 yellow perch liver samples from a feeding trial conducted by collaborators at the University of Wisconsin-Milwaukee (under contract with SCDNR) to evaluate the effects of different levels of carbohydrates (wheat and corn flour) in feeds on yellow perch hepatic metabolite profiles. Acquisition of NMR spectra has been completed and NMR-based metabolomic analysis is ongoing.

Terrapins: 15 terrapins have been collected in April from the Ashley River for egg collection and nest “planting” in a residential site (where nesting occurs each year) and in a natural site also where nesting is documented. 21 females will be assessed for egg development over the next several weeks. Oxytocin has been delivered so induction will begin when there are females with suitable clutches.

Cobia: Food and Beverage Tournament is scheduled for around June 9. WMC staff will attend to collect samples pending approval to attend. The MRRI OWL 6 Cobia family volitionally spawned 4/12/2021 however the entire spawn (4.5L) was unfertilized. Ponds are being prepped at WMC for future spawns from MRRI and WMC through either volitional or hormone induction methods. Justin Yost reached out to a tournament director for a cobia fishing tournament in Jacksonville to gain insight on the North Florida late winter/spring fishery and provided him with a digital copy of the cooperating angler poster so distribute to cobia fisherman in that area. This area has very limited number of samples so any additional fin clips will be extremely valuable. Broodstock have been rearranged at Waddell to create three new genetic families for the 2021 season. Well-developed oocytes and expressible milt were observed in some broodfish. 343 juvenile cobia (approximately 95 g; 250 mm TL) have been stocked into an S-pond at Waddell. One female cobia with well-developed oocytes was caught and retained during the first day of fishing for the season on 4/28/21. Artemia will be ordered for pond production of cobia juveniles to begin in a couple of weeks. The section donated 3 large adult cobia and 10 smaller juveniles to the Charleston aquarium on 4/20/21. Staff brought 2 male cobia from WMC to MRRI to add with the one larger female in the OWL. The NWL Cobia family has volitionally spawned once already this year and appears to be preparing for another volitional spawn within days.

Cobia CRP: The satellite tag that wasn't responsive has been replaced and painted with anti-fouling paint. A new tether has been made and it is ready for deployment. New tagging and recapture information for cobia was updated on Dropbox. Collaborators in FL successfully satellite tagged a larger cobia. Tag scheduled to remain on the fish for over 300 days. Gear and tackle ready for tagging cobia off Charleston starting in the next week.

Cobia Sex Determination: Sequencing is now in the final QA/QC stages and should be returned to us soon for analyses.

Cobia eDNA: Staff have begun processing the eDNA filters from the accumulation/degradation tank experiment in HML (Dec 2020) along with control filters and environmental samples taken in Feb 2021. Staff have established a standard curve for the Cobia eDNA probe reaction and have ordered synthetic DNA to further understand/characterize the sensitivity of the tool to single/few copies of Cobia DNA. Genetics staff met to discuss and define an SOP for field eDNA collections from the boat. Field sampling days have been scheduled for May; the first eDNA sampling day in the Broad River is planned for 4/30.

Cooperating Angler Program: New cooperating angler posters have been printed and staff has begun placing them in tackle shops and other popular fishing locations to gain more participation from recreational anglers in our genetics program.

Red Drum: Two adult red drum were sacrificed due to infection/bacteria issue. Carcass were given to inshore for gonad and otolith removal.

SC Sea Grant Brewery By-Product Evaluation: Monthly samples from the three collaborating breweries continue to be collected and processed for metabolite, proximate, amino acid, and fatty acid profiles. Staff have processed brewery by-product samples from the three Charleston local breweries for the Sea Grant project to prepare them for NMR analysis. Feed formulations for the digestibility trial portion of this project have been completed and ingredients are being ordered.

UWM Metabolomics Collaboration: Staff processed 21 yellow perch liver samples from a feeding trial conducted by collaborators at the University of Wisconsin-Milwaukee (under contract with SCDNR) to evaluate the effects of different levels of carbohydrates (wheat and corn flour) in feeds on yellow perch hepatic metabolite profiles. NMR-based metabolomic analysis of these samples has been completed. The last invoice for contract between UWM and SCDNR was submitted to UWM.

Red Drum Natural Feeds Metabolomics: Started processing red drum liver samples collected over the course of the 12-week natural diet component feeding trial (David Klett's thesis project) for NMR-based metabolomic analysis. The results will be summarized in a manuscript for submission later this year.

SRAC Artemia Replacement: Two groups of pigfish larvae from separate spawns have been successfully cultured without Artemia and have almost completed metamorphosis. A third group is also over a week away from metamorphosis and have been cultured without Artemia. Replicated trials with one group of larvae will be completed next week and allow comparisons of graded levels of Artemia replacement on growth, survival, and other parameters. Data collection for 2021 is complete. Results from the first year will be presented during the EFR meeting on May 3rd.

Tripletail: No volitional spawning has been observed yet among the one tank of tripletail broodfish. Broodstock have been rearranged at Waddell so that there are now two potential populations to be observed for natural spawning during the year. The collection permit for acquiring tripletail in Florida has been approved. Trips will be scheduled as collectors deem high success is possible. Additional collection trips may also be scheduled with Georgia DNR during the year as tripletail start showing up along the coast.

MRRRI Mariculture Facilities: A leak discovered in the temperature control plumbing in NWL 3 has been fixed. Temperature control electricity and controllers completed in new system in OWL. Fixing the copper plumbing leak is the final step until system completed. A new -80 freezer is now located in Lab 8 for MRRRI-wide use. The hot water line controlling temperature regulation in the NWL was fixed with the assistance of maintenance. All systems are at desired temperatures.

WMC Mariculture Facilities: Electrical is completed for the heating/chilling system. Plumbing still needs to be completed for it. Valves have been ordered and some arrived for the emergency oxygen systems. Construction of those systems will begin this week.

Spotted Seatrout Mariculture and Stock Enhancement: Work is continuing on the individual-based-modelling Sea Grant project for seatrout populations, incorporating genetics and demography. Genetics staff have completed the genotyping and data analyses of the 2018 pond samples; a report has been completed. Collation of life history data for the model is ongoing. The single tank of male and female spotted seatrout in the MRRRI OWL has begun volitional spawning multiple times a week.

Shortnose Sturgeon: Our collaborators at WVU are continuing to screen putative informative loci for our panel development. Project PIs met with NMFS award monitors for our newly awarded shortnose sturgeon aging project to address reviewer and budget questions. Revised documents have been prepared and submitted to the agency for project processing and final approval.

Bartram's Bass: Data analyses to evaluate population structure within the Savannah Basin are ongoing and a presentation was given at SDAFS.

Striped Bass: Genetics staff are continuing to genotype the 2020 Striped Bass samples from NCWRC.

White Seabass Genetics: Staff are continuing to isolate DNA from otoliths and genotyping field samples.

Crayfish Genetics: Genotyping of field samples with the new microsatellite marker panel is ongoing.

Snakehead eDNA Tool Development: Staff have begun working on the development of an eDNA tool for detecting presence of multiple invasive snakehead species. Museum collection specimens have been received and testing of the proposed eDNA tool has begun.

WSSV: Genetics staff have completed isolating shrimp samples for testing for WSSV. A report has been prepared and proofed for samples that have been processed to date.

Carolina Heelsplitters: Genetics staff are continuing to coordinate with Clemson collaborators to start work on a project to genetically identify glochidia present on fish gills. Staff are collaborating with Morgan Kern, state malacologist, to spearhead a population genomics study on *L. decorata*.

Robust Redhorse eDNA tool: Work has begun on the development of a Robust Redhorse eDNA tool for detecting presence of the species. Primers have been designed and are being ordered for testing.

Robust Redhorse Conservation Committee: Coordination is also ongoing for a multistate SWG proposal to continue our Robust Redhorse work throughout GA, SC, and NC.

ASMFC Cobia Contract: Staff are continuing sample genotyping.

Genetics Tissue Archive: A tissue request for diamondback terrapins has also been received from FLFWC.

Darters: L. Bowman met with Mark Scott (WFW), and Thomas Near to discuss projects and collaborations for delimitation and population assessment of Christmas, Hannukah, and Savannah darters. Work has begun on proposal preparation for a competitive SWG to address conservation concerns.

Sandhills Chubs: T. Darden is collaborating with Derek Crane (Coastal Carolina) and Mark Scott (WFW) on a competitive SWG proposal investigating movement patterns, population genetics, and barrier impacts on gene flow in the endemic species of concern.

Smallmouth Bass: Genetics staff completed the assessment of new broodstock for the Cheraw hatchery for hybridization levels with other black bass species to ensure responsible stock enhancement. An internal report has been completed.

Invasive species: Staff updated and submitted the SC State invasive species report; 2021 proposal for new funding was completed and submitted.

Genetics reagents: Staff have begun testing new Taq polymerase alternatives and have identified two promising candidates that have been tested on Red Drum and Striped Bass. The genetics lab has also begun replacing SLS loading buffer with formamide purified with Chelex resin due to a COVID-related reagent shortage.

HML Safety Committee: Safety reports for HML labs/spaces have resumed and were submitted for March and April 2021. J. Allen and F. Casu attended the HML Safety Committee meeting. Additionally, Fabio Casu and Jackie Allen met with Raluca (via Google meet) on 04/06/2021 to discuss sharing HML safety documents with HML partners (including SCDNR). An HML Safety document folder (within the Mariculture Safety folder (MRD intranet)) was created to store updated safety documents and signs/labels for DNR spaces at HML. Fabio Casu autoclaved full sharps containers found in F wing at HML for proper disposal.

Internal Proposals: Staff have been working on completing SRFAC, MIPI, DJ and SC SWG proposals for FY22.

GSARP: Several genetics staff attended the GSARP meeting on 21 April 2021.

SDAFS: Several staff also had the opportunity to participate in the 2021 Southern Division of the American Fisheries Society Virtual Annual Meeting. While most of the presentations focused on freshwater resources, there was a very informative Black Bass symposia with DNR staff well represented, a number of high quality student talks, and an American Eel symposia. Staff are also continue to plan for the SC AFS to host an in person meeting for the 2022 SD AFS Meeting in Charleston next January.

Staff: Katie Anweiler has an official end date with SCDNR of May 14. Maggie Jamison also announced her departure from the Inshore group after accepting a Wildlife Biologist III position with the SCDNR Office of Environmental Programs with her last day with Inshore Fisheries being May 1. We will miss both Maggie and Katie, but wish them the best in the next stage of their career. In anticipation of finding replacements, we plan to post both a Bio II and a Bio I position in May.

Shellfish Research Section

309 DHEC living shorelines contractual monitoring: Molluscan Research and Monitoring Section (MRMS) staff completed a progress report of 309 monitoring results through the 2020 monitoring season. This funding support is continuing through 2021, such that staff will continue to monitor living shorelines originally created through the 2015-2019 NERRS Science Collaborative project and continue to provide updates relevant to DHEC's regulatory guidance on the adoption and implementation of nature-based solutions to addressing shoreline erosion.

Unoccupied Aerial Vehicle (UAV) research: Gary Sundin attended a quarterly meeting of the SC interagency Drone User's Consortium (SCiDUC) in Columbia and helped provide training to several new and trainee drone pilots from law enforcement and the SC Forestry Commission. The next SCiDUC practice day will be held in Charleston and Gary has been working to find a suitable outdoor venue and time for the event. He has been collaborating with geologist Katie Luciano and GIS Manager Evan Cook on how to measure shoreline erosion at Pockoy Island. One goal of this work, led by archaeologist Meg Gaillard, is to assess the risks to archaeological and cultural resources on Pockoy. Gary participated in a call of a newly-formed informal SCDNR shoreline erosion working group, which will explore the possibility of combining various shoreline monitoring approaches and results across the Agency for mutual benefit.

South Carolina Oyster Demographic Assessment (SCODA) survey: Graham Wagner has continued to work with a historical oyster disease database, to make this database accessible and operable for use by USC graduate student, Deja Best (Geoff Scott, major advisor; Peter Kingsley-Smith advisory committee member) that hopes to use these data in her thesis project. The work will also benefit the MRMS section as it prepares to conduct a pilot oyster disease study this summer. SRS staff participated with Shellfish Management Section staff in a call about approaches for managing stage shellfish grounds (SSG). Graham Wagner has begun working on SSG harvest limit estimates using existing SRS data.

NMFS Community-Based Restoration project: In late March, MRMS staff completed a restoration oyster reef build using several types of manufactured wire reef (MWR) designs at Charles Towne Landing state park. Staff also completed monitoring of the previously-installed coir log reef at this site. Gary Sundin provided materials to Clemson staff. SRS staff continue to build and cement coat MWRs as well as repurposed crab traps (RCTs) for the project. On April 27, with the aid of 9 volunteers from MUSC and the local chapter of the Sierra Club, SRS staff completed a 150-long MWR and repurposed crab trap (RCT) reef build at Brittlebank Park in downtown Charleston. SRS staff completed pre-monitoring activities at Patriot's Point. Staff (primarily Gary Sundin) completed and submitted the semi-annual progress report for this project, covering activities from October 1, 2020 through March 30, 2021.

Dingell-Johnson / SRFAC funding: Graham Wagner began planning the field and lab work for a new oyster disease pilot study to be completed this summer using DJ funding. MRMS staff completed a restoration oyster reef build using MWRs and repurposed crab traps at Fenwick Island in the ACE Basin. The work was completed with the help of 8 volunteers from Dr. Caye Drapcho's Clemson Biosystems Engineering Class and was facilitated by biologist Matt King from the McKenzie field station. Biologist Tanner Malkasian has continued digitizing oyster reefs from historical helicopter imagery in the Adams Creek area.

Crab Bank Monitoring: The Shellfish Research Section (SRS) purchased a new unmanned aerial vehicle (UAV) for the upcoming Crab Bank Monitoring project. On April 26, SRS staff, with the aid of Janet Thibaut (SCDNR shorebirds), Evan Cook (MRD GIS Manager), Allyssa Zebrowski (Audubon Society), and Andrew Tweel (SCDNR ERS) completed the first pre-monitoring event at Crab Bank. The goal was to complete initial UAV mapping and sediment collection, well in advance of the fall start date, and to work out a successful approach to the monitoring going forward. The crew successfully established a temporary benchmark on the highest part of the island, collected 31 sediment samples along 5 transects, collected a plethora of survey-grade GNSS point data, and collected UAV imagery that resulted in imagery and elevation GIS products for 74 acres of intertidal habitat at a resolution of 1.7 cm.

Estuarine trawl survey: The monthly Estuarine Trawl Survey aboard the *R/V Silver Crescent*, that samples stations in the Charleston Harbor and Ashley River, was completed on April 23. Additional sampling at 20 stations south of Charleston in the North Edisto, St. Helena Sound, Port Royal Sound, and Calibogue Sound estuaries (a.k.a. the “south trip”) was completed on April 20-22, 2021. The catch of white shrimp for April 2021 was above average in all estuaries sampled and white shrimp size was near or above average in all estuaries. Black gill was only observed in a single sampled shrimp specimen. The prevalence of black gill is typically low in the spring. The abundance of white shrimp in March and April trawl sampling suggests that spring commercial landings will be well above average. Blue crab catch was below average in all estuaries except in Charleston, where the catch was similar to the long-term mean. The catch of weakfish, spot and croaker was similar to the long-term mean while the catch of whiting was above average. Temperature was similar to the long-term mean, while salinity was lower than the long-term mean.

Commercial shrimp: Provisional areas off the SC coast were opened to commercial shrimp trawling on April 26. Jeff Brunson is coordinating with staff from the Office of Fisheries Management to conduct preseason commercial trawls to collect data on white shrimp abundance and reproductive development to support decisions on the opening of the General Trawl Zone to commercial trawling.

Creek trawl survey: Creek trawl sampling was conducted in the Wando River on April 13 and in the Ashley River on April 14. Small numbers of brown shrimp (generally ≤ 30 mm total length) were collected in creeks off both the Ashley and Wando River, although blue crabs were only collected in creeks off the Ashley River.

Blue crab (adult and juvenile) salinity gradient potting survey: The salinity gradient crab potting survey was conducted on April 8 and 9 in the Ashley River. The total catch of crabs was below the long-term mean. Male crabs were collected at all sampling locations seaward of Poplar Dam Creek. Female crabs, all of which were immature, were only collected at sampling locations in the lower Ashley River. Juvenile crabs ranging in size from 29-54 mm carapace width were collected in the greatest number since August 2020.

Invasive species: The spring virtual meeting of the Gulf and South Atlantic Regional Panel (GSARP) on Invasive Species (Chair - Peter Kingsley-Smith; Research member - Michael Kendrick) was held on April 21, 2021. Peter Kingsley-Smith and Jeanette Huber attended the live meeting, while other staff members plan to watch the recording. Staff contributed updates to the South Carolina GSARP report which was submitted on April 7, 2021. In addition, the Aquatic Nuisance Species Task Force will meet virtually on June 28-30, 2021, at which Peter Kingsley-Smith will represent GSARP and Tanya Darden will present an overview of how her section has used molecular and genetic tools to address aquatic invasive species concerns in South Carolina.

Elizabeth Gooding has scheduled summer and fall island apple snail surveys to document the spread of the species in West Ashley, SC. Morgan Kern, SCDNR Freshwater Fisheries biologist, plans to join one of these surveys to collect any live Eastern floater, *Pyganodon cataracta*. Art Bogan with the North Carolina State Museum is interested in large *Pyganodon* lake forms and would appreciate some voucher specimens that may be used in an upcoming study.

Michael Kendrick and Elizabeth Gooding attended the EDDMapS Summit on March 31 - April 1, which included training tutorials and panel discussions for EDDMapS users. EDDMapS is a useful tool for documenting and illustrating the distribution of invasive species and is being discussed in the context of a new SCDNR webpage for public reporting of unusual wildlife observations (e.g., invasive and injurious wildlife).

Elizabeth Gooding received a report of Japanese mystery snails, *Cipangopaludina sp.*, from a Mount Pleasant resident on April 17. Staff collected specimens of the snails, took photographs, and contacted experts with the United States Geological Survey (USGS) to assist with the species identification.

Jeanette Huber collected gill tissue samples from preserved tiger shrimp, *Penaeus monodon*, specimens, which will be shipped to Justin Krol, a PhD student working with Ash Bullard at Auburn University. He will be analyzing these samples for the presence of white spot syndrome virus.

SERTC: Elizabeth Gooding completed requests for educational guides and posters, and provided Olivia Bueno with digital copies of these materials.

Horseshoe crabs: Staff conducted their first horseshoe crab spawning surveys of the season at Coffin Pt. (x2), Harbor Island, and Parris Island. Erica Connery (CRO) led a group of volunteers (including many CRO staff members) on surveys of one section of Coffin Point beach. Crustacean Research and Monitoring Section (CRMS) staff surveyed both

beach and marsh habitats and installed temperature loggers at survey sites to monitor sediment temperatures. Staff tagged over 150 horseshoe crabs from beach and marsh habitats.

Miscellaneous: Stephen Czwartacki resigned his position in the CRMS on April 1 to take a position with the Office of Fisheries Management Shellfish Management Section. The section is grateful for Stevie's many years of diligent work within the CRMS and wish him much success in his new position. Drs. Darden, Kendrick, and Sasson, and Jeff Brunson completed interviews for the recently posted Wildlife Biologist II position on April 16, 2021 and the request to hire the top ranked candidate has been submitted. Tanner Malkasian, Wildlife Biologist I with the Molluscan Research and Monitoring Section within the Shellfish Research Section, announced he will be leaving the Agency effective May 17, 2021 having been offered alternative employment as a project manager with a Boston-based company. We are grateful for all of his hard work over the past two years and wish him the very best for the future. With substantial oyster restoration and living shoreline research on the horizon, the section will be moving quickly to refill this position.

Graham Wagner attended a NOAA Marine Debris Derelict Fishing Gear working group meeting. Biologist Greg Rothman has begun prepping the MRMS section vessel for the addition of a new side-scan sonar unit to be used in an upcoming marine debris project. Daniel Sasson reviewed a paper for *PeerJ* about the diel and seasonal activity patterns of dung beetles. Michael Kendrick has agreed to review a paper in *Fisheries Science and Aquaculture*. Elizabeth Gooding has agreed to review a manuscript for *Marine Ecology Progress Series*. Michael Kendrick and Daniel Sasson met with Dr. Santangelo and his graduate student from Hofstra University about their project on horseshoe crab egg development in muddy sediments. Michael Kendrick met with Elizabeth Bullard, a graduate student of Joey Ballenger, to discuss her thesis ideas. Daniel Sasson worked with Michael Kendrick to put together an updated EPMS that covers the period of March 17 - August 31.

After a long and tenacious search for employment on the West coast, former SRS graduate student and section biologist Elizabeth Underwood has secured a shellfish technician position with the Suquamish Tribe Fisheries Department. Elizabeth will be assisting with a variety of field projects including clam surveys, clam seeding projects and larval crab surveys. The section is excited for Elizabeth after what has been a challenging past year for recent graduate students entering the job market. *Elizabeth was also recently awarded the 2019 Sandra E. Shumway Award for the Outstanding Student Paper Published in the Journal of Shellfish Research* for the following publication: Underwood, E., Darden., T.L., O'Donnell, T.P., and Kingsley-Smith, P.R. 2019. Population genetic structure and diversity of the invasive island apple snail *Pomacea maculata* (Perry, 1810) in South Carolina and Georgia. *Journal of Shellfish Research* 38(1):163–175. This award comes with a \$1,250 prize.

Office of Fisheries Management (OFM):

Commercial Shellfish Management; Culture & Mariculture Permits and State Grounds

Culture Permits and State Grounds

7 permit holders requested verification of legally required shellfish culture permit plantings for 8 permits during April. Through calendar year 2021, permit holders have requested planting verifications on 18 permits with 14 completing planting quotas for 2021. A total of 26,685 U.S. bushels (14,976.4 U.S. bushels for credit & 11,708.6 in overages) of shellfish seed, green oyster shell, clam cover or approved cultch, cultivation, or equivalent has been planted (846 BU on state or public grounds). The assessed planting quota for the state's 101 culture permits is 94,902.8 U.S. bushels after taking into consideration permit cancellations, acreage reductions or increases, boundary modifications and approved variances, leaving 79,926.4 BU (84%) left to be planted in 2021. Shellfish seed may be planted throughout the calendar year; however, by S.C. law (§ 50-5-940), cultch must be placed between 01 May and 31 August to receive planting credit.

Three permittees requested to add co-permittees in April. Two are approved and one is in process.

Four permittees submitted planting variance requests for artificial substrates which were approved.

One permittee requested a reduction in subtidal acreage which is in process.

One applicant of three was granted Conditional Approval status for an available culture permit area. Four more areas are still listed as open for application.

2 variance requests for use of alternate cultch were received, processed, and approved.

Lee Taylor assisted in one joint relay request.

Mariculture/Importation

Two seed inspections were conducted for clams imported from Cherrystone Aquafarms in Virginia. Staff found both shipments to be clean and pass inspection.

Three compliance checks were conducted in April. All were floating permits. Permits checked were M-703F, M-704F and M-138. All were found to be within compliance.

Mariculture staff updated the OPCON levels on the Storm Plan Document that is used for potential floating gear applicant guidance.

Updates to the Importation Process and Guidelines document to include testing requirements for larvae were completed.

Two indigenous importation applications were received. One for clams and one for triploid oysters. Mariculture staff created the 2021 Yearly Operations Plan document and disseminated it to all permittees that are eligible for summer harvest in FY 2021-2022. Staff will mail out yearly operations plans to all other permittees.

An application was received for floating gear in the Toogoodoo River. Mariculture staff has requested additional information from the applicants before sending to the SPC. Staff is still awaiting the additional information from the applicants.

The SCDNR shellfish mariculture webpage was updated and is live, to give the public more knowledge and understanding surrounding shellfish mariculture in SC and to allow a more robust public comment process for DNR.

SCORE – South Carolina Oyster Recycling and Enhancement

Shell recycling and planting; Recreational management

Shell Recycling

In the April recycling period, 2,335 bushels were recycled. The public drop off locations at Carrigg's Seafood, Ft. Johnson, Gilligan's Seafood – Summerville, Sol Legare Boat Landing, Murrels Inlet, and McClellanville Town Hall were emptied totaling ~1,204 bushels. There were 6 events serviced by SCORE totaling 285.5 bushels. The restaurant route contributed 846 bushels across 20 partner restaurants. One new partner restaurant was added to the restaurant route. The Shellmore at I'on has begun recycling from their raw bar. They anticipate recycling about 2 bushels a week. This restaurant was immediately handed over to a volunteer to service due to its location and lower contribution. The Washout, Crust Wood Fired Pizza, and Arts Bar and Grill have all had their final seasonal roasts for the 2020-2021 season. Their individual bushel counts were totaled, and each restaurant received a certificate of appreciation for their contributions.

Equipment maintenance continued during this recycling period. The ramp trailer for the barge had its tires rotated and the entire ramp surface had all rust removed and was repainted. The F-250 was taken to the Ford dealership for some electrical issues. Maintenance on the Indigo Princess continued from the last reporting period. More surface rust was removed from the davit arm, the barge itself, and the wheelhouse. Final coats of paint were put on every surface of the barge. A professional diver was hired to remove biofouling and inspect zincs. The route trailer had 4 tires replaced due to worn tread. The equipment trailer had welding work done to fix damaged tie down brackets and had two tires replaced. The Sea Ark was taken to the welder to fix cracks in the hull and to have floats added.

Stephen Czwartacki and Ann Clark Little met with Tim snoots to continue the construction of the recycling database. Data through March 2021 were added to the database and several small updates were made.

Volunteer Oyster Shell Recycling Program (Beaufort, Charleston, Greenville, Columbia)

A total of 286.25 bushels of oyster shell was reported as recycled across the 4 community-based recycling teams. The Charleston Shell Recycling Team volunteered 17 hours to recycle a total of 76 bushels of oyster shell and serviced two oyster roasts. The Beaufort Shell Recycling Team volunteered 40 hours to recycle a total of 95 bushels. The Columbia Shell Recycling Team volunteered 3.5 hours to recycle a total of 45 bushels of oyster shell. The Greenville Shell Recycling Team volunteered 42.5 hours to recycle a total of 70.25 bushels of oyster shell.

Shell Planting for State Managed Grounds

Michael Hodges and Stephen Czwartacki prepared purchase requisition requests for the rental of an articulating loader as well as a contracted trucking company to assist in moving large amounts of shell from quarantine locations to loading areas for this season's replanting of state shellfish grounds.

Paperwork for bid packages related to the purchase and delivery of 41,013 bushels of shucked oyster shell is set to close May 11.

Potential planting sites were scouted within the public shellfish ground in Green Creek off the Stono River.

Grant and Contract-funded Projects

Community Based Restoration

SCORE hosted thirteen volunteer events, during this reporting period, with 85 volunteers totaling 261 volunteer hours. These events included marsh grass seed plantings, manufactured wire reef fabrication, marsh grass plantings, trash sorting, and oyster reef construction. The final marsh grass seed planting events were hosted for with Charleston Waterkeeper, Americorps, South Carolina Aquarium Staff, and Y2O. Staff continue to maintain the marsh grass in the 3 Fort Johnson greenhouses. A total of 89 trays of marsh grass are growing in the three greenhouses (7,565 plants). Approximately 1,348 stalks of marsh grass were planted at the Wise Property on Earth Day. Three manufactured wire reef (MWR) fabrication events took place this reporting period with volunteers from Americorps, Bluffton Rotary, and CCA Bluffton Chapter. Coastal Conservation League placed 200 bags and sixteen MWR's to construct a reef at Shutes Folly. SCORE staff have completed processing all tray samples and are continuing to process bag and large scale planting samples. SCORE staff.

Ella DiPetto finalized a video highlighting the habitat benefits of oyster reefs. This video will be disseminated to K-12 teachers for use in their classroom.

Mitigation

Sampling of large scale planting sites, related to the Koppers Mitigation Project, have been completed for Pitt Street, Charleston Harbor 70C, Charleston Harbor 86A and James Island Creek 86B. Replicate ¼ m² quadrats were retrieved from all sites with volunteers from Americorps.

Miscellaneous

Stephen Czwartacki started April 2 as the Bio II for coordinating the SCORE Shell Recycling and Planting Program. Shellfish Management Section's SRFAC, DJ and MIPI fiscal year 2022 budgets were completed and approved. Ella Dipetto's last day of employment with the SCORE program was April 16, 2021.

Michael Hodges has ongoing communication in working with the Coastal Conservation League, Audubon-South Carolina and Pew Charitable Trust for the submission of a pre-proposal for funding through NFWF National Coastal Resiliency Fund. This 4-year project would focus on living shoreline installation and monitoring at 3 locations adjacent to the Beaufort River (Whitehall Park, Beaufort Naval Hospital and Cat Island). The Coastal Conservation League is taking the lead on submitting this pre-proposal.

Meetings:

Henry Davega and Ben Dyar attended a webinar for the State Mariculture Coordination Network which included mariculture regulators and extension personnel from other South Eastern States in order to facilitate communication and networking among State regulators.

Michael Hodges attended Windwood Farms Virtual Career Day and talk to students about what its like to work at SCDNR and be a shellfish Biologist.

Ben Dyar and Lee Taylor met with Southwith Associates, the DNR contractor for environment surveys, as well as TNC on continuing discussions for the implementation and funding for a recreational oyster harvesting survey as well as formulating questions for the survey itself.

Holly Kight-Sommers presented information on the SCORE Program at The Coastal Discovery Museum.

Christian Sergent completed the 8 hour driving class training.

Lee Taylor and Ben Dyar conducted a joint discussion with Shellfish Research Section regarding ways to determine maximum sustainable harvest levels for oyster populations within SSG's.

Ben Dyar met with managers for the ACE Basin NERR regarding potential inclusion of RFP priorities concerning shellfish management.

Ben Dyar attended the SOAR Shellfish Growers Resiliency Fund Webinar

Finfish:

STOCK AND HABITAT ENHANCEMENT PROGRAM

ARTIFICIAL REEF MANAGEMENT AND DEVELOPMENT

Artificial Reef construction this month consisted of the following deployments:

A fifty-foot-long aluminum hulled crew boat was deployed on PA-02, Little River Offshore Reef.

A 38-foot concrete hulled boat was deployed on PA-04, Ron McManus Memorial Reef off N. Myrtle Beach.

Twenty-two 4-foot diameter concrete culvert and a memorial structure in honor of Chris Carbone, founder and past president of the Seacoast Anglers Association, were also placed on this site. The memorial unit was sponsored by the Seacoast Anglers.

Nine Eternal Reef units were placed on PA-01, Little River Reef. Deployment of these memorial Reef Balls was attended by numerous family members.

Over 2000 pounds of concrete rubble was deployed on PA-40, Hunting Island Reef.

Five concrete structures, designed and built by Artificial Reef Program personnel, were placed on PA-41, the General Gordon Reef off Beaufort.

Three missing reef buoys were replaced this month, on PA-14, Georgetown Reef, PA-40, Hunting Island Reef, and PA-41, General Gordon Reef.

Statistics:

- Delinquent letters for late submission of March 2021 mandatory logbooks were mailed on April 19th, 2021 (217 letters) to license holders for Wholesale Seafood Dealers and For-Hire Charter Vessels for March 2021 reports not yet received by the April 10th, 2021 deadline. The affidavit list and action list for March was provided to Law Enforcement on April 30th, 2021.
- Several data requests were completed during this month for commercial data including the following annual species summaries: Overall landing by species grouping, and specifically on shrimp, sharks, cobia, crab, additionally, several comprehensive reports were submitted to NMFS associated with various grant funds that summarized the previous calendar and/or fiscal year commercial landing and ex-vessel value for fisheries landed in SC. SCDNR charter database also had data requests including specific species catch and effort for cobia and individual vessel catch and effort.
- Staff continue to gain information to determine eligibility for the second allocation for the CARES Act funds. The agency had great success with the first allocations of funds, which were distributed to the state's commercial fishermen, wholesale seafood dealers and for-hire fishermen if the qualified for hardship during the COVID-19 pandemic. The draft allocation plan was reviewed by OFM and Legal Counsel and will be submitted to NMFS for review and acceptance.
- Staff continue to work diligently to increase electronic data collections and efficiency for both recreational for-hire and commercial data. This will improve data quality and timeliness.

Commercial Trip Interview Program

- During the month of April, OFM Port Agents intercepted 12 commercial trips and collected 243 length frequencies along with obtaining 239 associated age structures from primarily snapper grouper species. Fishing activity was hindered by weather, and staff are seeing more boats leaving the dock, as May 1st is the opening of the Shallow Water Groupers.

Recreational Statistics Section Summary

- In the month of April 2021, OFM staff completed 48 APAIS assignments resulting in 566 interviews with recreational anglers.
- OFM staff began sampling horseshoe crabs at Charles River Labs to collect data for the ASMFC compliance report.
- OFM staff participated in an ACCSP Recreational Technical Committee call on April 13th.
- Additional activities during the reporting period included: working closely with commercial seafood dealers to ensure compliance with reporting, assisting the SCDNR oyster shell recycling and freezer program, distributing rules & regulations books and fish rulers to coastal businesses as requested.

Coastal Reserves & Outreach (CRO):

Public Outreach

Outreach to Coastal Residents and Visitors

- The Coastal Exploration Series is a series of public programs to inspire appreciation of our state's coastal wildlife and landscapes. Since April 2020, staff have translated this series into a virtual "Outside In" webinar series. In April, 391 viewers watched 4 webinars; South Carolina's National Estuarine Research Reserves, Fish Handling 101, SCDHEC MyCoast, and Turtles in South Carolina. 15 people attended an in-person Horseshoe crab tagging program on Harbor Island.
- Staff trained 4 Botany Bay Volunteers to participate in a citizen science project called Caterpillar Count, and volunteers continued to monitor the Biodiscovery rack and the Weather STEM station, and participate in monarch tagging.
- The Diversity Outreach Section focuses on the inclusion of underrepresented populations through translating and interpreting existing material, event planning and promotion to build relationships with these communities. In April, diversity staff archived messages and posts from the public, provided content on the SCDNR's Diversity Facebook pages for 2021 and assisted education, stewardship, and saltwater outreach with 3 outreach programs.
- Staff added another Saltwater Loaner Tackle Program Site at the James Island County Park Camp Store.
- 2 Saltwater Family Fishing Clinic Volunteers walked the James Island County Park fishing dock, helping answer fishing related questions.
- Five Saltwater Family Fishing Clinics were hosted in April. In total, 54 attendees participated and 14 certified SCDNR Family Fishing Instructors volunteered 85 hours. Clinics took place at Palmetto Island County Park, North-Inlet Winyah Bay National Estuarine Research Reserve, the SCDNR McKenzie Field Station at Bennetts Point with a combined tour of Bear Island WMA for Charleston Charter School for Math & Science, and Huntington Beach State Park.
- Through the Marine Game Fish Tagging Program, 11 active participants tagged and released 86 fish, primarily sheepshead, black drum, and red drum. Additionally, 80 anglers reported 93 recaptures. Of these recaptures, 85%

were re-released. Staff processed the tagging and recapture data, and rewards were mailed to anglers who reported recapture(s).

- Community members (28) volunteered to plant marsh grass seedlings as part of the From Seeds to Shoreline community salt marsh restoration effort. They will continue to help cultivate these plants until the summer, when they will restore areas of eroded salt marsh.
- Staff hosted an outreach event in partnership with the SC Oyster Restoration and Enhancement (SCORE) Program for the Coastal Conservation League. CCL members went on the Education Vessel Discovery with ACE Basin NERR staff to discuss the ACE Basin and living shorelines and helped SCORE prepare cages for a build.

Media and Communications

- In April 2021, media and communications staff launched its outreach campaign to collect public sightings of spawning horseshoe crabs on social media.
- Staff spent three and a half staff days in the field capturing multimedia of a horseshoe crab survey, saltwater recreational fishing imagery for the upcoming Rules & Regulations and a salt marsh grass planting volunteer event.
- Staff supported MRD by providing design, multimedia, and writing/editing services for five projects, including updates to the Sea Science publication series, the ‘Outside In’ webinar series and more.
- Staff worked to develop a package consisting of talking points and a fact sheet addressing the state legislature’s recent interest in incorporating SCDNR’s water resources staff into the SCDHEC restructuring plan.
- Staff compiled Saltwater Recreational Fishing budget requests into one document for distribution to the Saltwater Recreational Fishing Advisory Committee.
- Assisting OMO staff from Columbia, media staff spent a day capturing employee photos for the forthcoming employee directory on the redesigned staff website.
- Staff published one blog post: “Enjoy SCDNR Beaches & Islands? Take This Survey”
- Staff responded directly to 19 reporter inquiries on topics ranging from swarming clamworms to oyster farming.
- A total of 171 print, digital and broadcast media stories referenced division programs/staff in February, on topics ranging from jellyfish identification to the start of sea turtle nesting season (one story, about swarming clamworms, went viral and made up most of these hits, including national and international coverage).

Students and Teachers

- The Carolina Coastal Discovery Programs focus on conservation of the state's coastal natural resources, as well as relevant science standards. Aboard the Educational Vessel (E/V) *Discovery*, and on land, staff provide science investigations using field sampling techniques and equipment that echo current research methods. In April, 901 students attended school programs, field trips, and/or virtual marine science programs.

Support for Coastal Communities and Partners

- The Boating Infrastructure Grant (BIG) Program is a competitive US Fish and Wildlife Service program providing competitive funding for marina infrastructure to serve large transient recreational boats and provides access to recreational, historic and natural resources. Projects are considered public/private partnerships between the SCDNR, the US Fish and Wildlife Service, and the marina. In April, SCDNR was notified that all of our submitted projects for this year’s competitive cycle were selected for funding. This includes three Tier II proposals which total \$4.5 million dollars in federal funding to improve transient boater opportunities in Hilton Head Island, Downtown Beaufort, and Downtown Charleston. Each of these projects were funded at the highest level available. SCDNR competed against 8 other states and claimed 33% of federal funds available this year. Funding was also approved for infrastructure repairs and maintenance at an existing BIG facility.
- BIG Program staff and SCDNR Grants office staff hosted the annual BIG Workshop to meet with potential applicants and consultants to review the upcoming FY22 funding cycle and kick off the application season. This virtual event was attended by 22 individuals across the state including SCDNR staff.
- The Clean Vessel Act (CVA) provides USFWS funding to install and operate marine sanitary pumpout programs to divert overboard discharges and protect water quality. In April, Clemson Marina completed a renovation of their fixed unit pumpout system with Clean Vessel Act funding, allowing the facility to maintain pumpout operations and divert illicit discharges into Lake Keowee. In total SCDNR currently partners with 28 facilities in the state to provide low cost sanitary pumpouts to boaters.
- The Coastal Training Program (CTP) provides training, assistance, and resources to coastal decision-makers. CTP staff continued to participate in a working group of partners to develop a comprehensive living shorelines website.
- Staff continues to provide support and consult on Motus Wildlife Tracking Systems for various federal, state and private partners. In March, SCDNR assisted the Nemours Foundation, Harbor Island, Fort Moultrie, and Port Royal Sound Maritime Center, Spring Island Trust, Edisto Beach State Park, Audubon, Daufuskie Island, and Fripp Island with the construction, maintenance and data collection of Motus towers.

- Stewardship staff assisted the Shellfish Research section and 10 Clemson students to construct living shorelines on South Fenwick Island WMA.
- Stewardship staff assisted the Shorebird Research section and USC conduct a whimbrel tagging study.

Coastal Reserves

- ACE Basin NERR staff continue to maintain South Fenwick Island to provide habitat management and public access opportunities. Trails and fields were mowed, sprayed and cleared of invasive species. Staff continued to build firebreaks and prepare for controlled burning.
- Staff conducted controlled burns on South Fenwick Island. In April, they burned three burn plots totalling approximately 12 acres.
- Staff continue to monitor Chinese Tallow within the St. Helena Sound WMA and South Fenwick Island WMA.
- In April, staff distributed 5 camping permits for South Fenwick Island.
- In April, Capers Island staff issued 61 camping permits for 341 campers. Beach user surveys continue and the first sea turtle nest survey was conducted on May 4th. Trail maintenance is ramping up as we enter the growing season.
- In April, 12,407 people visited Botany Bay Plantation HP/WMA. Volunteers provided 216 hours of service, performing maintenance activities on the office building and property, participating in the Biodiscovery program, maintaining blue bird boxes, posting the beach to protect the shorebird nesting area, and providing public outreach.

Protected Species

- Fourteen sea turtle stranding events were reported in April (1 adult, 1 unknown and 12 juveniles); six greens, four Kemp's ridley, four loggerheads. One event included a fresh dead loggerhead turtle entrained in the hopper dredge Ellis Island currenting operating in the Charleston Shipping Channel as part of the Post-45 Charleston Harbor Deepening Project.
- Staff members continue to provide 24 hour on-call coverage of sea turtle hotline during the week, weekends and on holidays, as well as, picking up live turtles and carcasses as needed.
- Coordinator continues to work on QA/QC and data entry of historical nesting data into the database as time allows.
- Staff loaded an ATV on boat and transported to and from a barrier island for use by contract trapper in predator management activities and delivered additional ATVs to off-site projects.
- Coordinator and biologist completed the final transfer of materials from former necropsy lab space at HML to temporary space at CCEHBR.
- Coordinator and Biologist flew coastal survey with Law Enforcement which was the first flight since 2019 due to COVID-19.
- Staff attended pre-season online meetings with volunteer teams.
- Staff conducted a virtual online annual pre-season training meeting for the volunteer network.
- Staff delivered monitoring and protection materials to Permit Holders along the coast.
- Two new seasonal employees started: one in Charleston and one at our off-site project at Yawkey Wildlife Center.
- Staff conducted one turtle necropsy.
- Coordinator conducted an online interview with local ABC news regarding aerial survey.
- Coordinator attended a meeting with contractors regarding Folly Pier rebuild.
- Eagle Biologist provided technical assistance through emails and calls for eagle nest territories. Attended bald eagle website update meeting with Joes Lemeris and Amy Tegeler (Bird Program Coordinator).

WILDLIFE AND FRESHWATER FISHERIES

ASSISTANT DEPUTY DIRECTOR'S OFFICE

Completed administrative and budgetary tasks. Participated on interview panel for assistant business manager. Prepared special use permit for Donnelley and Bear Island. Investigated access road issue at Lake Long. Reviewed documents regarding conservation easement violation on property in Charleston County. Prepared and submitted documentation to Department of Administration (DOA) for preliminary approval of one property purchase in Horry County and another in Jasper County. Prepared and submitted documents to DOA for preliminary approval of land trade in Oconee County. Prepared and submitted documentation to DOA for final approval of property purchase in Laurens County. Prepared summaries on three real estate matters for consideration by the DNR Board. Accompanied State Comptroller General to examine access easement request on DNR land in Oconee County. Contacted consultant regarding asbestos investigation on structure at Bear Island and visited site. Continued work on six other real estate acquisitions. Spoke to landowner about property for sale in Horry County and to realtor concerning tract for sale in Sumter County. Spoke to Dominion Energy about potential relocation of power lines at Webb Center. Engaged in conversations with Naturaland Trust, The Conservation Fund, Open Space Institute, and The Nature Conservancy about potential/ongoing property acquisitions. Consulted with WFF staff on matters concerning Forest Legacy and State Wildlife Grants. Meetings and events attended: DNR Board meeting, WFF Advisory Committee meeting, Habitat Protection Committee meeting, SERPPAS meeting, Forest Legacy Program meeting, SC Conservation Bank meeting, State Fiscal Accountability Authority meeting, and conference call on status of DNR land acquisition projects.

SWG/Forest Legacy Coordinator

State Wildlife Action Plan (SWAP) Implementation & State Wildlife Grants (SWG) Coordination [Anna Smith]

Smith continued to read, edit, and upload interim and final SWG/C-SWG reports to the USFWS Grant Solutions website. The NFWF Monarch Butterfly and Pollinator Conservation Fund was investigated as well as the National Coastal Resilience Fund for FY21 and State of the Birds FY21. A Heritage Trust database analysis was completed for the Daniel Island parcel and a site visit conducted with Bradley on 3/31/21. Smith, Lemeris, Dillman, and Quattro had a conference call with SCDOT in regards to potential funding for mussel, bat, and crayfish field work on DOT rights-of-ways. Smith proofread Prosser's DOA forms for River Oaks and the Meyer Lake Tract NCWC projects. She also assisted Lucas with a media release on SC's 5 NCWC awards. The call for proposals for this year's regular SWG and C-SWG grants went out this month. Updated match letters for the NCWC grants were obtained. The Spence Pond tract was evaluated for a potential Recovery Lands Acquisition Grant for bunched arrowhead. Smith assisted a VTECH graduate assistant with climate change inclusion in state SWAPs (SC's was evaluated). Smith met with Moore and Berry at OSI in Charleston to discuss potential acquisition projects. Smith was invited to give a virtual presentation to the Beaufort County Rural and Critical Lands Program Board on SCDNR's grant programs utilized to protect lands. Follow-up questions were answered by email and relayed to the Board. Smith assisted Scot Clark with the Port Royal Cypress Wetlands Board with potential grant source information for continued upkeep of the project. Three examples of RAWA shovel-ready projects were provided to AFWA for their media campaign. The third and final NatureServe/AFWA Regions presentation on the SEAFWA-WDC Pilot Project (3 herps given regional ranks, mapped, and one habitat suitability model created). A discussion was had with Nemours and partners about a potential MOTUS tower statewide project. Carwheel Bay HP additions were evaluated and discussed. A C-SWG strategy call was had with GADNR about a potential project: "Development of dynamic databases and websites to make SWAP plans easier to update, monitor, and implement."

Forest Legacy Program (FLP) Coordination [Anna Smith]

A SC Forest Legacy Program report was sent to the SCFC for their records. Smith was a part of the Forest Legacy Capacity Team and participated in a two-day meeting to discuss positives and negatives about the program and solutions to them. A virtual dedication ceremony for the Liberty Hill Extension (Donut Hole Tract) was held as part of a larger USFS national presentation on 3/23/21. Smith presented photos and maps of the tract and explained its ecological importance.

Other Activities / USFWS Liaison [Anna Smith]

Smith conducted a Blueprint user test with SALCC staff to determine user friendliness of their website and map tools. Smith visited TNC's Driftwood Plantation to check the isolated wetlands for gopher frog egg masses. None were detected. As a member of the SEAFWA-WDC, Smith served on a subcommittee to investigate the idea of the

Southeastern states standardizing portions of their SWAPs for the next iteration. The subcommittee consisted of SC, NC, GA, and OK, as well as a representative from SECAS, Mallory Martin. Smith attended the annual meeting of the SEAFWA-WDC which was held virtually. Smith assisted Sabine and Waters with a preliminary RCW cavity check for a portion of Cainhoy. A subset of the SEAFWA-WDC had a conference call to discuss a potential multi-state or C-SWG grant for a plant RSGCN and NatureServe HSM project.

Summary of meetings attended / conference calls / webinars watched / training programs or workshops:

- SCDNR's Lunch and Learn Series: "Meet the Boats of MRD"
- Forest Legacy Capacity Team Meeting (3/3/21-3/3/21)
- SEAFWA-WDC Subcommittee call: Standardization of the SWAPs (3/8/21)
- SERPPAS CRRA Work Group Call (3/8/21)
- Webinar: SSA for Florida Pine Snake (3/9/21)
- Presentation to the Beaufort County Rural and Critical Lands Program Board: "SCDNR's Protection Strategy: Grant Utilization" (3/11/21)
- SEAFWA-WDC Annual Meeting (3/17/21-3/18/21)
- NatureServe/AFWA presentation #3 (4/19/21)
- Habitat Protection Committee meeting (3/23/21)
- MOTUS Tower conference call with USFWS, Nemours, Clemson University, SCWF, etc. (3/24/21)

Natural Heritage Database Program [Joe Lemeris]

Meetings:

- 3/3 – Lemeris attended the March NatureServe US section council meeting, which discussed habitat suitability modeling standards, network participation in model review processes, and various NatureServe updates related to BWB, etc.
- 3/5 – Lemeris, Arrington and Thachik attended a biweekly esri advantage program check-in call to discuss project updates, status, new technology, etc.
- 3/8 – Lemeris and Arrington met with esri development staff to be interviewed about how our agency would/could envision tools for collecting/maintaining/displaying trails data to the public.
- 3/9 – Lemeris attended the monthly SCDNR GIS webinar hosted by Arrington, which focused on migrating to ArcGIS pro.
- 3/11 – Lemeris and Arrington met with Esri staff to discuss next steps for evaluating if SCDNR is a good fit for an enterprise agreement for esri software.
- 3/15 – Lemeris met with esri staff to check in on most recent updates to species distribution modeling workflows.
- 3/15 – Lemeris attended a NatureServe Habitat Model Standard Data Management team meeting to discuss next steps for evaluating how NS should think about managing data provided by network programs to the network as a whole.
- 3/16 – Lemeris attended a meeting concerning the development of a DNR reporting platform for injurious and invasive wildlife (and plants). EDDMapS seemed to be a promising platform for use by SCDNR assuming the data can be used within internal ArcGIS environments.
- 3/17 – Lemeris met with NatureServe staff to plan out Sean O'Brien's (NS president) upcoming Van Tour stop in SC. The decision was made to meet at Lewis Ocean Bay Heritage Preserve on April 2nd to meet with press and film brief conversations to promote the heritage program.
- 3/17 – Lemeris met with Kern to discuss request to set up a landowner permission form/data manager for identifying properties willing to allow access to streams for mussel surveys.
- 3/19 - Lemeris, Arrington and Thachik attended a biweekly esri advantage program check-in call to discuss project updates, status, new technology, etc.
- 3/22 – Lemeris and Arrington met with esri staff to discuss interview questions for presentation during the quarterly webinar: 'Advantage Program Inside Track'.
- 3/23 – Lemeris, Arrington and Thachik met with esri staff to discuss kickoff activity for configuring a fishing/boating access public application.
- 3/23 – Lemeris met with staff from EDDMapS to discuss feasibility of bringing SC invasives data into our arcgis environments. They plan to develop this type of service over the next month and will report back.

- 3/24 – Lemeris and Arrington featured SCDNR/Heritage Trust GIS projects during the Advantage Program: Inside Track quarterly webinar and discussed how the projects have thus far met success in implementation of new technology.
- 3/26 – Lemeris met with Tegeler/Hope to discuss upgrades to a public bald eagle nest sighting form.

Project Progress Updates:

- Esri Enterprise Advantage Program Update:
 - Arrington and team are continuing to compile GIS data from across WFF to incorporate into a managed lands database. Continued tweaks/improvements have been made to the demo managed lands hub sites/applications.
 - An intern has been pulling/updating all boat/fishing related data into a central GIS dataset on our enterprise portal for incorporation into the managed lands dataset.
 - Distribution Modelling Workflows: all 5 modelling scripts have been converted to python and ensemble modelling scripts have also been created. Lemeris plans to validate these scripts/test them in the coming months.
- SCDNR/SCCB Joint position update:
 - Lemeris/Arrington continue to wait on SCCB to sign the MOU to contribute funding to a temporary grant position housed in the heritage program; they have been waiting until budgets are confirmed for their agency. The Position Description is ready to be submitted once the MOU is signed by both parties (which has been updated to reflect contact changes).
- **The Natural Heritage Hub Site has been viewed 750 times in March (10,000 since April), and 14 new users (total of 250 since April)** from state/federal/local agencies, land trusts, and private environmental consultants have requested/gained access to review species data and generate reports.
- **103 of 409** Users accessed the Heritage Trust GIS Portal in March, compared with 91 in February.
- **Over 140** new records were added to the database in March, comprising of a mix of freshwater mussel, herp, and plant records.
- **111 species reviews were completed automatically** using the new species reviewer tool for environmental professionals in March, compared with 77 in February.
- Lemeris continued to develop a number of web-based survey forms for various projects, including a red-cockaded woodpecker nest survey form/database, loggerhead shrike nest survey, and mussel survey landowner permission form.
- Lemeris worked with several partner agencies (USFWS, NCNHP, Atlanta Botanic Garden) to provide SC occurrence data for select species. These records will be used to support 5-year reviews, determinations, and range-wide field survey work.
- Lemeris initiated and continued work on several open Esri Technical Support Cases to better improve/identify bugs associated with various ArcGIS workflows. Patches have been installed and are being monitored to identify whether they may resolve persistent bugs with certain tools.
- Lemeris assisted various staff in the development of maps for projects, informational documentation, advisory board materials, etc.
- Turner (hourly intern) worked to georeferenced historic NRCS soil maps (provided by the UofSC Library) to incorporate into our ArcGIS environments. Cultural Heritage Trust staff use these maps regularly for identifying historic structure locations.

FRESHWATER FISHERIES

Region 1

Collected Smallmouth Bass from Table Rock Reservoir (Greenville Water System) for brood fish for Cheraw Hatchery. Staff assisted Region 2 and Cheraw Hatchery with SMB collections on Lake Monticello.

Staff collected Striped Bass by electrofishing on Lakes Thurmond and Hartwell.

Collected WTB on the Saluda River for brood fish for Bayless Hatchery to produce hybrid bass.

Responded to the Zebra Mussel emergency response by visiting pet stores in Region 1 and collecting infested aquarium moss balls for proper disposal.

Conducted emergency response on a fish kill in Cox Creek in Anderson County.

Constructed and deployed bamboo buckets as part of an ongoing Habitat Enhancement Project (HEP) in the Stamp Creek and Little River arm of Lake Keowee. This project is funded by the Duke Energy habitat fund.

Conducted gill net sampling to assess sportfish, including trout, populations in Lake Jocassee.

Modified a new electrofishing boat to improve electrofishing effectiveness.
Repaired electrical corrosion issues on an electrofishing boat motor and installed a new electrofishing boom.
Staff took creel boats to a mechanic for warranty repairs.
Aged Striped Bass and Black Crappie otoliths from Lake Hartwell sampling.
Biologists began developing a sampling plan for the Broad River in cooperation with staff from Regions 2 and 3.
Aged Smallmouth Bass otoliths collected during brood stock collection for Cheraw fish hatchery.
Staff attended High School Fishing Tournament at Green Pond boat ramp on Lake Hartwell. Handled fish caught by anglers and redistributed them in the lake at various boat ramps.
Continued work on the new Hartwell Fish Habitat Project permit. Prepared staging area, built artificial fish attractors, and marked trees to be cut and cabled along the shoreline.
Creel continued as scheduled on the Saluda River below Lake Greenwood. Creel biologist submitted a draft of the Lake Thurmond Creel Report.
Trout stocking was conducted on schedule. Stocked DH areas and mountain lakes. Hung new trout fishing regulation signs in Pickens, Oconee and Greenville Counties. Conducted trash pickup on North Saluda access to Goodwin Bridge and South Saluda at Wildcat Wayside.
Staff submitted the Federal Aid Annual Work Plan and Trout Stocking Plan and associated budgets.
Coordinated with Greenville Water System, Naturaland Trust and TU on the North Saluda stream restoration project.
Attended 8 Fisheries Coordinator conference calls.
Reviewed and participated in conferences with DNR-OEP and Region 2 to discuss reservoir drawdown at Neal Shoals.
Conducted a site visit of a stream enhancement project on Terry Creek in Greenville County.

Region 2

Staff prepared and submitted the February 2021 activity report, daily work reports, mileage & purchasing card logs to HQ as required.
Staff spent one day at Lake Monticello for SMB broodstock acquisition for Cheraw Hatchery.
Staff reviewed 20 Scientific Collection Permit Applications.
Staff participated in a Teams Meeting with Francis Marion University professors Jason Doll, Jeff Steinmetz, & the Chief's office relating to a possible joint STB project on the Great Pee Dee River.
Staff gathered, transported, and staged materials for fish attractor installation at Mountain Lakes 1 & 2. Sixteen attractor units (3 bamboo A-frames, 4 single pallet bamboo units, 6 PVC pin cushion units, & 3 Mossback units) were deployed for an approximate 0.1 acres of created habitat over 6 total days of effort.
Biologist Chrisman presented "Changes in Largemouth Bass *Micropterus salmoides* Population Characteristics in the Early Stages of an Alabama Bass *Micropterus henshalli* Invasion of Lake Wylie, North Carolina/South Carolina" at the virtual SC American Fisheries Society meeting.
Staff participated in 3 calls regarding zebra mussel infestation & provided initial reconnaissance at local pet stores relating to zebra mussel infestations of aquarium algae balls.
Staff expended 4 days of effort related to the reconnaissance, education to pet store personnel, removal of, & transport of exotic zebra mussel infested algal balls from Region 2 pet stores to Styx Hatchery for disposal.
Staff participated in a Robust Redhorse Technical Working Group Teams Meeting regarding RRH sampling for the 2021 season.
Staff participated in a Duke Energy Enhancements at Great Falls Reservoir Teams Meeting.
Staff expended 4 days of effort on the Great Pee Dee River for STB Abundance Index sampling.
Biologist Stroud prepared & submitted the 1st year's EPMS review for Fisheries Technician III Alex Michaeli. Paperwork to change Alex's supervisor to Biologist Chrisman was also submitted.
Staff provided maintenance of M41753 and the Honda ESM5000X generator for the spring electrofishing season.
Staff submitted the FY2022 Annual Work Plan with equipment requests to Assistant Chief Lynn Quattro.
Staff completed LMB sampling at Lake H.B. Robinson.
Staff completed LMB sampling at Lake Monticello in 6 days of effort, taking otoliths for age/growth studies. The Monticello Sub Impoundment was also sampled.
Staff participated in 8 conference calls during the month.
Staff provided for 3.50 miles of trail maintenance (litter pick-up & limb/brush removal) at Lake Oliphant, Chester County.

Two new sites for future concrete-rubble attractors on Lake Wateree were identified & documents forwarded to FERC Coordinator Elizabeth Miller.

Staff participated in a Duke Energy Neal Shoals Project Dewatering Teams Meeting.

Staff completed, reviewed, and submitted the FY20 Annual Progress Report to Assistant Fisheries Chief Lynn Quattro.

There were no weed identifications nor water quality tests conducted in Rock Hill during the month. In Florence, 4 weed identifications and 2 water quality tests were performed for pond owners.

One telephone pond consult was conducted at the Rock Hill Workstation (duckweed), and one fisheries information request was received from the public. Eighteen calls regarding fisheries information were received at the Florence Office with 4 of those calls being pond related. Constituents seeking fisheries information were served by Ginger Ridgill, Jason Marsik, or Gatlin Edge in Florence and by Robert Stroud or Preston Chrisman at the Rock Hill Workstation. Recommendations and pertinent pond management literature was disseminated as necessary via telephone, in-person, through the US Postal Service, or by email to pond owners.

Contact with NGOs: One.

Region 3

Standardized boat electrofishing was conducted at 8 sites in the Lower Saluda River to assess the trout population. Fifty rainbow trout and 29 brown trout were collected. One rainbow trout was a holdover, residing in the river for at least one year, the remaining fish were from this year's stockings.

Fieldwork for a study evaluating the seasonal distribution and summer habitat use of adult striped bass in the Edisto River continued. Four days of electrofishing were conducted in the lower Edisto River to capture striped bass for transmitter implantation. Three striped bass were collected one of which (940 mm TL) was large enough for transmitter implantation. Tissue was collected from all captured striped bass to genetically characterize the population.

Annual sampling of the Lake Brown largemouth bass population was completed with one day of effort. One hundred and thirty-seven largemouth bass were collected with a CPUE of 77.4 fish per hour. Otoliths and fin clips were collected from 50 largemouth bass. The otoliths will be used to determine age frequency and growth rate and, at a future date, fin clips will be processed as part of a statewide effort to characterize largemouth bass genetics.

Staff assisted with a statewide effort to collect moss balls, potentially harboring invasive zebra mussels, from area pet stores. With assistance from the Mussel and Aquatic Education programs Region 3 staff made in person visits or contacted by phone 48 pet and pet supply retailers within the boundaries of Region 3. Twenty-one of the retailers carried or recently stopped carrying moss balls. Moss balls were surrendered from 15 stores, six of those stores possessed moss balls infected with zebra mussels.

Along with Region 2 Fisheries Region 3 assisted Cheraw Hatchery with collecting smallmouth bass from Lake Monticello to replenish smallmouth bass brood stock lost to predation. Staff also assisted Region 2 Fisheries with standardized largemouth bass sampling at Lake Monticello.

During March two days were spent refurbishing 4 fish attractors at Lake Murray. Fish attractor refurbishment for Lake Murray was completed with 12 of 24 fish attractors refurbished during 2021. Three hundred Christmas trees were used in the Lake Murray habitat enhancement.

Staff completed enrollment in the Investigational New Animal Drug (INAD) program administered by the USFWS. Enrollment in the program is necessary to use the fish anesthetic AQUI-S. It is expected that using AQUI-S to sedate fish will expedite processing of fish during field experiments.

Staff provided pond management assistance to 9 pond owners involving queries on stocking, vegetation control and general pond management. Staff responded to several calls or emails seeking information on boat titling, wounded animals and fishing in Regional lakes and streams.

Region 4

Technical/Meetings

South Carolina Aquatic Plant Management Council

Staff participated in the March SCAPMC meeting. The main topic of discussion was reviewing and voting to approve the 2021 aquatic plant management plan. In addition to this, members of the public were given a chance to comment, all of whom voiced concerns over the stocking of Grass Carp and herbicide applications and the subsequent negative effects these have on the Santee Cooper waterfowl and sportfish populations. Region IV staff responded to these concerns with a summary of standardized sampling data from the past several years regarding Largemouth Bass, Striped Bass, and Blue Catfish populations.

Catawba-Wateree species protection plan review meeting

Duke Energy hosted an annual meeting to review their species protection plans. Among those on the list are the Robust Redhorse. Given that Region IV staff handle most of the RRH monitoring within South Carolina, staff attended this meeting to be aware of any changes to routine monitoring done on the Wateree system by Duke Energy.

Altamaha-Savannah ESU RRH meeting

Levi Kaczka recently agreed to serve as TWG chair for the Savannah ESU. Although the two populations are genetically distinct, overlap occurs for personnel of GADNR and SCDNR in terms of monitoring. As such, a joint meeting was held between members of the Savannah and Altamaha TWGs to provide updates of recent monitoring and to identify future research needs to be included in a potential new c-SWG proposal.

Field Work

Tournament data collection

Staff went on site for the weigh-ins of a two-day crappie tournament organized by Crappie USA held on the Santee Cooper system. Lengths and weights were recorded for all crappie weighed in over the two days and a subsample were retained for otolith extraction and ageing. Data obtained from the tournament will be analyzed over the coming weeks with the goal of filling in gaps on this system's harvestable-sized crappie population, primarily developing an initial length-at-age key.

Largemouth Bass Sampling

Annual LMB sampling on Lake Moultrie was completed during March. A total of 493 fish were collected across four sampling zones and 17 individual sites. This equates to a total pedal time of 8.5 hours and a CPUE of 58.0 fish/hour. The state lakes protocol will be utilized in April to perform similar sampling on Goose Creek Reservoir, which has not been sampled in at least 10+ years.

Lab work

Otolith sectioning

Staff sectioned and aged otoliths obtained from the aforementioned crappie tournament held on the Santee Cooper system. Data will be utilized as previously mentioned.

Other

Pole shed construction.

Staff completed construction on the DWC pole shed during March. The shed includes eight 10'x20' bays and two 20'x20' bays and will provide cover for boats on the Diadromous Fish Program project and Region IV FWF.

Work from home status

With the agency entering Phase 3 of re-entry during March all regional staff have returned to working on-site full time.

Statewide Research

Staff continued data collection for the development of a Stream Quantification Tool for South Carolina. Fish sampling was completed at 10 sites in March 2021, bringing the study total to 36 sites completed (study total target of 100). This study will provide the data for development of biological indicators to evaluate the effectiveness of stream restoration and mitigation activities in South Carolina.

We conferenced with collaborators in the Population Genetics lab on continuing efforts to characterize the genetic structure of Bartram's Redeye Bass populations and evaluate conservation strategies for this species. We continued collaboration with researchers at Clemson University on Bartram's Redeye Bass conservation studies including evaluation of non-native bass movement into tributaries and occupancy modeling of Bartram's Redeye Bass.

Staff presented a paper titled "Fish Diversity in South Carolina's Small Rivers" at the Annual Meeting of the SC Chapter of the American Fisheries Society, held online.

Staff met virtually with the Injurious & Invasive Wildlife Working Group to discuss the development of an invasive species reporting system and database for South Carolina.

We interviewed potential candidates for the SC Cooperative Fish & Wildlife Unit Asst. Unit Leader position.

Staff coauthored a manuscript titled "Quantifying Flow-Ecology Relationships across flow regime class and ecoregions in South Carolina" for peer-review in the journal *Science of the Total Environment*.

We joined the SC Aquatic Connectivity Team meeting to discuss the potential for removal of barriers fragmenting waterways in the State.

We assisted with the emergency effort to search pet supply stores for moss balls potentially contaminated with invasive zebra mussels.

Staff met with potential collaborators regarding SWG and C-SWG proposals in response to the announcements of program funding for FY22.

Staff met with a technical group developing flow-ecology relationships to inform the water planning process in SC.

Workplan and budgets were submitted for FY22 Sportfish Restoration and Redeye Bass C-SWG.

Hatcheries and State Lakes Activities

Coordination

This month 1,000 grass carp were processed for sterility testing at Cohen Campbell Fisheries Center.

Three (3) vendor permits were issued for grass carp distribution statewide.

Dennis Wildlife Center (DWC) and Bayless Hatchery

Approximately 175,000 American Shad fry were produced at Bayless Hatchery and stocked in the Broad River, and a total of 533 (281 female, 252 male) American Shad brood were collected over several days for Cohen Campbell Fish Hatchery, Orangeburg National Fish Hatchery, Bear's Bluff National Fish Hatchery, and Bayless Hatchery.

Striped bass brood was collected for Bayless Hatchery over a period of several days. Two Striped bass spawning days occurred this month resulting in production of approximately 3.8 million fry to be distributed to DWC, Cohen Campbell Fish Hatchery,

Mammoth Springs National Fish Hatchery in Arkansas, and Welaka National Fish Hatchery in Florida.

Bayless Hatchery staff acquired white bass brood collected by Region 1 staff for hybrid striped bass production.

Staff assisted Region 4 with the collection of Largemouth Bass brook for Cheraw Hatchery and assisted Spring Stevens Hatchery with the harvest and distribution of fingerling and Advanced Fingerling Bluegill.

DWC ponds were limed, pulverized, and sprayed with chemicals in preparation of striped bass fingerling production and their aeration lines and diffusers were repaired.

Staff attended conference call on invasive Zebra mussels detected in moss balls sold at pet stores. Staff visited numerous pet stores to investigate possible distribution of invasive mussel species through the supply chain and to provide information on sanitizing their in-store systems. Staff also provided stores with a copy of USFWS document describing protocols for disposal.

Staff attended Robust Redhorse TWG Meeting to discuss brood collection and spring propagation.

Spawning mats were placed in the raceways at DWC containing Redeye bass. Excess Redeye bass brood not being used for production this spring were stocked back in Steven's Creek.

Supplies were procured for the upcoming striped bass hatchery season.

Four (4) seasonal hourly staff were hired to help with fish production and maintenance.

Staff completed and submitted daily staff reporting logs, monthly reports, mileage sheets, fuel logs, procurement statements, and purchase requisitions.

Staff performed routine water quality monitoring, fish feeding, and grounds and equipment maintenance.

Walhalla State Fish Hatchery

During the month of March, 24,382 trout were stocked. Regular stream stocking resumed as well as continued stocking of delayed harvest waters and the Lower Saluda River.

Staff continued to monitor egg, fry, and fingerling production as trout were on station in all life stages during the month. The final shipment of eggs from Erwin National Fish Hatchery came on station as well. Production continued in outside raceways as expected.

Maintenance projects continued working on the vacant bunkhouse where interns will be staying during the summer.

Additionally, staff worked to repair a bridge over Indian Camp Creek, which is utilized by anglers and visitors.

Cohen Campbell Fisheries Center/Barnwell Substation

Performed general maintenance and upkeep at both Cohen Campbell and Barnwell substation.

Finalized redesigning the Shad brood and Hatching system.

Spawned and stocked 706,649 American Shad fry into the Wateree System.

Tested two (2) grass carp loads.

Finalized repairs on ponds 1&2.

Continued striped bass preproduction protocols.

Cheraw State Fish Hatchery

Preparations for the 2021 production year have begun. This included preparing production pond bottoms and ordering necessary supplies.

The second phase to install electrical outlets at the production ponds was completed.

Buildings and ponds were secured to prevent further otter predation.

Smallmouth and Largemouth Bass brood stock were procured to replace those eliminated by the otters. DNA samples were analyzed to ensure brood stock collected is of a pure strain.

Staff continued to perform routine maintenance services for water quality, feeding, and disease control.

Spring Stevens State Fish Hatchery

Harvested two (2) ponds of Bluegill at Spring Stevens and additional Bluegill were moved to the holding house for future grow-out – Bluegill requests to be moved later next month at the DWC.

Completed all fingerling and advanced fingerling Bluegill requests for 2021 from ponds harvested.

All ponds full for overwintering were drained and cleaned for future striped bass protection.

All ponds harvested with fish this month were cleaned for striped bass protection, as well as being partially refilled and drained to remove any bycatch.

State Lakes

Continue to monitor and adjust water levels at Lakes Johnson, Sunrise Lake and Wallace.

Limed the following lakes: 50 tons Lake Oliphant, Mt. Lakes 1 (40) tons and Mt. Lakes 2 (10) tons.

Lake Ashwood Major Projects: landscaping, reinstalled entrance gate, made repairs to walkway on spillway and bridge on fisherman access walkway on the upper end of the lake.

Assisted Region 2 with electro-fishing of LMB at Lake Monticello.

Assisted with Bluegill harvest and stocked fish in 2 State Lakes and Forest Service ponds.

Removed logs from spillway at Lake Warren and dead trees from Sunrise Lake.

Removed all social distancing signs from all 18 State Lakes.

Met with developers at Mt. Lakes about developing nearby property.

Routine maintenance at all 18 State Lakes.

“Fresh Eyes” Program

Made multiple site visits during the month, including Lake Cherokee, Lake Oliphant, Lake Paul Wallace and Lake Thicketty.

Participated in the virtual COVID-19 update.

Completed all monthly paperwork and reporting.

Completed VPN setup on computer.

Attended a conference call with the Cherokee County Chamber of Commerce to discuss the history of Lake Cherokee.

Outreach and Training

Staff attended multiple coordinator meetings via phone.

Administration

Cohen Campbell Hatchery, Dennis Wildlife Center, Cheraw Hatchery, Walhalla, and Spring Stephens Hatchery executed all COVID-19 safety protocols.

Weekly trout stocking reports continue to be updated on the SCDNR website.

Diadromous Activities—

Summary

Efforts this month included: downloading acoustic receivers and manual tracking in Charleston Harbor, Lake Marion, the Rediversion and Diversion Canals, and the Congaree, Wateree, Cooper, Santee, Edisto, Waccamaw, Great Pee Dee, and Savannah Rivers; gillnetting for Atlantic and shortnose sturgeon in the Great Pee Dee, Waccamaw, Santee, Edisto, and Savannah Rivers; monitoring elver ingress at Goose Creek Reservoir and St. Stephen Dam; fulfilling telemetry data requests; maintaining the comprehensive telemetry database and cleaning up false detections and duplicate station names; submitting telemetry data to the FACT network; submitting monthly, quarterly, and annual reports to fulfill grant obligations.

Breakdown of Project Activities

Great Pee River Sturgeon Project

This month’s focus was on transmitting Atlantic sturgeon (ATS) in the Great Pee Dee River. Eleven trips were made and all sampling took place between RKM 53 and RKM 60. Fourteen ATS were captured, four of which were project recaptures from 2018 and 2019. Ten of these fish were transmitted with acoustic transmitters allowing staff to meet this year’s objectives for transmitting the spring ATS spawning cohort. Four trips were made to download receivers which included servicing the array immediately below Blewett Falls Dam in North Carolina.

Winyah Bay Juvenile Sturgeon Project

Seven sampling trips were conducted this month for a total of 31.58 100-yard set net hours. Nine sturgeon were captured: five in the Sampit River, one in Winyah Bay, and two in the Waccamaw River. All fish were first captures and received a PIT tag and the standard work up. Seven fish were of target size and three acoustic transmitters were implanted. Staff assisted with two sturgeon sampling trips in the Cooper River. Gear maintenance this month included an oil change for the truck, the mending of all nets, and the full build of a 2.5 inch mesh net.

Savannah River Sturgeon Egg Project

The Savannah Egg Project made seven trips to the Savannah River. Six were made to the Allendale area of the Savannah River, rkm's 168 through 220. Five days were dedicated to manually tracking shortnose sturgeon for spawning movements (4 fish were detected) and one day was dedicated to servicing array receivers. One trip was made to the Augusta area of the Savannah River, rkm's 294 through 301 in an effort to track Atlantic sturgeon exhibiting spawning behavior, however no ATS were detected. Other project efforts included downloading the Charleston Harbor array as well as some receivers in the lower Santee River array.

Savannah Harbor Enhancement Project (SHEP)

Savannah Harbor Expansion Project (SHEP) focused on boat repair and telemetry receiver array maintenance. All estuary located receivers were cleaned, battery changed, and downloaded. Manual tracking was performed with two transmitted sturgeon detected. SHEP staff also assisted with Goose Creek eel ramp monitoring.

Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA)

This month, project ACFCMA completed 10 American shad sampling trips, five in the Santee River and five in the Waccamaw River. Biological scale samples were collected from fish houses from fish captured on the Santee River. Additionally, scale samples and fin clips (genetic samples) were collected from shad on the Great PeeDee River. The eel ramp at Goose Creek reservoir was monitored twice a week every week this month. Glass eels started arriving earlier in the month. All eels were counted, YOY eels were distinguished from pigmented eels, weighed, measured, and released.

Santee Accord Juvenile American Shad Study

Four gillnetting trips for American shad occurred on the Santee River at Blowout. A total of 40 shad were captured and fin clips were collected. Five gillnetting trips were made for blueback herring on the Santee River at Poleyard and resulted in the capture of 43 herring. Numbers have been very low until the last week of March.

Rediversion Project

American eel passage at the St. Stephen dam continued without pause this month, totaling 51 eels measured and passed into Lake Moultrie. Passage at the fish lift dramatically increased, with 70,396 American shad, 17,377 blueback herring, 464 striped bass, and 87 catfish passed in March. However, fish lift operations have recently been suspended (3/30/21) due to mechanical failure of gate 1, preventing entry into the lift chamber. It is uncertain if recent (3/21-3/27) low fish passage counts were caused by the previously undiagnosed gate failure or were a reflection of high discharge conditions.

Discharge continued to follow periods of peak and no power generation (ex. 18 to 24 hour on, < 6 hours off), and has remained near peak capacity throughout much of the season. Downstream water levels have remained consistently high but are non-flood condition. Anglers have been able to access all landing sites and Platt Road (major bank fishing site) throughout the month.

Landings were relatively high at the Cooper River Tailrace (CRTC) and Arrowhead Landing until approximately the weekend of the 20th, where landings on the CRTC have markedly decreased. Few herring (or shad) have been caught throughout the month on the CRTC, and recent declines in commercial herring landings have been observed from the creel work at Arrowhead. It appears the major herring run may have peaked for the season. Staff remain focused on collecting landings data, and all necessary biological data for paired age comparisons and USGS genetics sampling for American shad and blueback herring.

Meetings and Outreach

Staff assisted USACE in hosting the annual Wounded Warrior Fishing Event at the St. Stephen Fish Lift.

Staff participated in multiple virtual meetings and conference calls regarding:

- Parr Dam relicensing tasks

- UVA FAA rules seminar

- Hudson River Symposium webinar

- Spring Meeting of the Atlantic Coast River Herring Collaborative Forum

- ASMFC River Herring Steering Committee meeting

ASMFC Sturgeon Technical Committee meeting
The annual SC American Fisheries Society Virtual Meeting

Mussels

Participated in Safe Harbor conference call with USFWS.
Participated in 2 Carolina Heelsplitter broodstock collection trips.
Participated in Brook Floater broodstock collection trip.
Assisted in Brook Floater inoculation at OMCC.
Performed 2 CPUE surveys.
Attended GIS Webinar.
Attended Catawba-Wateree Project Species Protection Plans Annual Meeting.
Set up example tanks for potential mussels in the classroom program.

Aquatic Education

Family Fishing Clinics & Certified DNR Fishing Instructors

Continued communicating schedule changes to volunteers and the public
Planning for upcoming clinics
Provided survey to volunteers to gain understanding of safety and security needs to consider while planning for future events

Held one in person clinic and one virtual clinic

Fishing Rodeos

On-going participant survey data collection
Responding to inquires about schedule

Fishing Tackle Loaner Program

Site user logs collected for data collected for input
Collecting follow up surveys from participants
Provided new equipment to Dreher Island State Park

Trout in the Classroom (TIC)

Posting materials and lesson plans on google classroom for in-classroom teaching
Hosted two Trout Tuesdays on the topics of conservation and the role of hatcheries

Youth Bass Fishing Club

Continued to field questions and provide assistance to schools creating clubs for the first time
Preparing materials for event
Formalized staff schedule and roles

Adapted flow to allow for social distancing requirements while incorporating small awards ceremony
Sent updates of plan to coaches and posted via facebook

Black Bass Slam

Processing website design

Other

Provided support and content for South Carolina High School League campaign
Staff assisted in moss ball eradication efforts
Attended AREA board meeting as treasurer
Staff shadowed diadromous team for shortnose sturgeon sampling efforts
Team outing to Congaree Bluffs Heritage preserve
Site visits to Dargans Pond and Lake Paul Wallace
Loaned fishing equipment for Wounded Warriors Fishing Day at Pinopolis and attended as support staff
Outreach materials provided to: 11 members of the public and 22 phone interactions.

WILDLIFE SECTION STATEWIDE PROGRAMS

Coordination and Administration

Participated in numerous teleconference/video conferences/meetings with Deputy Director Cope, Chief Dukes and Assistant Chiefs Swaynham and Chappelle on various topics including, coordinating staff work schedules, activities, telecommuting and field operations. Supervision of Statewide Programs staff continued. Worked with staff to develop and implement the COVID return to work plan. Participated in interviews for a Bat Program Technician. Participated and provided testimony for legislative hearings for regulations for Native Reptiles and Amphibians and Nonnative Wildlife in both the SC House and SC Senate. Attended the SCDNR Wildlife and Freshwater Fisheries Advisory Committee meeting in Columbia, SC and presented the 2020-2021 Waterfowl

Season Summary and the Staff Suggestions for the 2021-2022 Migratory Bird Seasons. Attended an informational webinar on Double-crested Cormorants. Attended meeting of waterfowl lottery hunt staff at Bonneau Ferry for the end of the waterfowl season. Participated in Alligator survey design meeting. Attended the Virtual North American Wildlife Resources Conference. Reviewed and provided edits for the Rules and Regulations publication. Responded to a request to withdraw and resubmit Regulations for Native Reptiles and Amphibians (Doc 5007). Participated in discussion with USDA APHIS on a pilot trapping study. Attended the Federal Aid Coordinators Meeting virtually. Assisted SCDNR Law Enforcement on a Reptile and Amphibian case.

Big Game Program

General Activities

Responded to 52 phone calls and 88 emails from the public related to new or proposed hunting regulations, deer/turkey tagging, sick or nuisance animals, urban deer, and other general deer, turkey, and black bear related topics.

Law Enforcement related activities involved answering questions from the public concerning legal issues related to deer, turkey, bears, hogs, weapons, and hunting (8 calls and 15 e-mails approximately 1.8 hours). Consulted directly with field officers (4) related to captive deer, turkey tags, turkey bait, and sick deer.

Attended legislative committee/subcommittee meetings (4) as needed and provided testimony on proposed legislation.

Participated in a virtual meeting with other agency staff related to injurious and invasive wildlife.

Mileage logs/receipts were scanned and forwarded to appropriate staff. PCard statements/receipts were scanned and forwarded to the PCard email address.

Participated in 6 interviews with the media.

Completed 2 surveys from other agencies/entities.

Deer Research and Management Project

The Deer Quota Program (DQP) required effort primarily related to entering late harvest reports and making updates to cooperator contact information for the renewal which will take place in May. For the 2020 season 1,440 cooperators received 68,676 tags on approximately 3,062,730 acres of land with a reported harvest of 13,452 antlered bucks, 1,491 button bucks, and 29,047 does for a total of 43,990 deer.

The 2020 Deer Hunter Survey required ongoing effort during the month. Survey forms were shipped to Data Dash in Farmington, Missouri and data entry was completed. Data has been edited and analysis begun. Preliminary figures indicate that the harvest was up a modest 2.4 percent over 2019.

Continued working with Cornell University on a project to develop a Chronic Wasting Disease Risk Assessment and Surveillance Plan. Participated in a virtual meeting related to the project with Cornell, and staff from Georgia DNR, Alabama DCNR, and Virginia DWR who are also participating in the project.

Coordinated with OMO on a number of news releases/social media posts related to the youth turkey hunting weekend, SC Game Check, and turkey research projects.

Work on the cooperative deer and coyote study with Clemson University Department of Forestry and Environmental Conservation was ongoing during the month. Year 3 trapping efforts concluded during the month with 24 coyotes and 23 female deer being instrumented with GPS units.

Continued coordination and communication with the PhD student from University of Georgia on the cooperative research project entitled "Use of fecal genotyping and spatial capture-recapture modeling to investigate coyote abundance in South Carolina.

Deer Depredation Permits were entered as they were received. A report on 2020 depredation permit activities was developed and forwarded to Law Enforcement for use during the upcoming growing season. This is primarily related to identifying those individuals who received a report during 2020 and failed to report. During 2020 approximately 547 shoot-to-kill permits were issued with only 27 percent of permittees reporting.

Measured 3 sets of antlers in the office by appointment.

Wild Turkey Research and Management Project

Significant time was devoted to ongoing work related to development of the SC Game Check system which is the name of the electronic harvest reporting system for turkeys which is in place for the 2021 season. This included planning and information sharing between IT and The Sourcing Group related to development of the Smartphone App. Ongoing edits continued with the App developer. Ongoing testing of both the Smartphone App and Call Center took place during the month. Ongoing discussions and planning were held with the Office of Media and Outreach related to informing and educating the public on SC Game Check and the harvest reporting requirement for turkeys this season. By months end the turkey season began and troubleshooting issues with the

various reporting systems was very time consuming. This was primarily related to “backend data” and not public facing issues.

The initial fulfillment of turkey tags was completed and included mailing tags to approximately 69,000 customers. Daily sales began and approximately 20,000 additional sets of tags were issued by month end.

Attended (virtually) the National Wild Turkey Technical Committee meeting and provided an update on a subcommittee assigned to study the practice of fanning/reaping.

The wild turkey gobbling chronology study with Clemson University Department of Forestry and Environmental Conservation continued during the month. Current efforts are directed at data analysis from both 2019 and 2020 field seasons.

Continued coordination and communication related to the study entitled “Reproductive Ecology of Wild Turkeys in an Unhunted Population.” This is a cooperative study between SCDNR, USDA Forest Service-Southern Research Station, University of Georgia, Louisiana State University, and University of Missouri. The objectives focus on determining reproductive parameters in turkeys that are not hunted. Tapping continued during the month with approximately 100 birds having been captured to date. Approximately 61 GPS units have been deployed on turkeys of certain ages/sexes. Birds that do not receive GPS units are banded and a blood sample taken for DNA.

Black Bear Research and Management Project

Upstate - Staff handled 7 bear complaint calls/sightings. Bears are just starting to move around with the beginning of spring. There were 2 road kills and a couple of nuisance calls about bears in trash cans and breaking into chicken coops. Two orphaned bear cubs were transported to ABR for rehab. One cub was from Spartanburg and one was from Greenville. Both cubs were successfully transferred to foster dens. Staff attended a virtual meeting of the Southeast Black Bear Workgroup this month to discuss harvest numbers, nuisance bear issues, mast survey results and current research projects.

Furbearer and Alligator Program

Furbearer Project

Responded to thirty-one nuisance wildlife complaints. Ninety-seven other technical assistance contacts were also made during this time via phone and email.

Discussed state furbearer trapping laws and trapping on public lands with the furbearer biologists in NC, GA, and FL to obtain information related to the trapping bill (S.556) that was introduced last month. An updated synopsis was provided to staff.

Attended the annual Youth Raccoon Hunting Championship this month. The hunt had to be moved from the Webb Center to the headquarters of the Whitmire Coon Hunting Club due to COVID restrictions on state properties that were still in effect.

Began compiling fox and coyote enclosure data over the last several years as well as a history timeline at the request of the DNR Board. Several programming and reporting modifications were made to the Fox and Coyote Enclosure Permitting database program in order to be able to retrieve certain types of permitting information and data easier.

Staff began entering trapper fur harvest data and fox and coyote pen transactions data. Fur harvest data is required to be in by April 15th and the enclosure data is due by May 15th in order to renew an enclosure permit.

Discussed potential spotted skunk research with Alabama researchers to gauge interest in SC participating in the grant. Alabama is planning on submitting a multi-state grant for interested southeastern states along the Southern Appalachians.

A list of exotic animals and their legal status in SC was supplied at the request of Dr. Jasmin Wiczorek of the Wizard of Paws Wildlife Education company in Indiana.

Several fillable forms were modified and/or updated. Additional updates to the WCO list on the DNR website were also made.

Alligator Project

Participated in a virtual meeting to discuss alligator modelling and potential survey methodologies this summer.

Biologist Hart Activity

General Activities and Accomplishments

- Monitored movement of GPS tagged alligators.
- Visited three captive alligator permit holders up for renewal
- Issued 2 transport permits
- Building and troubleshooting Access database for all non-public hunt alligator permits
- Debugging final Access database for Captive alligator permits

- Coordinating regularly with Clemson researchers regarding alligator movements
- Ongoing permitting website and data management improvements
- Updating nuisance alligator agent protocols and region maps.
- Scheduled statewide meetings for new purchasing and contracting protocols for nuisance alligator agents
- Finalized posting of fixed price bid for emergency alligator agent contracts
- Working on harvest summaries and reports for all types of harvest.
- Recertified in CPR
- Hosted multistate meeting regarding improvement of state alligator surveys
- Managed two potential media issues regarding Fripp Island and Spartanburg

Alligator Program Biologist Accomplishments

- Display/Transport Permits - 3
- Private Lands Permit Packages approved - 1
- Nuisance Calls - 35
- Nuisance Permits- 50
- Media Inquiries- 2
- Presentations- 0

Permitting and Lottery Hunt Program

Biologist Kearsa continued to review, and process permits. These permits consisted of 62 field trial permits, 2 falconry permits (renewal), 2 bird banding permits, 32 furbearer depredation permits, 8 scientific collection permits, 1 hog hunting enclosure permit, 70 Predator Management Permits, and 1 airport and airfield depredation permit. Continued working on new native turtle permits following the new law that provides protection of South Carolina's native reptiles and amphibians (Act 177).

The turkey lottery closed on March 3rd and the results were released on March 11th.

Attended four meetings for the new agency wide customer service portal to review responses submitted by vendors. Was invited to a waterfowl cookout at Bonneau Ferry to appreciate efforts during this challenging lottery waterfowl season. Had two virtual WHEP planning sessions for educator information and to plan for virtual WHEP state contest. Visited Nemours on the 22nd with WHEP committee to prepare for WHEP state contest in May.

Taylor Main, SCDNR's public information specialist, joined me at a falconer's house to take pictures of falconry equipment and birds to use for the falconry webpage on the SCDNR website.

Attended a virtual USFWS falconry meeting with states in the Atlantic Flyway.

Assistance was provided by email or phone concerning lottery hunts, permits, and other general wildlife questions.

Other
Participated in multiple meeting as well as the final scoring of bids regarding the RFPs for the new DNR enterprise customer portal and licensing system.

Reviewed a potential Clemson Extension publication on aquatic furbearing animals and their management.

Assisted the Big Game Project with Google forms for turkey harvest validation checks.

Herpetology Conservation Program

General Activities and Accomplishments

- Processing Froglogger Data – Cainhoy, Santee Coastal, Bonneau Ferry, Groton
- Successfully completed Driver Training
- Successfully completed CPR Training
- Florida Pine Snake Species Status Assessment Virtual Meeting
- Collected/Processed camera fence photos from Marsh//Lewis Ocean Bay
- Collected genetic samples from 5 river frog tadpoles from Poinsette SP for NC genetics study
- SCDNR Exotic/Invasive Species Virtual meeting
- Assisted as a reviewer for Bat Technician Interviews
- Participated in Gopher Tortoise Council Spring Business Meeting
- Answered Interview questions for The State News regarding copperhead myths
- Transferred 4 yellow-bellied sliders, 3 painted turtles and 2 stinkpots from a pond in Lancaster to the SC Aquarium. The sliders have the worst shell rot I've ever seen, which is only comparable to a single lake in GA and LA (according to the pathologists). We've additionally found some evidence of a similar shell rot that was just recently identified in northern redbelly cooters. Pathologists were not able to determine the cause. Over two dozen sliders in the lake have been found with this severe shell rot in addition to multiple

that were found dead. It's thought to be caused by a newly described bacteria, though vets at the SC aquarium took biopsies and sent to SCWDS for confirmation. UPDATE: Biopsies came back negative for new bacteria! Radiological scans show that both painted turtles and stinkpots have no internal/external issues from the shell rot impacting the sliders, even though they would almost definitely have been exposed while living in the same lake.

McCrary Herpetological Surveys

-New Technician (Kiley Hiberman) hired, and began work at McCrary

Catawba-Wateree Herp Surveys

-Kiley and Andrew visited 4 toed salamander historic location in Kings Mountain State Park

Multi-State Sandhills Restoration Project – Tillman

-Forest Service has been out and plans to burn the restoration areas during the growing season

Multi-State Wetland Restoration Project – Webb

-Working with Gary/April to line up contractors to do the restoration work on 3 wetlands at the Webb Center

Gopher Frog Population Augmentation and Headstarting

-Collected Gopher frog eggs from a private property in Berkeley County and transported to Riverbanks Zoo. Riverbanks will grow tadpoles to metamorphs (Headstart) in order to increase survival and individuals will be released at the Webb Wildlife Center after restoration work (CSWG below) is complete.

Additionally, a small number of frogs from each clutch will be kept by Riverbanks to help build an assurance colony/brood stock to aid in the headstart process in the future, if needed.

-Led virtual meeting and presented Gopher frog Population Augmentation and Headstarting to SCDNR fisheries staff at Bonneau/Columbia Hatcheries – Visit to identify best tanks for rearing frogs

-Riverbanks came down to collect more eggs from new gopher frog egg masses and vegetation from wetlands to use as structure in their tanks for headstarting. Took “extra” tadpoles from Bears Bluff (collected from the FMNF) to be used in assurance colony and headstarting.

Green Salamander Population Assessment across Forest Disturbance Gradient – No activity during the month
Patchnose Salamander Environmental DNA - Field surveys beginning

Statewide Bat Program

Finished all interviews and paperwork to hire 2 techs: one NABat 4-month, one Bat Netting 6-month. Conducted Middle Tunnel hibernacula survey at Stumphouse Mt. HP: 9 PESU found. Worked with Dr. Susan Loeb at Clemson University and Austen Pickhardt regarding bat work at Stumphouse Mt. HP. Attempted to capture bats emerging from cave at Santee State Park; none emerged from the main entrance. There used to be 800-1000 Southeastern bats in this cave but over the years silt has collected due to beaver dams and there may not be enough room between the ceiling and the water level for the bats to use it often and/or during wet years. Finished compiling and organizing documents and excel spreadsheets for SWG Bat Mon match, and had multiple calls and emails with Neosha and Carmen to discuss and solidify match for SWGs: Bats in Bridges, Bat Mon grant.

Statewide Bat Monitoring (Bat Biologist, Jennifer Kindel, WNS and SWG grants)

- Mar 1: Bat tech interview wrap up
- Mar 3: Jaren Palmer interview. Met with Joe Lemeris regarding DOT bat project budget.
- Mar 4: WNS call for governmental and nongovernmental partners
- Mar 5: Middle tunnel hibernacula survey with Austen Pickhardt and Becky Brown. Nine tri-colored bats seen; Becky measured wall and skin temperatures of bats. Temperature inside cave varied from 13.5 to 14 C.
- Mar 9: GIS webinar, NABat meeting
- Mar 10: Interview with Sammy Fretwell at The State newspaper about NLEB
- Mar 15: Catawba-Wateree Project SPP annual meeting
- Mar 17: SBDN exec meeting conference planning
- Mar 18: WNS call for states and tribes, NABat tech interviews
- Mar 19: NABat tech interviews, bat camera install at Hampton Historic site kitchen
- Mar 22: FS Region 8 cave and underground mine proposed closure order info meeting
- Mar 29: Netted entrance of cave at Santee State Park during typical emergence at dusk. No bats emerged, though Anabat device recorded a few calls of Southeastern bats we were targeting at pit opening. However, there used to be 800-1000 Southeastern bats in this cave but over the years silt has collected and there may not be enough room between the ceiling and the water level for the bats to use it often and/or wet years.

- Mar 31: Rabies titer appt completed
- Processed NABat Tech 4-month position applications; emailed applicants, set up interviews, ran interviews, called references, filled out all paperwork, chose top applicant, sent in that paperwork.
- Official offer for 6-month Bat tech job completed; sent non-selection memo to others.
- Titer paperwork (working with Any Lab Test Now to become a vendor, PO, etc) complete for myself and 2 technicians.
- Worked with Austen and Dr. Loeb regarding bat work at Stumphouse Mt. HP
- Edited and discussed various proposals for endangered gray bat DOT projects
- SCDNR bat website volunteer section updated for work in 2021.
- Hampton Plantation partnership: Sent Stacy Sherman contractor contacts (MST concrete) for bat towers. Emailed summary of Fri camera installations, along with testing plan discussed and doodle for April meeting.
- Updated PTR with appropriate match funding
- Finished compiling and organizing documents and excel spreadsheets for SWG Bat Mon match.
- Multiple calls and emails with Neosha and Carmen to discuss and solidify match for SWGs: Bats in Bridges, Bat Mon grant.
- Call with Trina Morris GADNR about how they work with DHEC and WCO's
- Responded to multiple bat nuisance and information calls

Hourly technician, Maria Monarchino

- Deployed 8 acoustic detectors at Bonneau Ferry WMA for two weeks each
- Analyzed and summarized Bonneau Ferry WMA acoustic calls
- Conducted repelling and climbing surveys at Big Rock Mountain looking for non-traditional hibernacula
- Installed Hampton Plantation kitchen house cameras to monitor bats and test for disturbance of Rafinesque big-eared bat colony
- Harp-trapped/mist-netted Santee State Park cave
- Worked to update Survey123 datasheets for winter surveys
- Continued entering winter culvert survey data
- Attended White Nose Syndrome conference calls and NABat conference calls
- Attended DNR GIS webinar
- Attended DNR wildlife technicians meeting
- Organized equipment to prepare for summer bat surveys and returned/maintained acoustic equipment from winter surveys

SWG: NABat Project (Clemson MS student/Dr. Susan Loeb)

- Mar 1: Virtually met with Anna and Susan regarding 2021 schedule
- Mar 5: Met Anna Siegfried to collect NABat equipment.
- Mar 8: Call with Anna about future info for 2021 schedule
- Anna Siegfried manually vetting calls and submitting to NABat online

Small Game Program

General Small Game Program Activities and Accomplishments

All Small Game Program staff practiced social distancing and worked remotely.

Responded to a minimum of 11 phone calls and numerous emails requesting technical assistance.

Mileage logs and Pcard statements received to date were filed in current personnel files.

Program Leader Hook and Assistant Program Leader Small reviewed and edited the 2021-22 SCDNR Rules and Regulations brochure.

Program Leader Hook and Assistant Small Game Biologist Small developed and edited a press release for Rabbit Hemorrhagic Disease Virus-2.

Assistant Small Game Biologist Michael Small performed a peer review on a Mourning Dove article for Clemson Extension service.

Program Leader Hook and Assistant Leader Small participated in a Multistate Ruffed Grouse virtual meeting to discuss abundance and life history, current research and research priorities for the Eastern Ruffed Grouse Working Group.

Assistant Leader Small reviewed documents to be presented at the Multistate Ruffed Grouse virtual meeting as a part of the Eastern Ruffed Grouse Working Group.

Program Leader Hook and Assistant Leader Small participated in a virtual call with Ruffed Grouse Society SE Forestry Director Biemiller, SCPRT staff, USFS staff, SCDNR Region 1 staff, The Nature Conservancy Staff and a representative from the Evergreen Packaging Company to discuss Ruffed Grouse Habitat Management in the upstate of SC.

Mileage logs/receipts were scanned and forwarded to Lindsay Wood. PCard Statements were scanned and forwarded to the PCard email address.

Program Leader Hook reviewed two articles for Clemson Extension Land-Grant press. One was Bobwhite Quail Biology and Management and the other was Cottontail Rabbit Biology and Management.

SCBI Biologist Carmichael served as a reviewer for Clemson Extension Land-Grant press on a publication titled "Bobwhite Quail Biology and Management".

Assistant Leader Small completed the 2020 Biennial Fox Squirrel Survey Report.

Assistant Small Game Biologist Small and SCBI Biologist collaborated with SCBI and SCDNR staff on design of a SCBI display for exhibitions.

Issued one new bird dog training area license.

Started the application process for one new shooting preserve. An inspection request was forwarded to Captain McCaskill in Region 2 on 3/25/2021.

Completed the end of year memo for currently licensed shooting preserve operators to remind them to report their release/harvest data by June 1st. Renewal forms for the 2021-2022 season were also provided. Mailing labels were created and 113 packets were completed and will be mailed April 12th.

Posted 1 social media post on SCDNR Facebook page: Ruffed Grouse Survey (3/8). Completed one interview for a traditional print publication.

Mourning Dove Project

Assistant Small Game Biologist Small updated mourning dove band recovery information from bi-weekly reports and completed quality control for accuracy on reward bands entered.

Program Leader Hook worked with Clemson Extension staff to present Dove ecology and survey information virtually to a group of 20 individuals.

Assistant Small Game Biologist Michael Small compiled GIS data for public dove fields and trapping locations for analysis.

Bobwhite Quail Project

Program Leader Hook participated in a virtual National Bobwhite Conservation Initiative Steering Committee meeting where he serves as the Chair Elect.

Program Leader Hook participated in two separate virtual National Bobwhite Conservation Initiative Executive Steering Committee meeting where he serves as the Chair Elect.

Program Leader Hook and SCBI Biologist Carmichael participated in two landowner site visits in York county for two separate landowners and provided management recommendations for approximately 1,500 acres.

SCBI Biologist Carmichael and Program Leader Hook met with USFS Staff, US Army Corps of Engineers Staff and SCDNR Regional Biologist Drennan near the Bordeaux Work Center to discuss a potential bobwhite quail focal area on the forest.

Assistant Small Game Biologist Small completed the McBee quail supplemental feeding study report.

Assistant Small Game Biologist Small conducted a wildlife management site visit to private property in Anderson County.

Assistant Small Game Biologist Michael Small evaluated and discussed the ARU quail study project with our hourly employee working on the data.

SCBI Biologist Carmichael assisted the US Forest Service on the Enoree Ranger District for staff and students from the Jones Center at Ichauway Plantation in southwest Georgia. The management techniques utilized on the Indian Creek Quail Focal Area were showcased and discussed.

Program Leader Hook, Assistant Leader Small and SCBI Biologist Carmichael attended the virtual Indian Creek Habitat Enhancement Committee meeting.

Program Leader Hook and SCBI Biologist Carmichael participated in a virtual meeting with the US Forest Service to discuss potential Joint Chiefs Landscape Restoration Partnership projects.

Program Leader Hook and Assistant Leader Small visited with Heritage Preserve Biologist Young to discuss possible native forb plantings at the Aiken Gopher Tortoise HP.

Program Leader Hook and SCBI Biologist Carmichael delivered seed to Santee Coastal Reserve and toured the property with staff to look at recent upland habitat management.

Program Leader Hook attended the SC Chapter of Quail Forever banquet at Boone Hall Plantation.

SCBI Biologist Carmichael and Program Leader Hook participated on a virtual subcommittee meeting of the Indian Creek Partnership to discuss potential quail hunting regulations to address hunting pressure and disturbance on the Indian Creek Focal Area.

SCBI Biologist Carmichael and Program Leader Hook met with the Francis Marion Nation Forest Wildlife Biologist Clark to evaluate the recent Price Landing Focal Area burns.

SCBI Biologist Carmichael and Program Leader Hook conducted a site visit to the Carolina Sandhills National Wildlife Refuge to view habitat restoration progress on the SCBI Focal Area and discuss future plans with refuge staff.

SCBI Biologist Carmichael assisted NRCS Biologist Harris with a review of Implementation Requirement sheets for Conservation Reserve Program practices.

SCBI Biologist Carmichael and Program Leader Hook participated in a teams meeting of a subcommittee of the Indian Creek Partnership Committee to begin drafting a new proposal for the Joint Chiefs Landscape Restoration program.

SCBI Biologist Carmichael continued work on the Good Neighbor Authority agreement with the USFS with the planning for implementation of the Scope of Work and coordinating with DNR Grants office on budget set-up.

Farm Bill/Ag Liaison Activities

Farm Bill Biologist Krieg completed a site visit in Williamsburg County and wrote 2 management plans for potential EQIP and CSP applicants.

Farm Bill Biologist Krieg met with farm bill participants in Chesterfield and Lee Counties to discuss future EQIP possibilities.

Farm Bill Biologist Krieg planted 6 acres of beneficial insect/pollinator habitat on Botany Bay Heritage Preserve in Charleston County.

Farm Bill Biologist Krieg planted 2 acres of beneficial insect/pollinator habitat on Santee Coastal WMA in Charleston County.

Farm Bill Biologist Krieg completed 4 EQIP certifications in Lee County.

Farm Bill Biologist Krieg completed a CSP certification in Florence County.

Farm Bill Biologist Krieg delivered beneficial insect/pollinator seeds to be planted on Clemson Sandhills REC.

Biologist Peeples visited with landowners in the above counties as well as Bamberg, Hampton, and Lexington counties to assess the goals and conditions of the properties and make recommendations on improvements to reach landowner objectives, matched with the lands ability to produce those objectives.

Biologist Peeples also met with 10 landowners to certify practices completed within NRCS programs and submitted those certifications for payment.

Biologist Peeples spent three days on the Oak Lea Wildlife Management Area to install field border signs, disc fire breaks around native grass plots, and to prepare areas to plant pollinator species in the future.

Nongame Bird Conservation Program

Migratory Landbird Project

Worked with bird conservation program staff to develop ways to complete work during the Covid-19 restrictions and communicated the need for high priority projects to the WFF Assistant Chief.

Collaborated with Coastal Carolina University on project researching reproductive success and survivorship of loggerhead shrike in coastal SC as part of an international work group efforts to conserve the species.

Collaborated with Clemson University project researching high elevation early successional bird communities.

Attended virtual Atlantic Flyway 4-day meeting. Hosted the meeting and served as SC representative on the nongame technical section and chair of the Landbird Committee.

Worked with SCDNR web and media staff to develop falconry webpages and update bald eagle webpages.

Presented an update on concerns related to solar facilities within the Atlantic Flyway to the Landbird Committee.

Attended virtual North American 5-day conference. Served as SC representative on the Bird Conservation Committee and Atlantic Flyway representative on the Bird and Fish Conflict Working Group.

Worked with SCDNR fisheries staff and wildlife services to figure out the logistics of the double crested cormorant depredation permit.

Provided information for 2 social media posts highlighting nongame bird projects.

Reviewed and provided comments on the NRCS Threatened and Endangered Species Consultation Process.
Served as SC state coordinator and recruited SC volunteers for the USGS Breeding Bird Survey.
Compiled information on nongame bird and waterfowl wildlife diseases for the SEAFWA Wildlife

Diversity Working Group.

Participated in 2-day virtual Black Rail Adaptive Management meeting.

Hosted Atlantic Flyway virtual Executive Committee meeting.

Lead effort to gather information regarding solar energy concerns to help direct future efforts by the Atlantic Flyway to address those concerns.

Approved 1 permits to further bird research in South Carolina.

Provided technical assistance on 3 bald eagle nests.

Worked with ACJV to develop ideas for a Black Rail Competitive State Wildlife Grant proposal.

Monitored loggerhead shrike on 3 days to contribute to a full annual cycle model to help determine conservation priorities for the species.

Compiled Baltimore Oriole Winter Survey results. Highly successful survey with 179 reports & 853 orioles tallied. Had 124 new participants this year.

Wrote an article for the Backyard section in SCW magazine, on the success of the Baltimore Oriole Winter Survey.

Participated in International Loggerhead Shrike Working Group calls.

Continued developing a more efficient way to organize and maintain past and future landbird data sets.

Made changes to the relational database, began creating a spreadsheet to more easily import data from different databases, and submitted banding data to the Bird USGS Bird Banding Lab.

Conducted routine activities for the Atlantic Coast Joint Venture, Partners in Flight, Atlantic Flyway, and other committees.

Directed activities of landbird, wading bird, marshbird, shorebird, and seabird SCDNR staff by providing guidance on projects, developing grant proposals, and managing budgets.

Answered over 300 calls and emails related to technical assistance and other bird conservation efforts.

Red-cockaded Woodpecker Project

Conducted pre-breeding season surveys of 57 RCW clusters on 7 SCDNR properties throughout the state.

Conducted pre-breeding season surveys of 4 RCW clusters on two SC State Park properties in Aiken and Georgetown Counties.

Prepared nest monitoring schedule for 2021 breeding season.

Installed two artificial cavity inserts at Cheraw Fish Hatchery to supplement two active natural cavities.

Organized and attended meeting with USFWS LE and two ROW companies regarding damage to RCW trees/habitat in Lee County and reached a mitigation agreement.

Conducted pre-burn survey of one NWR property in Berkeley County.

In coordination with USFWS staff, completed baseline survey for Safe Harbor enrollee in Allendale County.

Met with SCDNR legal counsel regarding improved processes/streamlining of Safe Harbor Agreements.

Reviewed and brought 1 original Safe Harbor Agreement downtown for DNR signing.

Completed 5 new enrollments into the Safe Harbor Program and mailed documents to landowners.

Completed 1 transfer of a Safe Harbor Agreement and mailed documents to landowner.

Conducted Safe Harbor Site Visits to 6 enrolled properties in Berkeley, Chesterfield and Georgetown Counties.

Attended virtual meeting with USFWS and Longleaf Alliance regarding grant-funded RCW translocations for Fall 2021.

Discussed with landowners/managers the transfer needs of several Safe Harbor properties that have changed ownership.

Hired seasonal RCW Technician.

81 phone calls and 70 emails were received and responded to regarding Safe Harbor and wildlife assistance and information.

Waterbird Project

Trained seasonal field crew to conduct Wood Stork nest monitoring, Black Rail call-response surveys, photo review and data management, and research equipment maintenance.

Initiated Wood Stork nest monitoring at six index rookeries. DNR staff monitored 5 colonies, USFWS monitored 1 colony, and volunteers monitored 1 colony.

Participated in two-day virtual workshop for the ACJV Adaptive Management Project. Contributed knowledge of Black Rail ecology, habitat requirements, and habitat management logistics.

Researched irrigation equipment and techniques. Prepared multistate competitive State Wildlife Grant proposal to request funding to experimentally implement irrigation on a SCDNR property.

Initiated and co-led the first range-wide Eastern Black Rail Autonomous Recording Unit (ARU) Team meeting. Presented SCDNR's six years of research using ARUs and offered suggestions to other organizations.

Compiled ARU (autonomous recording unit) files from SCDNR and Black Rail researchers from several states for analysis by Cornell/BirdNET scientists and by Adam Smith, USFWS I&M ecologist. SCDNR's extensive dataset from wetlands occupied by Black Rails will be used for testing the capabilities of BirdNET, a research platform using computer learning to identify bird calls within large acoustic datasets. If the platform produces accurate results, it may be used to analyze past and future recordings to determine site occupancy.

Participated in monthly virtual meeting for the Firebird Project (Gulf Coast rails), which included the discussion of survey protocols and acoustic sampling. Shared protocols used by SCDNR's Black Rail Project.

Installed and maintained arrays of research equipment for Black Rail monitoring. Reviewed and updated IDs for camera trap photos. These data will be used to compare detection methods and ensure future Black Rail monitoring is as efficient and effective as possible.

Deployed/maintained water level loggers at field sites to learn about fine-scale habitat conditions in wetlands occupied by Black Rails. Collected water level and rainfall data in wetlands where Black Rails have been consistently detected during recent surveys.

Assisted colleagues in other states who have initiated or are planning projects to monitor Black Rails.

Responded to data requests. Provided rookery and stork banding data to other natural resource professionals.

Posted area closure signs to protect sensitive Wood Stork (Dungannon Plantation Heritage Preserve boardwalk) and Black Rail (portions of one impoundment with high rail density) nesting habitat on SCDNR properties.

Coordinated with the Environmental Research Section of SCDNR to collect benthic prey samples at Hunting Island, Seabrook Island and Deveaux Bank for their project on identifying shorebird foraging characteristics to inform beach management practices.

Continued to support 2 undergraduate students from University of South Carolina that are conducting Red Knot surveys on Seabrook and Kiawah Islands. Students have been surveying flocks and re-sighting banded birds weekly to complete a super population estimate of these migratory shorebirds that stage in South Carolina in the spring.

Posted nesting signs at beach habitat on St. Phillips Island. This island, which was previously privately owned, was recently acquired by the State Park system, and is allowing public visitation on a limited basis. Posted Huntington Beach SP (set up posts and e-fence at Least Tern colony site on north end), assisted Cape Romain NWR in posting the Marsh Island and White Banks, posted Bird Key and Crab Bank Seabird Sanctuaries indicating seasonal closures, and posted Shuttes Folly for nesting oystercatchers and Black Skimmers.

Conducted the first spring coordinated count of Red Knots in the Captain Sam's vicinity. The goal is to obtain a "snapshot" of how many knots are roosting in this one area at one time.

Continued to conduct and enter data from International Shorebird Surveys (ISS) at Capers Island and Bird Key. Surveys are part of a larger study to better estimate shorebird populations during migration throughout their range and to guide management decisions.

Continued meeting with Kaley Lawrimore from SCDNR Public Information Office/Social Media Manager and Kristin Coulter, SCDNR Marketing Director to discuss ideas for a PSA concerning dogs on beaches and the harm caused to birds.

Continued preparations at alternative nesting sites (primarily pebbled roofs and parking areas) for Least Terns. Preparations include set up of shade structures, checking fencing and drainage openings, and first of season contacts with site owners and managers. Alternative nesting sites require adaptations to facilitate nesting success by Least Terns.

Assisted Freshwater Diadromous Fish Project staff in safe removal of 8 American White Pelicans which were trapped in St Stephen's Dam fish lift.

Attended a virtual International Shorebird Survey (ISS) refresher course offered by Manomet staff. This course reviewed ISS method and protocol, counting techniques, and data use.

Lead a shorebird ID portion of a field trip to Capers Island hosted by the SCDNR/NERR Coastal Exploration Series. This was a follow-up field component of shorebird and seabird ID offered to ecotour operators.

Assisted with Whimbrel Project at Deveaux Banks; provided boating and transporting of materials and staff for set-up of 2 receiver towers and trapping attempt.

Gave 2 presentations about Artic Nesting Migratory Shorebirds in South Carolina first to the Coastal Discovery Museum lecture series and then to at the monthly meeting of the Waccamaw Audubon Society.

Met multiple times with Cornell Lab of Ornithology and SCDNR media staff to organize a shorebird event scheduled for this summer to educate about threats to shorebirds and the rich diversity of birds on the SC coast.

Presented an overview of the SCDNR seabird and shorebird program at the Marine Advisory Board meeting.

Submitted a revised draft manuscript about Whimbrel at Deveaux for consideration for publication to the journal "Wader Study."

Compiled news from shorebird project partners about their 2020 nesting season and future stewarding plans. Distributed this information to collaborators in the form of a newsletter.

Visited beaches in Cape Romain on weekends to educate the public about shorebirds and seabirds with the goal of reducing disturbance to migratory flocks.

WILDLIFE SECTION

Regional Operations Activity Summary

Wildlife technical guidance was provided to 356 contacts along with 23 technical guidance site visits. One (1) hunt club data analysis was conducted. Five (5) management plans were written. Other agencies were assisted on 50 occasions requiring 71 person-days. Five hundred one (501) nuisance wildlife complaints (including 16 bear and 144 alligator calls) were handled. Fifteen (15) nuisance site visits were made. Field studies required 66 person-days and data analysis required 63.5 person-days. Twenty-seven (27) quail surveys, 60 bat surveys, and 2 other surveys were conducted. One hundred ninety-eight RCW Cavity trees were checked and 23 clusters were checked. Sixty (60) antlers were scored. Nineteen (19) woodduck boxes were checked and 7 woodduck boxes were installed. Five (5) news releases were submitted, 4 interviews were granted and 3 environmental review were conducted. There were a total of 124 water level management days.

Heritage Preserve (HP) Habitat Management Summary

Heritage Preserve staff conducted 289 site visits. Prescribed burning occurred on 2619 forest acres. Exotic control occurred on twelve (12) heritage preserves. Forest herbicide occurred on 4 acres. Sixty-two (62) miles of trails were maintained, 14 miles of firelanes were disced, 6 miles of roads were mowed, 3 miles of roads were scraped and 2 miles of road were graveled. Twenty (20) acres were mowed/bushhogged. Six (6) acres of trees/shrubs were planted.

Wildlife Management Area Habitat Management Summary

Field agricultural activities on WMAs included 182 acres mowed/bushhogged, and 579 field/agriculture acres were disced. Sixty-two miles (62) miles of roads were scraped, 8 miles of roads were mowed and 26.5 miles of roads were graveled. Prescribed burning occurred on 7,477 forest acres, 1,422 agricultural acres and 1,020 marsh acres. Agricultural herbicide occurred on 356 acres. Eighteen (18) miles of trails were mowed, 12.2 miles of dikes were mowed, 2 miles of dikes were retopped, and 80miles of firelanes were disced. One hundred forty-five (145) acres of annuals were planted, 32 acres of perennials were planted and 5,690 trees/shrubs were planted covering 12 acres. One (1) water control structure was installed. One hundred eight (108) WMA signs, 3 WMA boundary signs and 224 other signs were posted. Thirty-seven (37) gates were refurbished or installed. Two hundred eighty-one (281) WMA phone calls were answered.

WMA Hunts and Visitation

Marsh WMA – 15 visitors, of which 14 were hunting or scouting. One visitor was camping. No animals were harvested.

Woodbury WMA – 117 visitors, of which 115 were hunting or scouting. 2 visitors were exploring. Hunters harvested 2 turkeys and 42 hogs.

Pee Dee Station Site – 10 visitors, of which all were hunting or scouting. No animals were harvested.

Great Pee Dee HP – 68 visitors, of which 53 were hunting or scouting. 12 visitors were exploring, 2 were fishing, and one was practicing photography. Hunters harvested 17 hogs.

McBee WMA - 27 visitors, including 5 hunting, 6 hiking, 12 scouting, 2 sightseeing and 2 birding. Seven rabbits were reported harvested. No turkeys were reported from the youth hunt.

Worth Mtn. WMA - 74 total users –55 scouting, 13 fishing, 3 hiking, 2 walking dogs, 1 metal detecting

Liberty Hill WMA - 170 visitors, including 15 hunting, 15 fishing, 101 scouting, 15 hiking, 16 sightseeing, 6 biking and 2 birding. No turkeys were reported harvested from the youth hunt.

Angelus Bird Dog Training Area - 17 bird dog trainers released 44 quail and harvested 33. Total usage for the 2020-21 training season includes 60 hunting visits where 139 quail were released and 97 harvested (70% recovery rate). Four crows were also harvested.

Belfast Wildlife Management Area - 1 Youth hunt; 4 hunters harvested 0 turkeys.

Wateree River Heritage Preserve Wildlife Management Area - 1 Youth hunt; 3 hunters harvested 2 turkeys.

Crackerneck Wildlife Management Area - Harvest: 2 bluegill, 1 channel catfish and 1 largemouth bass

Bonneau Ferry WMA - On one TOMO turkey hunt, 6 youth harvested 0 turkeys.

Bear Island WMA - Hog Hunt – 0 Hunters

Donnelley WMA - Hog hunt – 47 hunters harvested 26 hogs. Youth Turkey Hunt – 4 Hunters harvested 0 turkeys.

Hamilton Ridge/Palachucola/Webb WMAs - Small Game Season- 1 Day, 2 Total Hunter Days – No reported harvest. Hog Hunts- 3 Days, 365 hunters, 94 hogs harvested. Youth Turkey Hunt- 1 Day, 52 hunters, 0 birds harvested.

Wildlife Regional Operations – Chief

Meetings attended during the month (in-person or virtual) included the monthly DNR Board meeting, the North American Wildlife and Natural Resources Conference and associated committee meetings, an Atlantic Flyway Council meeting, an Atlantic Flyway Council Executive Committee meeting, the SEAFWA Spring Directors' meeting, a meeting of the NBCI Management Board, the Wildlife Section Technicians' meeting, a meeting of the Atlantic Coast Joint Venture Executive Committee, a meeting with USFS personnel to discuss infrastructure improvements to Duncan Creek Waterfowl Area, and a three-day Federal Aid Coordinators' meeting.

Legislative meetings attended during the month include two Senate Fish, Game and Forestry Subcommittee meetings, four Senate Fish, Game and Forestry Full Committee meetings, a House Regulations Environment and Natural Resources subcommittee meeting, and a House Regulations Committee meeting addressing WMA regulations, Regulated Shooting Areas for Mallards, Trapping, and Reptile and Amphibian issues.

Conducted a site visit to a potential DNR property acquisition in Orangeburg County as part of Habitat Protection Committee inspection and due diligence. Provided WMA Cooperators with an estimated payment for lands leased during the 2020-2021 hunting seasons. Inspected Shealy's Pond Heritage Preserve in Lexington County. Responded to a minimum of 13 miscellaneous technical guidance calls during the month. Administrative duties related to the migratory bird program and maintaining agency bird banding permit included: Ordering bands for banding operations, distribution of band recovery records to appropriate banding personnel, and assisting the Bird Banding Lab with data requests.

Regions 1 & 3 Assistant Chief Activities

Completed administrative activities including budgeting, purchasing, personnel and correspondence. Covid-19 related activities continued including coordinating with staff on work schedules, expenditures, questions, tele-commuting, and field operations. Made 2 trips to Columbia to meet with senior staff and perform administrative duties. Attended luncheon for the retirement of LE Admin Sandra Burton at Clemson. Attended WFF Advisory Committee meeting in Columbia. Met with WFF senior staff and Director Boyles on waterfowl areas in Columbia. Helped conduct a luncheon for waterfowl staff at Bonneau Ferry WMA. Attended SCDNR Wildlife Technician meeting on-line. Attended SCDNR/USFS meeting on Duncan Creek WA on-line. Toured Comptroller General Richard Eckstrom and Ken Prosser on Brasstown Creek HP to examine an easement request. Attended SCDNR Board meeting on-line. Met with Walhalla Mayor, Town Administrator and PCF on SMHP access issues.

Transported dozer to WCHP, installed firelines and returned it to Jocassee. Notified summer interns of their formal hiring and set up start date. Revised 1st draft of the Rules and Regs brochure and submitted it to graphics. Compiled WMA Landowners payment estimate and forwarded to Chief Dukes. Continued substantial budget work for FY22. Prepared briefing sheets for waterfowl areas. Revised Hurricane Lane reversal IAP for rest areas. Investigated vehicle use complaint. Reviewed budget documents, personnel actions, purchasing requisitions, purchasing card submissions, media releases, travel requests, HP management plan, and proposed acquisitions. Checked WMAs including Beaverdam, Clemson, USFS Andrew Pickens, Fant's Grove, Keowee, and Jocassee. Checked HPs including Brasstown Creek, Watson Cooper, and Stumphouse Mountain.

Regions 2 & 4 Assistant Chief Activities

Met with and/or conducted multiple conference calls with Chief Dukes, Deputy Director Cope and assistant

Chiefs Swaynham and Dillman on various topics. Met with local DNR staff and Francis Marion Forest Service staff to discuss topics related to the Francis Marion National Forest. Attended the WFF Advisory Board meeting in Columbia. Participated in the DNR Board meeting virtually. Viewed Aquatic Plant Management Plan meeting virtually. Biologist Kneece and I provided a tour of the Samworth impoundments to Board members Lee and Hartley. Met with Director Boyles, Deputy Director Cope, Chief Dukes and other Assistant Chiefs on CAT I waterfowl areas. Participated in multiple conference calls and provided comments concerning the proposed waterline on Lewis Ocean Bay Heritage Preserve and the rezoning for the hospital along International Drive. Met with Deputy Director Cope and Van Whitehead on proposed waterline to be located on Lewis Ocean Bay Heritage Preserve. Met on site with Captain Thomas and Dr. Byron Bailey concerning deer issues on his property.

Prepared annual CAT I waterfowl accomplishments for Deputy Director Cope. Proofed and submitted a copy of the 2021-2022 Rules and Regs. Hosted a gathering at Bonneau Ferry for all staff who worked lottery waterfowl hunts this winter. Assisted two days with prescribed burning on Lewis Ocean Bay Heritage Preserve in which International Drive was closed to through traffic. Assisted with prescribed burning on Bonneau Ferry for two days. Updated Wildlife Section on-line directory. Submitted extension requests and tracking sheets for various FEMA projects that are ongoing. Conducted orientation with new employee at Santee Coastal. Spent time inspecting and coordinating fireline clearing on Francis Marion National Forest. Provided comments on a permitting plan for WFF properties. Provided input on alligator issue occurring on Fripp Island. Inspected Botany Bay Plantation with Technician Ward. Inspected tree planting at Bonneau Ferry WMA. Inspected Webb and Palachucola WMAs with Biologists Moss and Atkinson.

Wildlife Region 1

Summary

Staff handled 57 nuisance wildlife investigations, made eight site visits, and issued 91 depredation permits. Received 14 bear calls, two road kills, and made two bear site visits. Met with an environmental consultant to determine what actions are needed to restore Beaverdam Waterfowl Area. Assisted with the final deer trapping efforts of the Clemson deer research program in McCormick County. Met with SCDNR Small Game Project staff, USACE, and USFS to discuss the potential for Bordeaux Work Center area to become a quail focal area. Finalized the acquisition of the addition of a tract to Wadakoe HP within Jocassee Gorges. Assisted state bat biologist with a bat survey in middle tunnel on Stumphouse HP.

Region 1 Coordinator

Completed administrative activities including budgeting, purchasing, correspondence, and daily staff status reports. Completed and submitted Region 1 wildlife FY21-22 budget requests. Met with stream restoration consultant and Unit 1A biologist at Beaverdam WMA to address ongoing sedimentation and erosion problems. Assisted AC move equipment to Watson Cooper HP for fire line prep. Assisted Unit 1A biologist and OEP staff with USACE 404 permits for Beaverdam and Clemson. Reviewed and submitted edits for a peer reviewed article on cottontail rabbit biology and management for Clemson University's Land Grant Press. Participated in the Clemson University Animal Care and Use Committee meeting and reviewed three research protocols. Attended a GIS webinar through SCDNR and participated in a Partnership for the Blue Ridge virtual meeting. Checked WMAs including Beaverdam, Fant's Grove, Keowee, Jocassee Gorges, and Sumter NF. Checked Watson Cooper HP.

Nuisance Wildlife Activities

Conducted 57 nuisance wildlife investigations, and made eight site visits. Issued 91 depredation permits. Checked and maintained hog trapping sites on WMA and assisted regional techs. Removed two trapped barn owls from a chimney at the Clemson Botanical Gardens. Assisted landowners with complaints on deer damage, Canada goose/duck in parking lot at Greenville business, osprey on lights in baseball field, and an owl in building.

Upstate Bear Report

Handled 14 bear complaint calls/sightings, two road kills, and conducted two site visits pertaining to bears. Two orphaned bear cubs from Spartanburg and Greenville counties were transported to Appalachian Bear Rescue for rehab. Both cubs were successfully transferred to foster dens. Investigated a reported active bear den sight in a construction area. Attended a virtual meeting of the Southeast Black Bear Working Group this month to discuss harvest numbers, nuisance bear issues, mast survey results, and current research projects.

Unit 1A (Anderson, Greenville, Oconee & Pickens)

Checked boundary marking on WMAs and reposted as needed (20 signs). Equipment maintenance was completed on equipment at the Ravenel Work Center. Surplus equipment was moved from various locations to Ravenel Work Center to have a public sale in the next month. Began to plow dove fields and prepare sites for planting this season. All Unit 1A staff passed the exam to receive non-commercial pesticide applicator licenses.

Property Management Activities:

Beaverdam Waterfowl Area – Worked on maintaining proper water levels within impoundments. Repaired hole in the entrance road caused by storm damage. Met with stream restoration engineer to assess the site and received recommendations on repairing the stream flow. Worked on permit application to dredge sediment from Little Beaverdam Creek.

Tall Pines WMA – Monitored the spillway of Tall Pines Lake and removed beaver dams several times. Picked up litter in the parking area. Met with LE and adjacent landowner to clarify boundary signs on south side of the unnamed piece of WMA off River Road. Worked with SCFC to burn 110 acres on Tall Pines above the main lake. Performed trail maintenance on the nature loop by the lake and removed several trees blocking the trails. Staff and volunteer mowed the dike between the two lakes and applied herbicide on the woody vegetation to prevent regrowth.

Caesars Head WMA – Monitored boundaries on WMA and reposted signs as needed.

Clemson Waterfowl Area – Monitored water levels and removed beaver dams from tributary creek that runs along edge of field. Monitored hog activity and baited the trap. Worked with Clemson Agriculture staff on monitoring hog traps. Met with an environmental consultant to determine what actions are needed to repair the waterfowl area. Worked on information and data needed for permit application to repair dike and pipe system in the waterfowl area.

Fant's Grove WMA – Monitored wildlife food plot conditions and checked road conditions. Two hog trap sites were monitored and eight hogs were removed. WMA signs were reposted in areas where the signs had been stolen or damaged. Dove fields were plowed and prepared to plant this season.

Gravelly WMA – Wildlife openings are being monitored for condition and hog damage signs. Worked with SCFC staff to open two wildlife food plots back up that were overgrown. Installed three cable gates on Causey Farm to restrict vehicles from accessing and damaging dove fields.

Keowee WMA – Boundary signs were reposted as needed. Assistant Small Game Biologist visited to look at habitat changes and small game hunting areas.

Long Creek Tracts WMA – Monitored field conditions.

Pickens Rifle Range Dove Field – Monitored field conditions.

Ross Mountain Dove Field – Monitored fields for condition and hog damage signs.

Sumter NF - Andrew Pickens WMA – Worked with USFS staff on wildlife openings as needed. WMA signs are being reposted as needed. Assisted with hog trapping.

Unit 1B (Abbeville, Edgefield, Greenwood & McCormick)

Considerable time was spent on prescribed fire planning and 864 acres were prescribed burned. Met with SCDNR Small Game Project staff, USACE, and USFS to discuss the potential for Bordeaux Work Center area to become a quail focal area and tentative plans are to further pursue the feasibility of developing a proposal. Met with USFS, APHIS, and private landowner to discuss ongoing beaver issues near Mason Tract. Reviewed and made recommendations for USACE's Lake Russell area new hunting app. Attended virtual meeting for Wildlife Habitat Education Program (WHEP) educators. Submitted budget requests. Assisted with deer trapping efforts with McCormick County deer-coyote project. Technicians attended technician's virtual meeting.

Property Management Activities:

James L. Mason WMA – Prescribed burned 32 acres of longleaf pine and assisted USFS with a 1333-acre "high-complexity" aerial ignition burn that encompassed 104 acres of Mason Tract.

Bordeaux Dove Field – Applied herbicide to 61 acres and chisel plowed eight acres.

Plum Branch Dove Field – Chisel plowed and field cultivated six acres.

Parksville Dove Field – Chisel plowed and field cultivated five acres.

Russell Creek Waterfowl Area – Removed riser boards, trapped beavers, and monitored water levels.

USACE-owned "unnamed" WMA – Prescribed burned 68 acres at Torchia's Store. Prescribed burned 151 acres at Hester's Point. Prescribed burned 142 acres at Patterson Branch. Prescribed burned 86 acres, hack-n-squirted undesirable hardwoods, scraped three miles of road, chisel plowed 10 acres, and applied herbicide to 17 acres at Greenoaks. Prescribed burned 90 acres and scraped two miles of road at Old Augusta. Prescribed burned 112 acres (85 acres 1B staff; 27 acres contractor) and applied herbicide to six acres at Small Game Area. Prescribed burned 10 acres at Calhoun Falls Bank Fishing Area. Installed 13 wood duck boxes at various locations in Lake Thurmond.

Unit 1C (Cherokee, Laurens, Spartanburg, Union)

Finished prescribed fire plans for Cliff Pitts WMA burn units. Attended the monthly Indian Creek conference call with USFS, Quail Forever, Clemson Ext., and NRCS. Assisted with the final deer trapping efforts of the Clemson

deer research program in McCormick County. Picked up and transported bear cub found in Landrum to the Appalachian Bear Rescue in Townsend, TN. Met with Union County private landowner to provide technical assistance regarding wildlife habitat enhancement planning for an 1800-acre farm in Union County. Attended pesticide training program during a portion of the 2021 technician's meeting. Spoke with News Ch. 7 reporter regarding coyote entering home of Spartanburg County resident.

Property Management Activities:

Cliff Pitts WMA –Prepared and burned 82 acres of mature pine stands off of the Hood Creek access portion of the WMA.

Cliff Pitts Dove Field –Spread lime on the field, constructed a new gate, and spread gravel on the new dove field parking lot.

Cliff Pitts Bird Dog Training Area – Final user data was collected, compiled, and submitted to the small game project coordinator.

Gaffney Dove Field – Fertilized and applied herbicide to three acres of winter wheat and disked seven acres in preparation for planting warm season dove field crops.

Gray Court Dove Field - Fertilized and applied herbicide to three acres of winter wheat.

Herbert Dove Field – Fertilized and applied herbicide to five acres of winter wheat.

Santee Cooper Dove Field – Fertilized and applied herbicide to two acres of winter wheat.

Sedalia Dove Field – Fertilized and applied herbicide to two acres of winter wheat.

Sumter NF – Dunaway WMA – Monitored water levels and water control structures during heavy rain event.

Sumter NF - Tyger WMA –Monitored water levels and water control structures during heavy rain event.

Thurmond Tract Dove Field – Fertilized and applied herbicide to four acres of winter wheat.

Jocassee Gorges

Over 50 phone calls or email inquiries were handled with questions about camping, roads openings, Sassafras, virus issues, hunting seasons and general use of Jocassee Gorges. The acquisition of the Wadako addition was finalized. Coordinated with TNC on a planned control burn on Jocassee Gorges. Communicated with the Ruffed Grouse Society on a potential timber harvest.

Property Management Activities:

Jocassee WMA – Graded 10 miles of roads and attended three miles of firebreaks. Control burned two sections of forest that totaled about 500 acres. Mowed vegetation along roadsides for about five miles. Spring cleaning of the Sam Stokes Work Center was conducted and numerous pieces of equipment were maintained. Installed four culverts on Breedlove Toll Road. The Cane Creek Bridge was repaired.

Heritage Preserve Activities

Administrative tasks completed include budget requests, management plan update for Chestnut Ridge HP, and approval of two research permits. Completed a prescribed burn on Bunched Arrowhead HP. Assisted state bat biologist with a bat survey in middle tunnel on Stumphouse HP. Met with Naturaland Trust and property owners of a parcel in Travelers Rest to discuss acquisition. Attended a GIS webinar put on by Tanner Arrington. Participated in the bi-annual Partnership for the Blue Ridge meeting. Completed DLEO SCCJA update videos. Conducted 30 site visits on 11 Upstate Heritage Preserves. Conducted maintenance on trailers, gators, skid steer, and vehicles. Picked up duty vest from Styx.

Property Management Activities:

Ashmore HP – Picked up trash, checked gate, installed sign at pitcher plant site on pond, inspected two miles of trail, and controlled exotic species.

Bald Rock HP – Picked up trash (6 times, 9.5 man hours of pick-up).

Blackwell HP – Checked gate and inspected property.

Brasstown Creek HP – Inspected bottom road for hog sign, controlled exotic species, picked up trash, gate checks, and inspected property to the upper end of Battle Creek.

Buzzard Roost HP – Inspected trail.

Bunched Arrowhead HP – Inspected trail, picked up trash, and filled potholes.

Chandler HP – Property inspection and re-installed t-posts to deter trespassing.

Chestnut Ridge HP – Checked gate, inspected roads/trail, and removed downed trees.

Clear Creek HP – Picked up trash and inspected property.

Eastatoe Creek HP – Inspected trail and controlled exotic species.

Stumphouse HP – Worked to repair 22 water bars and turnouts, installed signs, controlled exotic species, and planned road to Turnip Top. Measured for new gates and fixed existing gate. Detained illegal bikers and four wheelers on preserve for LE.

Watson-Cooper HP – Assisted with bulldozer transport.

Wildlife Region 2

Summary

Region 2 staff spent significant time implementing prescribed fire. Region 2 staff burned 2,226 acres. Staff also spent significant time scoring deer, as staff measured 32 deer heads. Region 2 FY 22 budget request was prepared and submitted as requested. Unit A staff completed the work on a new deer proof fence at Pee Dee Station dove field. Unit C Staff spent several days prepping, conducting, and monitoring/evaluating 8 prescribed burns totaling 231 acres. To date, Unit 2C staff have conducted 10 prescribed burns totaling 269 acres without any incidents. Heritage preserve management staff worked on endangered species and ecosystem monitoring, restoration and management; on longleaf and shortleaf pine, piedmont savanna and prescribed fire management, outreach, policy and education; on management plans; on conservation planning, and on maintaining and improving access and other preserve attributes. Staff adhered to SCDNR C-19 emergency protocols in field work and office work, following social distancing and sanitation measures. The department has continued to provide personal protective equipment and sanitation supplies to staff to help us work safely and productively.

Regional Operations Activities

Unit 2A

Unit A staff burned 11 burn blocks totaling 293 acres at Marsh WMA. Unit A staff in conjunction with the SC Forestry Commission, burned 3 blocks at Woodbury WMA totaling 462 acres. After a wildfire was discovered, Unit A staff partnered with the SCFC to burn an additional 432 acres to contain the wildfire. Coordinator Stokes and Biologist Oates measured 32 sets of antlers, with 20 meeting the minimum threshold for the state record books. Biologist Oates and technician Fitts completed the DLEO legal update. Biologist Oates received his ballistic vest from Styx. Biologist Oates coordinated with potential timber buyers to aid them in accessing Woodbury during flooding in order to place bid on 1132-acre timber sale. The Woodbury bid was awarded to Tracy's Logging Forest Products with a bid of 20.12 per ton for the pine pulpwood. Technicians Parsons and Parsons attended the annual technician meeting virtually. Technician Parsons attended the virtual pesticide class. Technician Alston scraped 5 miles of roads at Marsh WMA. Technician Parsons graded 15 miles of roads in Marsh WMA. Technician Parsons disked 3.5 miles of fire breaks in Woodbury WMA. Technician Parsons daylighted ½ mile of roads in Woodbury WMA. Technician Parsons and Alston disked 2 miles of firebreaks at Marsh WMA. Technicians Parsons and Parsons spread 2 tons of nitrogen on 10 acres of winter wheat at Pee Dee Station WMA. Technician Parsons mowed 3 acres around dove field. Unit A staff completed the Pee Dee Station dove field fence. Staff installed 5622 feet of 4 ft hog wire, 33732 feet of high tensile wire, 930 wire ties, 30 wire ratchets, 18 gates, and 14 corner and support poles. Technician Fitts configured a pallet designed to aid in the distribution of lime and fertilizer. Region staff had 162 technical assistance contacts (mostly phone calls) pertaining to wildlife, regulations, and WMA lands and 20 nuisance calls (1 bear and 1 alligator).

Unit 2B

Unit 2B staff continued maintenance of public dove fields in York and Chester Counties.

Unit 2B staff spent considerable time on scheduled equipment maintenance. Technician Moses maintained roads, firebreaks, and wildlife openings at Draper WMA. Technician Wyatt maintained roads and wildlife openings at Worth Mountain WMA. Technician Moses and Technician Wyatt burned 60 acres at Landsford Canal WMA. Technician Moses and Technician Wyatt burned 50 acres at Draper WMA. Technician Scales and Technician Smith burned dikes at Broad River WMA. Unit 2B staff applied herbicide to dove fields at Worthy Bottoms, Landsford Canal, Draper, and Worth Mountain WMAs. Technician Wyatt began clearing an old road to a prospective wood duck bait site at Worth Mountain WMA. Technician Smith, Biologist Kesler and Technician Scales began draining impoundments, monitored beaver activity in ditches, and maintained water control structures at BRWMA. Unit 2B staff regularly inspected gates and kiosks at multiple WMA properties. Biologist Kesler assisted a volunteer with installing 6 new wood duck boxes at Broad River WMA.

Unit 2C

Staff conducted 2 prescribed burns totaling 100 acres at Liberty Hill WMA. Coordinator Stokes and Unit 2A Biologist Oates assisted with the burns. Staff conducted 1 prescribed burn of 22 acres at Crossroads WMA. In addition, a human caused wildfire of 50 acres, contained by the SC Forestry Commission, occurred on March 10. While searching the area near the wildfire, a second wildfire start (about 40 ft circle that had been put out) was

located. Staff conducted 5 prescribed burns totaling 109 acres at McBee WMA. Coordinator Stokes and Volunteer Mason assisted with the burns. Staff assisted Unit A with prescribed burns at Marsh WMA on March 25. Technician Lowder completed the Certified Prescribed Fire Manager course in Florence on March 10. Biologist Cockman submitted budget requests for FY 2021. Biologist Cockman edited the GIS public lands database for Unit C. Biologist Cockman scored 4 sets of deer antlers at the Camden DNR office during the month. Biologist Cockman compiled visitor use data for the Angelus Bird Dog Training Area 2020-21 dog training season and submitted to small game project leader Hook. Biologist Cockman delivered turkey hunting materials to the Sand Hills State Forest and the Carolina Sandhills NWR. DLEO Cockman received a new ballistic vest on March 17.

Construction began on the McBee WMA equipment storage building on March 31. Staff laid out 5 more brood patches and a road at the clearcut at McBee WMA. Timber thinning on McBee WMA continued thru the month with approximately 10% left for completion. Technicians McManus and Lowder attended the virtual Technician meeting on March 8. Technician Lowder disked 4 miles of firebreaks and distributed 10 bushels of supplemental feed (March 4) at McBee WMA and disked 2 miles of firebreaks at Crossroads WMA. Technician McManus graded 2 miles of roads, repaired fence and mowed 2 acres at Liberty Hill WMA.

Wildlife Management Area Management Summary

Throughout Region 2, staff mowed 3 acres, burned 2,226 acres, disked 22 miles of fire breaks, scraped 26 miles of roads, spread nitrogen on 10 acres, applied herbicide to 135 acres of PDF,

Property Management Activities

Marsh WMA: Prescribed burned 11 blocks totaling 293 acres. Scraped 20 miles of roads. Disked 2 miles of firebreaks.

Woodbury WMA: Prescribed burned 4 blocks totaling 894 acres. Disked 3.5 miles of firebreaks. Daylighted ½ mile of road.

Pee Dee Station WMA: Spread 2 tons of nitrogen on 10 acres of winter wheat. Mowed 3 acres. Installed 5622 feet of 4' hog wire, 33732 feet of high tensile wire, 930 wire ties, 30 wire ratchets, 18 gates, and 14 corner posts and support poles.

McBee WMA: Prescribed burned 109 acres. Disked 4 miles of firebreaks. Continued timber harvesting. Supplemental fed 10 bushels of sorghum. Layed out 5 brood patches. Bladed ½ mile of new road.

Liberty Hill WMA: Prescribed burned 100 acres. Monitored visitor use. Graded 2 miles of roads. Mowed 2 acres at shop and kiosk.

Angelus BDTR: Monitored visitor use.

Campbell's Crossroads: Prescribed burned 22 acres. Disked 2 miles of firebreaks.

Draper WMA: Perform general depot and equipment maintenance. Scraped 2 miles of roads. Mowed 5 acres. Applied herbicide to 66 acres in dove fields. Disced 5.5 miles of firebreaks. Disced 2 acres of wildlife openings. Applied prescribed fire to 50 acres. Maintained 2.5 miles of firebreaks.

Worth Mtn. WMA: Perform general equipment maintenance and repair. Applied herbicide to 22 acres in dove fields. Scraped 1/2 mile of road. Posted 1 mile of boundary.

Broad River Waterfowl Management Area: Perform general equipment maintenance and repair. Perform 20 days of water level management. Applied fertilizer to 5 acres of wheat. Mowed 4 acres. Scraped and graveled 1/2 mile of road.

Worthy Bottoms PDF: Applied herbicide to 25 acres in dove field. Mulched 8 acres of old dove field to increase field size.

Heritage Preserve Management Activities

Heritage preserve management staff worked on endangered species and ecosystem monitoring, restoration and management; on longleaf and shortleaf pine, piedmont savanna and prescribed fire management, outreach, policy and education; on management plans; on conservation planning, and on maintaining and improving access and other preserve attributes. Staff continued to adhere to SCDNR C-19 emergency protocols in field work and office work, following social distancing and sanitation measures. The department has continued to provide personal protective equipment and sanitation supplies to staff to help us work safely and productively. Two of three HP management staff have contracted, become mildly sick from, and recovered from C-19. Two of three staff have received two vaccinations (Pfizer). Staff conducted controlled burns on 698 acres on three preserves, restoring and maintaining habitat for three federally-endangered species. Staff gave a presentation on controlled burning to the SCDNR Board, receiving vital help from Patty Castine, who compiled statistics on several years of prescribed burns on DNR Heritage Preserves and Wildlife Management Areas. Governor McMaster's Office requested a copy of the presentation. Staff published "Lighting Fire to Fight Fire" in the International Association of Wildland Fire's

Wildfire magazine, which was featured in the presentation to the DNR Board. Staff worked on business of the SC Prescribed Fire Council and the International Association of Wildland Fire. Staff answered many questions about specific prescribed burning operations, techniques and on-the-ground firefighting. Staff spent several non-work days teaching landowners and managers and their families how to burn.

Staff peer-reviewed “Endangered and Threatened Species” for Land-Grant Press, a Clemson University Extension publication. Staff assisted Francis Marion University with planning for planting native species in bioswales to filter and control run-off from planned construction of new facilities. Staff provided recommendations on effective, relatively-nonflammable species and invited Clemson Extension Water Resources Agent into planning group. Staff provided input to the USF&WS 5-Year Review of Canby’s dropwort (*Tiedemannia canbyi*, *fka Oxypolis canbyii*), a fire- and flood-dependent, federal endangered species that is a management focus on Longleaf Pine HP/WMA and is found on at least one other DNR HP (Crosby’s Oxypolis HP). Staff commented on the population status of this plant on Longleaf Pine HP/WMA, and gave overall input on prescribed burning tactics, and population dynamics, including minimum viable population (MVP) and the need for a population viability analysis (PVA). Dr. Jeff Glitzenstein, an authority on the species, told the review group that the population on Longleaf Pine HP/WMA is stable, the main criteria for population health in this context. Staff met at Lynchburg Savanna HP/WMA with SCDNR Red-cockaded Woodpecker Biologist, USF&WS Law Enforcement and USF&WS RCW Coordinator, and Black River Electric Cooperative (BREC) and its contractor Right Way Tree Experts (RWTE) to inspect direct damage BREC and RWTE inflicted on critical habitat of the federally-endangered red-cockaded woodpecker (*Picoides borealis*) and remediation of this damage. RWTE caused severe rutting both on as well as off their right-of-way, these ruts occurring very near the trunk of an active cavity tree. The contractor also cut limbs from cavity trees. All this was done despite the department’s long-established posting of numerous, large, conspicuous signs with both clear detailed language as well as plain symbols and a SCDNR number to call for more information. We required the company to fill the ruts by hand and we are requiring them to pay for installation of artificial nest cavity inserts to replace those in trees that now have a much-shortened life expectancy (Filling the ruts will not restore original conditions; certain trees will likely topple in storms and are also susceptible to insects, diseases, drought-flood stress and fire damage). We also offered to provide spatial and other information on sensitive elements on our lands and to assist with training for the company and its contractors. This is the second time BREC contractors have caused such damage, but this time is much worse than the damage BREC’s agent caused in 2010. Staff assessed firebreaks, soil and water-table conditions, and fuels; cleared around cavity trees of the federally-endangered red-cockaded woodpecker (RCW; *Picoides borealis*) as well as snags, cat-faced trees, gates, signs, utility poles and other hazards or sensitive elements; and worked on equipment and gathered supplies in preparation for prescribed fire. Staff maintained preserves by assisting the SCDNR LED with enforcement, by monitoring for abuse, by removing trash, by managing vegetation and by maintaining gates, trails, parking areas and boundaries.

Property Management Activities

Forty Acre Rock HP/WMA: Staff continued clearing firebreaks and raking around or cut snags and preparing other sensitive elements on all burn units. Staff walked firebreaks and all burn units to assess fuel and soil conditions in preparation for prescribed fire. Staff maintained the preserve by assisting game wardens with surveillance (SCDNR issued 2 warnings), by monitoring for abuse, by removing trash and hazardous trees, by managing vegetation, and by maintaining gates, trails, parking areas and boundaries.

Great Pee Dee HP/WMA: Staff checked flood conditions, closing the preserve to vehicles as needed and posting these closings on the SCDNR website. Staff removed downed limbs and 2 dead hazardous trees.

Longleaf Pine HP/WMA: Staff conducted 6 controlled burns, totaling 520 acres. These were patchy burns leaving a mosaic of significant unburned areas. Three miles of firebreaks were cleared and RCW cavity trees were prepared in advance of firefighting. Staff applied herbicide (via hack-n-squirt application) to invasive sweetgum, spot treating 4 acres. Staff provided input to the USF&WS 5-Year Review of Canby’s dropwort (*Tiedemannia canbyi*, *fka Oxypolis canbyii*), a fire- and flood-dependent, federal endangered species that is a management focus on this preserve and is found on at least one other DNR HP (Crosby’s Oxypolis HP). Staff commented on the population status of this plant on Longleaf Pine HP/WMA, and gave overall input on prescribed burning tactics, and population dynamics, including minimum viable population (MVP) and the need for a population viability analysis (PVA). Dr. Jeff Glitzenstein, an authority on the species, told the review group that the population on Longleaf Pine HP/WMA is stable, the main criteria for population health in this context

Lynchburg Savanna HP/WMA: Staff conducted two prescribed burns, totaling 168 acres. These were patchy burns leaving a mosaic of significant unburned areas. RCW cavity trees were prepared in advance of

firelighting. Staff met at the preserve with SCDNR Red-cockaded Woodpecker Biologist, USF&WS Law Enforcement and USF&WS RCW Coordinator, and Black River Electric Cooperative (BREC) and its contractor Right Way Tree Experts (RWTE) to inspect direct damage BREC and RWTE inflicted on critical habitat of the federally-endangered red-cockaded woodpecker (*Picoides borealis*) and remediation of this damage. RWTE caused severe rutting both on as well as off their right-of-way, these ruts occurring very near the trunk of an active cavity tree. The contractor also cut limbs from cavity trees. All this was done despite the department's long-established posting of numerous, large, conspicuous signs with both clear detailed language as well as plain symbols and a SCDNR number to call for more information. We required the company to fill the ruts by hand and we are requiring them to pay for installation of artificial nest cavity inserts to replace those in trees that now have a much-shortened life expectancy (Filling the ruts will not restore original conditions; certain trees will likely topple in storms and are also susceptible to insects, diseases, drought-flood stress and fire damage). We also offered to provide spatial and other information on sensitive elements on our lands and to assist with training for the company and its contractors. This is the second time BREC contractors have caused such damage, but this time is much worse than the damage BREC's agent caused in 2010.

Woods Bay HP- Staff conducted a controlled burn on 12 acres. This burn will make burning other units much easier.

Wildlife Region 3 **Summary**

Continued high river levels resulted in many days spent regulating water control structures on Wateree River Heritage Preserve Wildlife Management Area and Love Wildlife Management Area. Staff from Region 3A assisted with several burns at Belfast Wildlife Management Area and Wateree River Heritage Preserve Wildlife Management Area. All technicians in the region participated in the annual technician meeting on-line on March 8th. Biologists Bennett and Simmons attended the annual waterfowl meeting at Bonneau Ferry Wildlife Management Area. Technicians Baldwin and Greenthaler completed the South Carolina Certified Prescribed Fire Manager course. Biologists Young and Simmons met with Deputy Director Cope at Savannah River Bluffs Heritage Preserve to discuss further plans to resolve the parking lot issue at the preserve along Old Plantation Road. The parking lot is too small to handle the visiting capacity of cars, blocking access down the one lane road to homeowners.

Regional Coordinator

Assisted regional staff with purchase requisitions, receiving and inspection reports, and personnel transactions forms. Submitted purchase card summaries by email for Region 3 Staff on March 12. Met with Department of Transportation about the sink hole at Shealy's Ponds Heritage Preserve. Participated in the Geographic Information System Webinar on March 9. Participated in the Aquatic Plant Management Council online meeting on March 10. Met with Biologist Young and Deputy Director Emily Cope about parking issues at Savannah River Bluffs Heritage Preserve on March 26. Answered 10 calls about hunting on wildlife management areas in Region 3. Answered 7 calls about issues on wildlife management area lands and heritage preserves. Visited the following heritage preserves and wildlife management areas in Region 3; Belfast, Congaree Bluffs, Crackerneck, Henderson, Hickory Top, Janet Harrison High Pond, Love Farm, Peachtree Rock, Shealy's Pond, Santee Cooper, Savannah River Bluffs and Wateree River.

Unit 3A

Staff conducted 57 acres of prescribed fire on Wateree River Heritage Preserve Wildlife Management Area. Staff spent much of their time working on repair roads damaged from wet weather. Technician Flemming and Technician Kiker filled in potholes and created water bars in areas with significant erosion. Waterfowl impoundments have been drained in preparation for spring planting. Staff spent several days repairing equipment used to rework and make road repairs. The dike repair is still underway as wet weather conditions and high river levels have remained and issue in completing repairs on the Cook's Mountain waterfowl impoundment. The Green Tree Reservoir restoration which includes understory mulching is still underway as wet weather conditions and high river levels have remained high. Turkeys were scouted to prepare for the upcoming draw turkey hunts. Waterfowl impoundment improvements are still underway.

Baldwin spent every other day managing water levels on the Love Farm Wildlife Management Area. Efforts to keep ditches and water control structures cleared of debris to waterfowl impoundments was ongoing. The pre-bid meeting for stumping/clearing of the dove field and shooting course and was March 18th. Staff replaced a pipe that was caved in going to the small waterfowl impoundment. Staff started grading the small impoundment with efforts to take out high spots. The planning process of the waterfowl impoundments improvements is still underway. Longleaf pines were planted in 6 acres of mitigation area. Baldwin mowed all waterfowl impoundments

for preparation of spring planting. Roads were cleared due to falling storm debris. With preparation of spring planting equipment maintenance took up a good amount of time.

Staff conducted 474 acres of prescribed fire on Belfast Wildlife Management Area. Agricultural activities included 22 acres of wheat fertilized and 25 acres sprayed for planting on 3 dove fields. 10 acres of quail brood patches were seeded with native seed. Work began on windows at the Belfast house. Stephens collected bids for spring seed and improvements to the Belfast shop. Stephens and Technician Rex utilized global positioning systems to map the new fire lines so they could be added to the map. Turkeys were scouted to prepare for the upcoming turkey draw hunts. Seasonal hunt schedule signage was put up on Belfast property for the season. Roads were cleared of downed trees at Belfast after strong thunderstorms on the area.

Unit 3B

Crackerneck Wildlife Management Area was open to the public for 4 days in February and had 94 visitors for general recreation and scouting and 10 for the youth turkey hunt on March 27th. Wildlife Biologist Hank Forehand and Wildlife Technicians Michael Chapman and Johnny Rinder manned and worked the gate for all opens days. Technician Chapman Fertilized 30 acres of wheat at Crackerneck Wildlife Management Area and 10 acres of wheat at Hallman dove field, disked 30 acres at Crackerneck Dove field, cleared several trees from the roads, worked on equipment for 4 days, and repaired the electric fence around the dove field with Technician Rinder. Technician Rinder masticated 20 acres of understory, plowed 30 acres at Hallman dove field, and plowed 5 acres of food plots at Crackerneck Wildlife Management Area. Biologist Forehand participated in a meeting concerning National Environmental Policy Act with Department of Energy in regard to the updated Crackerneck Wildlife Management Area Plan, participated in a task force meeting regarding potential research projects that could impact Savannah River Site, planted 20 acres of wildflower seeds donated by United States Forest Service -Savannah River Site, and assisted Biologist Hunter Young fix a gate and install signs at Savannah River Bluffs Heritage Preserve. United States Forest Service-Savannah River Site conducted 3 prescribed burns totaling approximately 4500 acres.

Unit 3C

All technicians attended the statewide virtual technicians meeting. Technician Greenthaler attended and completed the South Carolina Forestry Commission Certified Prescribed Fire Managers Course. Santee Dam Wildlife Management Area was flooded twice during the month due to spilling and high-water levels on the Santee Cooper Lakes. Staff made further repairs to and cleaned equipment. Staff also monitored and adjusted water levels as needed at Hickory Top Wildlife Management Area. Biologist Shuler removed several beaver dams to combat flooding and high water on Hickory Top Wildlife Management Area. Technician Smith repaired roads on Santee Cooper Wildlife Management Area and drained water off the roads as well. Smith and Mackey repaired and refurbished the deer fence on the Santee Cooper dove field. Staff continued preparing all dove fields within the unit for spring planting. Staff also prepared for the upcoming draw Turkey Hunts on Santee Cooper Wildlife Management Area.

Heritage Preserves

Heritage Preserve Biologist Young and Technician Kiker have transitioned back to working in the field within Region 3. Young and Kiker conducted numerous site visits to the Heritage Preserves and Wildlife Management Areas within Region 3. A new heating and air conditioning system was installed at the Education Center at Congaree Bluffs Heritage Preserve. Young gave a presentation on Aiken Gopher Tortoise Heritage Preserve at the Wildlife and Freshwater Fisheries Advisory Board Meeting at the Columbia office. Young has continued monitor training for cluster surveys of Red-cockaded Woodpeckers. Young, assisted Red-cockaded Woodpecker Biologist Lerow in surveying Aiken Gopher Tortoise Heritage Preserve and Aiken State Park. Young and Kiker assisted Region 3A Biologist Bennett conducted 300 acres of prescribed burns at Belfast Wildlife Management Area. Young and Kiker conducted a prescribed burn of 41 acres at Congaree Bluffs Heritage Preserve along with help from other Region 3 staff. The South Carolina Forestry Commission burned 54 acres at Aiken Gopher Tortoise Heritage Preserve. Young, Botanist Bradley and Regional Coordinator Simmons met with South Carolina Department of Transportation at Shealy's Pond Heritage Preserve to discuss the plan to fix the erosion along the right-of-way of Boiling Springs Road. The proposal will have to be approved by the Heritage Trust board for the project to progress further. Young met with Small game Leader Hook and Assistant Small game Biologist Small at Ditch Pond Heritage Preserve and Aiken Gopher Tortoise Heritage Preserve to look at improving quail habitat on the preserves. Young and Kiker have been mulching and clearing scrub oaks and volunteer Longleaf pines around Aiken Gopher Tortoise Heritage Preserve. This is to improve ground sunlight and open dense understory areas. Young met with Simmons and Deputy Director Cope at Savannah River Bluffs Heritage Preserve to discuss further plans to resolve the parking lot issue at the preserve along Old Plantation Road. The parking lot is

too small to handle the visiting capacity of cars, blocking access down the one lane road to homeowners. Young met with the South Carolina Association of Naturalists at Aiken Gopher Tortoise Heritage Preserve for their recreational visit. Kiker finished maintenance on appliances at the Education Center at Congaree Bluffs Heritage Preserve. Kiker has been continually picking up litter at Shealy's Pond Heritage Preserve, Congaree Bluffs Heritage Preserve, and Savannah River Bluffs Heritage Preserve. Kiker begun to replace and renew various use signs at the heritage preserves in Region 3. Young assisted the Cohen Campbell Hatchery staff in shooting Canada geese off the fishponds via an issued depredation permit. Kiker has conducted regular trail maintenance at Congaree Bluffs Heritage Preserve and Aiken Gopher Tortoise Heritage Preserve. Young and Kiker have continually been trapping hogs at Congaree Bluffs Heritage Preserve. Young and Kiker have plowed the firebreaks at Congaree Bluffs Heritage Preserve and cleared several areas of dense understory brush. Kiker attended the annual Technicians meeting. The property sign at Aiken Gopher Tortoise Heritage Preserve was stolen. A new one will be ordered. The kiosk at Bennett's Bay Heritage Preserve was vandalized and information sheets were removed. New information sheets will be ordered and replaced.

Wildlife Region 4

Highlights

Region 4 Unit B Technician Ryan Tyler was awarded the SCDNR Wildlife Section Technician of the Year award. Hook assisted MRD staff with beginning a prescribed fire program on Fenwick Island WMA. Region 4 staff spent significant time on preparations of dove fields, waterfowl impoundments, and prescribed burning. A total of 9,026 acres were prescribed burned in Region 4. Region 4 technicians attended the virtual Wildlife Technician's Meeting.

Regional Coordination

The four-day 2021 Winter Atlantic Coast Flyway Council Technical Sections meeting was hosted virtually with planning committee members Molly Kneece, Amy Tegeler, and Zoey Fletcher. A site visit was conducted at the Bonneau Borrow Ponds with Santee Cooper. A meeting was attended with OMO to discuss waterfowl media and outreach plan. Site visits were conducted to examine a month of very successful prescribed burning across the Region. Field conditions were examined, and planting plan discussed for Sandy Beach WMA. A tour of Samworth WMA was given to Steward Terra Communications. Remediation of encroachment activities were monitored at Lewis Ocean Bay. Prebid meeting for Upper Middleton Units at Samworth was attended. Various personnel issues were attended to, including the posting of several vacancies.

Assistant Regional Coordination

Assistant Regional Coordinator Hook assisted staff from the SCDNR Marine Resources Division with implementation and execution of prescribed burns on Fenwick Island WMA. Hook assisted staff with multiple days of prescribed burns on Lewis Ocean Bay HP and Webb WMA. Dove field planting conditions were examined across the Region. Recent prescribed burns were examined across the Region. A google drive document was developed for monthly reporting. Permitting projects on Santee Coastal Reserve were worked on and developed. Hook and Treptow reviewed upcoming timber harvest acreage at Santee Coastal Reserve WMA. Regional Coordinator Farrell and Hook examined field conditions at Sandy Beach WMA and discussed planting plans. Multiple webinars were attended. Hook attended a joint meeting with the USFS at Tibwin.

Unit 4A: Horry & Georgetown

Coastal bear activity began to pick up in March. There were 6 sightings reported. One sighting resulted in LE responding and ticketing an individual for feeding bears. Biologist Brantley has worked with the OMO department and updated a couple of planned news releases set to be released next month. Brantley has also prepared an email to distribute to multiple HOA's and management companies within Carolina Forest. Heritage Preserves in Horry County were visited 23 times. Staff spent 5 days assisting with multiple prescribed burns on Lewis Ocean Bay Heritage Preserve. Technician Matthews spent 1 week mulching on the mini excavator working 2 newly installed firebreaks. In addition, he also mulched and reinstated several other old logging roads for future firebreaks. Matthews also assisted with cleaning, repairing, and preparing burn equipment. Biologist Brantley participated with a herp survey that was conducted on recently burned areas. Ground conditions were drier in March and dove field preparations are in full swing. The final touches we made with the box blade and fence lines were sprayed. Fertilizer was spread and the seed and herbicide were delivered. Two prescribed burns were conducted on the uplands at Samworth WMA. Biologist Brantley met with Regional Coordinator Farrell to discuss budgets and general Unit items. Brantley assisted with scoring 3 sets of antlers. The SC Game Check posters were distributed to multiple vendors for display.

Unit 4B: Berkeley & Charleston

March activities were dominated by productive agricultural work in waterfowl impoundments and dove fields, as well as prescribed burning. We are proud to recognize Ryan Tyler for being awarded the Wildlife Section's Technician of the Year.

Bonneau Ferry WMA: 6 hunters and 123 general visitors utilized Bonneau Ferry. Roads were graded and gravel deliveries were received across the road system. Equipment was washed and serviced. Roads were limbed. Staff prescribed burned 925 acres. Staff prepared for, hosted, and cleaned up after a luncheon for lottery duck hunt staff. Several staff assisted with a TOMO turkey hunt. Staff loosened permanent deer stands. Staff raked around RCW trees in preparation for burning.

Canal WMA: Staff continue to work with USACE personnel via weekly conference calls. Beaver trapping continued and staff destroyed 3 beaver dams. Marsh master was used to clear ditches. Dove fields were disked, corn was planted, and wheat was fertilized. Fences were mended. Staff assisted USACE personnel with Veterans' fishing event.

Sandy Beach, Cross and North Dike WMA: Staff loosened deer stands, drew down impoundments, and have made significant progress discing the impoundments. Root rake was used to remove debris from impoundments. Staff sprayed ditches for aquatic weeds, and around the shed for weeds. Staff continued with layout plans for shed improvements at Sandy Beach. Staff removed the water control gate from Stoney Bay.

Francis Marion National Forest: Staff baited and trapped hogs; 9 on Hellhole, 7 on Waterhorn, and 1 on Wambaw. Signs were posted in Wambaw and Waterhorn. Openings were fertilized on Waterhorn. Spotlight surveys for deer were conducted on Waterhorn and Hellhole WMAs. Staff attended a meeting with Forest Service personnel at Tibwin. Staff prepared fire breaks for the Forest Service in the quail focus area in Northampton WMA. Staff assisted Law Enforcement with checking hog hunters.

Other Unit activities: Staff responded to several calls regarding semi-tame wild turkeys in or near Bonneau; staff euthanized one turkey. Staff attended the virtual Wildlife Technicians' Meeting. Staff replaced a wood duck box that was located too close to a newly constructed dock on Lake Marion. Staff met with Santee Cooper personnel to discuss management options within the borrow pits in Bonneau.

Wildlife: A total of 295 wildlife calls were handled at the Charleston office (82 alligator, 213 other nuisance animals). There were 34 licensing/boat titling and deer tags calls emailed to the licensing/permitting office. Hunting regulation and property calls were handled for 12 callers.

16 Property and 28 Individual Alligator Depredation Permits were mailed or picked up. 2 harvested Alligators have been reported through end of March. Alligator Signs were mailed to 5 Property Managers for posting.

Unit 4C: Colleton & Dorchester

Routine administrative and management duties were conducted for the month. Visits were made to WMAs within the unit to assess habitat conditions and other management items. Water levels in all impoundments on Donnelley and Bear Island were monitored and adjusted appropriately. Spring drawdowns began to provide foraging habitat for migrating shorebirds and to prepare the pond beds to grow brackish SAVs this summer. Technician staff in the unit attended the annual Technician's Meeting virtually. Phone calls and emails were fielded concerning condition of properties, hunt closures, etc. A roof replacement was completed by a contractor on Bear Island. There was a minimum of 10,430 visitors and 51 hunters for the month in Unit 4-C.

Bear Island WMA: Agriculturally, nitrogen was applied to approximately 10 acres of wheat plots. Several large fields that had heavy dead summer growth was burnt off to aid in preparation for spring planting. Prescribed burning a combination of woods and impoundments totaled 716 acres. Road and dike maintenance encompassed 1,950 linear feet of dike topped. Several areas in the Springfield Unit were rotovated and graded to repair dike damage from duck season. One gate was replaced after the elements rusted it apart. Spillway box sides were constructed on raining days in anticipation of the 2 trunks we plan to build this Spring. Miscellaneous jobs addressed during the month include, staff attended a virtual technician's meeting, all fire extinguishers from structures and equipment were gathered and inspected, several pieces of old equipment started the process for on-site sales. Construction/maintenance technician Joe Armstrong has moved to Botany Bay's big house where it is being refurbished. The demolition was completed, and the kitchen, bathroom and laundry room are in process. Joe orchestrated with contractors work to be addressed on two different staff houses at Bear Island. One of the houses has already had old shingles removed, repairs made to old roof sheeting and a new tin roof installed.

Botany Bay Plantation WMA: Staff continued work on the interior remodel of the Big house on rainy days. Staff was able to burn around 20 acres of hedgerows in the dove fields. Staff prepared for spring planting by disking

80 acres twice. Staff bedded, planted and sprayed 20 acres of corn. Three culvert pipes were replaced vastly improving the ability to drain ditches and roads after big rains. All main roads and the tour route were graded. Volunteer work included finishing up improvements at the Big House, weedeating around technician's house as well as the big house, kiosk, 92 blue bird boxes, and bird feeders. Volunteers also cleaned and cleared the camellia and azalea garden and started taking down rotten deck on the back of the Big House. A WeatherSTEM station was installed on 3/17/21 in the front yard of the Big House and assistant climatologist Melissa Griffin trained staff on how to use it. All duck boxes are checked monthly, and all 92 bluebird boxes have been repaired. On March 11, 2021 Charleston Homeschoolers were on the property for a walk and talk on bone yard beach. March 24, 2021 Charleston Collegiate brought students down to show students how to check water quality and have a walk and talk on bone yard beach as well as the some of the marsh. Craig Watson from Hilton Head was on the property March 6, 2021 and recorded 59 species of birds. Four volunteers collected samples on PVC and ELC and identified various marine species and plants on March 18, 2021. 44 monarch butterflies have been tagged. Erica Connery trained Bess and 5 volunteers on March 25, 2021 and they found 5 sites with 5 trees to collect caterpillars and insects. Volunteer hours = 155. There were 10,430 visitors with 3,251 vehicles for the month of March. There were 2 horseback riding parties with 5 riders for the month of March.

Donnelley WMA: Agriculturally, nitrogen was applied to 30 acres of wheat. A subsoiler we acquired from Webb Center has been converted to work with our application and tested. Electric fencing surrounding the dove fields was sprayed for weeds and grasses. Multiple repairs were needed on the fence after sitting dormant since last year. One normally heavily depredated field has had some additional strands of hot wire run several feet outside of the original fence in efforts to save some crops. Seed, herbicide, and fertilizer was hauled to Botany Bay and an additional tractor so corn planting could begin. Two prescribed burns covered approximately 550 acres. Repairs and maintenance were performed on F350 lights, new rear tires installed on F350, fuel filters changed, and a blade steering bracket welded on bulldozer. DHEC required underground fuel tank test were lined up and completed. A three-day hog hunt with dogs and one youth turkey hunt conducted during March. Miscellaneous jobs addressed during the month include, staff attended a virtual technician's meeting, all fire extinguishers from structures and equipment were gathered and inspected, several pieces of old equipment started the process for on-site sales.

Edisto River WMA: Four staff members spent 3 days at Edisto River WMA refreshing 3.4 miles of old property line markings on the high ground. The river frontage, 3.6 miles, was ridden by boat and had new placards put up as needed. The recent flood of the Edisto river washed several roads drastically and completely blew out a pipe where the road crosses a swamp finger.

GIS/GPS/Miscellaneous: Worked with staff to paint 3.4 miles of property boundaries on Edisto River WMA. One map was generated for the Shorebird Project Leader and the MRD Coastal Reserves and Outreach Director to be used in a presentation to the MRD Board identifying coastal properties managed by MRD and WFF. Information signs for the upcoming lottery drawn turkey hunts on Donnelley WMA were posted at the check station and the kiosks. Three 30x40 maps of Santee Coastal Reserve were printed and laminated for the area biologist along with a 30x40 updated kiosk information sign to be used on the front entrance kiosk. Assistance was provided with editing a bird check list for Botany Bay HP/WMA. Assistance was provided with generating Lidar maps for Palachuola WMA, Webb WMA and Hamilton Ridge WMA to assist staff with property management. Supplies were picked up for Donnelley office and mapping use. The kiosk supplies at Edisto River WMA were maintained.

Unit 4D: Beaufort, Hampton, & Jasper

A significant amount of time was spent on prescribed burning and preparing for spring plantings. Staff spent time preparing for the hog hunt and upcoming turkey season by posting signage, updating kiosks/check stations and closing roads for hunting access. Annual monitoring of RCW clusters and activity began this month. Staff conducted prescribed burns on 1,485 acres for wildlife management on Webb and Palachuola. The SC Forestry Commission conducted prescribed burns for an approximate 1400 acres on Hamilton Ridge. 2885 total acreage burned.

One hundred ninety-two (192) users signed in at the Palachuola Shooting Range. 227 non-hunting users signed in to the 3 WMAs during the month with activities including: scouting for hunting, birding, wildlife viewing, fishing, paddling and photography. Biologist Atkinson continued to work on specifications for large projects and procuring supplies and equipment for unit, answering phone calls, emails and completing management activities. Biologist Moss gave an alligator presentation to Latitude Margaritaville in Hardeeville. Moss attended the Lunch and Learn series in March. Technician Klecan completed Cyber Security training for SCEIS. Webb staff & facilities did not host any meetings in March. Lower Coastal Alligator activity for the month: issued 56 commercial permits with 185 tags, issued 4 individual permits with 11 tags, received 7 nuisance calls and sent out 0 alligator signs.

Habitat Management: 2,885 acres were prescribed burned for wildlife management. Staff spent time controlling approximately 35 acres of undesirable species with the brown tree mower. Staff worked on clearing logging debris to establish a pollinator plot on Hamilton Ridge. Staff worked on collecting and analyzing soil samples throughout the property. Staff prepared 10 acres of wildlife openings for spring planting. Staff spent significant time assisting with tree planting efforts on Hamilton Ridge.

Facilities & Infrastructure Maintenance: Staff graded 25 miles of roads. Approximately 5 miles of firebreaks were disked. Staff raked approximately 5 miles of roads in preparation for burning. Staff hauled 14 loads of rock for road maintenance. Staff spent time cleaning out 15 culverts after heavy rain events. Staff assisted with septic tank issues at resident house. Staff spent time erecting road closure wires and signs to limit traffic on secondary roads during the hog hunt. Staff spent time with mowing and general grounds maintenance. Staff spent time painting and replacing road signs on the WMA.

Equipment Maintenance: Staff spent time repairing the sidearm mower. Time was spent on general equipment maintenance & repairs.

Upper Coastal Waterfowl Project

Santee Coastal Reserve WMA

Upland: A significant amount of time was spent preparing for the upcoming turkey season. All kiosk information and maps were updated. Closed roads were marked better and/or closed off with gates. Rules and regs “dispensars” were installed in several locations. Boundaries of the WMA and TNC’s Washo Reserve were clearly marked with signs. The avenue was graded. The campground was changed to improve each individual camp site. Two blocks of longleaf pine were burned. A wall and lockable door was built on the dock to keep the public from potentially getting injured near the boat lift. Mowing of all the Big Well dikes and berms with the mini excavator was completed. Several food plots were burned, disked and planted. All areas to be harvested were inspected and logging deck locations were discussed with Assistant Regional Coordinator Hook.

The Cape: A bulkhead was completely rebuilt. Several dikes were disked, cultipacked, planted with oats and fescue and cultipacked again. Two interior spillway boxes had wingwalls added.

Murphy Island: The long reach excavator re-topped 1420 feet of dike along the South Santee River. The amphibious excavator was floated to several locations on the most southern dike to re-top low spots that could potentially breach in severe weather events.

Cedar Island: Extreme high tides and strong winds led to a dike breach on Cedar Island along the South Santee River near the ocean. The amphibious excavator was barged to the spot and a setback dike was built around the breach. The machine had to be refueled several times by airboat. The Kubota was barged back from Cedar Island.

Repairs: A mud boat was repaired. A water softener was installed for the ice machine to keep it from breaking. A boat trailer was repaired. The tracks of the amphibious excavator were tightened.

Other Activities: One staff member passed her captains license exams. The USDA helicopter dispatched 8 pigs on the Coastal Reserve property and 1 on the Deltas. Staff participated at a first aid class and a technicians meeting. The Marsh Master was hooked up to the backhoe implement and taken to Sandy Beach. Fuel lines were added to the Hanko and the airboat transfer tanks to make refueling remote equipment easier. A meeting with Hook and Carmichael regarding upland food plots was held. Pre-bid meetings were held at Samworth (wetland work) and the Coastal Reserve (boat painting). NOAA was moved by boat to several locations to help them with their search for a temporary river gauge.

Santee Delta WMA

The dike was keyed in near a water control structure to stop water from running through the dike. Wingwalls were added to the nearby structure. The whole area was covered with FLBC and smoothed out.

Samworth WMA

Approximately 540 LF of retopping completed a recent project on the Backfield Impoundment. This effort, which began in December 2020, provides improvements to 62% of the perimeter dike system on Backfield and restores water level management under normal tidal conditions. The amphibious excavator was moved to the Pullfare Impoundment where three breaches were repaired and 380LF of dike was retopped. A small, temporary dam was constructed on the outside shoulder of a 290LF section of perimeter dike to keep water from running over a low section of dike. The amphibious excavator was then moved to Rabbit Island where it will be repairing and retopping a large section of dike on the northern boundary of the impoundment between Butler and Alston Creeks. The damage occurred due to dike overtopping with highwater events experienced in December 2020 and February 2021. While on Rabbit Island, the amphibious excavator is also clearing interior ditches of floating vegetation to

facilitate better dewatering of the field beds in the impoundment. Thus far, approximately 2,155LF of ditches have been cleared. Approximately 580LF of interior dike has also been retopped on Rabbit Island. Approximately 38 acres have been mowed on Rabbit Island and 21 acres mowed on Mill Pond. Water control structures and bulkheads on Rabbit Island and along Little Carr Creek were prepared for prescribed burning activities. Thirty acres of field bed, cross-dikes and berms have been burned on Rabbit Island. Three miles of perimeter dike and cross-dikes have also been mowed on Rabbit Island and Mill Pond. The recently retopped perimeter dike of Backfield was seeded for erosion control. Habitat conditions and water levels were monitored across the property. A pig trap was disassembled and removed from Pullfare. Lumber was cut and stacked to dry for a new water control structure planned for Pullfare. Work continues on the Marsh Runner: a hydraulic filter fitting required replacing, large hydraulic supply lines required replumbing, tracks were tightened, and the right rear drive motor was replaced. Seats were installed on the rear of the Marsh Master for spraying and burning. A hydraulic line and track repair was also made on the Marsh Master. The first 500-hour fluid service was completed on the amphibious excavator and tracks were adjusted. Construction on a tool room expansion was completed in the shop. Land Mechanics and Design have commenced retopping and dike clearing on Lower Middleton and continue to stage material for breach repairs. Kneece participated in the Winter 2021 Atlantic Flyway Council Technical Sections meeting, hosted a pre-bid meeting for an Upper Middleton Contract Project, hosted SCDNR Board Members Dr. Mark Hartley and Mr. Jerry Lee for a property tour, and met with SCDNR Hydrologist Harder and Czwartacki about river level gauges.

Heritage Preserves

Staff was able to take advantage of some decent burn weather finally at Lewis Ocean Bay HP and Samworth WMA. Recent past recorded acres burned per year for LOBHP were surpassed by this month's totals and Technician Bell was able to qualify for his Prescribed Burn Manager certification given his fifth bossed burn at Samworth WMA. Staff received and spread 34 loads of large ballast stone at Cartwheel Bay HP for improved vehicular road access.

Cartwheel Bay HP: Vehicular and management access was improved within preserve by spreading 34 loads of large ballast stone on roads this month. Fire lines were also prepped during this time for upcoming growing season burns.

Lewis Ocean Bay HP: International Drive closures were coordinated with Horry county officials and three days of prescribed burning pursued. Some of these burns were able to reach areas, including several Carolina bays, that had not seen fire since the 2009 wildfire. Conditions, including fire breaks, remained wet so road to road burning had to be utilized thus allowing for larger scale burns. Several smaller scale burns were completed this month as well. Fire equipment had to be repaired and modified after heavy usage for first time this season. Several new/overgrown fire lines were established to allow for more burn opportunities. Unit 4A assisted with mulching, via mini excavator mulcher, along several roads and firebreaks. Technicians made 20 bluebird boxes to be installed within RCW clusters to help with nest intrusion issues. Parking lots were graded with box blade.

Little Pee Dee River HP: Technicians mobilized tractor with box blade and dozer on site at 917 tract to repair large washouts from recent river flooding. Hog farm tract fire lines were disked.

Samworth: Technician Bell called in his final burns to become a certified burn manager. Staff assisted Unit 4A with several Friday burns in the uplands. Two sets of deer antlers were scored on site and one jawbone aged.

Tillman Sand Ridge HP: Technician Kalinowsky monitored for herp activity and presumed routine property duties. He also made a large contribution when a truck load of trees showed up early at Webb and was willing to meet the truck to coordinate offload.

Waccamaw River HP: Staff monitored river levels as they slowly receded this month allowing for some vehicular access. DNR surveyor was contacted after a previously inundated section of Ellis tract stalled survey efforts. One gate pin and lock had to be replaced at gate near Simpson Creek. Firebreaks at Shultz tract were prepped for future burns.

Miscellaneous: Technicians Ward and Bell attended a virtual annual technician's meeting from their trucks and immediately joined in on a prescribed burn afterwards. Technician Bell mobilized roll back truck to FMNF to assist DNR staff there with getting a dozer into small forest roads per upper-level staff request. Staff collectively made 40 site visits to 5 preserves this month including Tillman Sand Ridge, Lewis Ocean Bay, Waccamaw River, Cartwheel Bay and Little Pee Dee River HPs.

Tom Yawkey Wildlife Center

Staff conducted and assisted with numerous research and survey projects during the month. Water quality and levels were monitored for waterfowl food production. Work continued on the Lower Reserve managed wetland project where 800 feet of dike were repaired. The monthly waterfowl and wading bird point counts observed 2,291 waterfowl and 627 wading birds. The first shorebird survey within the managed wetlands counted 2,750 birds.

Sixteen blocks totaling 1,075 acres were prescribed burned. Archaeologists with SCDNR's Heritage Trust Section began field work on the shoreline assessment project. Five feral hogs were removed from Cat Island. The draft annual report was completed and submitted to graphics to be formatted for printing. Staff continued to work closely with Engineering and Legal Office staff to develop an agreement to transfer an easement on a portion of the South Island boat landing parking area to SCDNR. We also coordinated with Georgetown County contractors on the beginning of the renovation of the South Island public boat landing. This work requires a change in access and parking to reach the YWC. Staff attended several virtual events this month including the annual technicians meeting, SCDNR GIS user workshop, a pesticide applicator training session, and the Eastern black rail adaptive management meeting. SCDNR Biologists Christy Hand and Spencer Weitzel spent several days working on the black rail project on Cat Island. Remote cameras were placed at key locations and a solar powered water pump was installed to investigate the potential for creating new rail habitat. Several infrastructure repair projects were conducted this month. Bids were received and a contractor was selected to conduct asbestos abatement on three buildings at YWC. An on-site preconstruction meeting was conducted with the abatement contractor and the air quality monitoring contractor. Two HVAC units were installed by contractors and a third installation was partially completed. Electricians began updating wiring on one additional building. Ten miles of roads were graded and shaped, 1.5 miles of dikes were side-cut, and one culvert was replaced. In addition, 0.5 miles of trees were removed from the South Island main dike to relocate the road to a different location due to continued wet conditions. The monthly waterfowl and wading bird point counts observed 2,291 waterfowl and 627 wading birds. The first shorebird survey within the managed wetlands counted 2,750 birds. Staff removed two feral hogs using traps. Clemson University graduate student Mikayla Thistle started her second field season investigating Bachman's sparrow nesting ecology and habitat usage in the longleaf pine stands. A paper about black rail research at the Tom Yawkey Wildlife Center was published in the Journal of Avian Conservation and Ecology by Dr. Elizabeth Znidarsic at Charles Stuart University entitled "Eastern Black Rail detection using semi-automated analysis of long-duration acoustic recordings". Staff meet with cooperators at Nemours Wildlife Center, the Clemson University James Kennedy Waterfowl and Wetlands Center and Folk Land Management to discuss a potential collaboration on a project investigating sea level rise and waterfowl management. Archaeologists with SCDNR's Heritage Trust Section began field work on the shoreline assessment project at YWC. Six locations have been investigated along Winyah Bay with over 500 shovel tests. A meeting was held with Margaret Owens at Clemson University and Dr. Thomas Rainwater to discuss the collaborative Clemson University-Tom Yawkey Wildlife Center collaboration. Staff assisted University of Georgia graduate student Samantha Bock with recapturing 51 hatchling alligators on Cat Island. These animals are part of a long-term survival study and were marked out of the nest last fall. Staff attended a virtual Shorebird Research and Management meeting hosted by the SCDNR Shorebird Project. Provided information to University of California PhD student Brian Walter about the critically rare plant Carolina hedge nettle for a book chapter he is developing. Met with researchers from Clemson University and Kiawah Island to discuss a potential research project investigating bobcat home ranges on barrier islands and mortality due to rodenticide exposure. The education program conducted 10 socially distanced field programs for 41 participants. Three interns from Horry-Georgetown Technical College continue to work with staff several days each week. The interns completed 212 hours of work this month.

Statewide Forester

Continued working with the three local Longleaf Implementation Teams (LIT's) in SC, including virtual SOLO-ACE Partnership meeting, the State Longleaf Coordination Team, and the South Carolina Prescribed Fire Council (SCPFC). Continued various duties as SEAFWA representative to the regional Longleaf Partnership Council (LPC). Continued collaboration with Forest Stewards Guild, USFWS, and Clemson University (Dr. Stephen Peairs) on hardwood management demonstration/outreach area grants, including timber harvest planning at Hamilton Ridge WMA. Continued collaboration with USFS on Good Neighbor Authority project on the Enoree RD of the Sumter NF, including initial timber sale preparation. Completed timber marking and cruising on this GNA project. Finalized and contracted bid solicitation for forestry mulching on Mason WMA, Webb WC, and Hamilton Ridge WMA. Finalized and contracted bid solicitation for land clearing at Love Farms for dove field and shooting complex. Preparing bid specs and packages for wetland restoration work on Webb WC. Working with Biologist Cockman on brood field clearing bid specs and package. Completed winter tree plantings at Love Farms, Webb WC, Hamilton Ridge, Bonneau Ferry, and Draper WMA's. Continued working with Milliken Forestry and DNR staff re: ongoing GIS timber stand database additions. Monitored and administered ongoing timber harvesting operations. Assisted Chief Dukes and Asst. Chiefs with timber budgets.

Harvesting operations have been completed on timber re-sale at Palachuola WMA (266 acres of planted

loblolly second thinning), close-out in progress. Harvesting operations remain suspended at Hamilton Ridge WMA (618 acres of plantation loblolly second thinning and 77 acres of clearcut), Woodbury WMA (792 acres of plantation loblolly first thinning and 28 acres of second thinning), but are very close to completion. Resumed harvesting activity at Edisto River WMA (bird dog training area, 73 acres of planted loblolly second thins). Harvesting operations on Bonneau Ferry WMA (784 acres of natural loblolly first thinning, 160 acres of planted loblolly and longleaf first and second thinning, and 80 acres of natural loblolly clearcut) remain suspended. Harvesting operations on two timber sales at Hamilton Ridge WMA (521 and 504 acres of plantation loblolly first thinning) remain suspended due to wet weather. Harvesting operations at McBee WMA (426 acres planted loblolly marked thinnings, 221 acres of operator-select planted loblolly, and 75 acres of clearcut for longleaf restoration) continued and made substantial progress towards completion throughout the month. Resumed harvesting operations at Palachucola WMA (270 acres planted loblolly and slash marked thinnings and 138 acres clearcut for longleaf restoration). Harvesting operations at the Thurmond Tract WMA (116 acres of planted loblolly first thinning) are scheduled to resume in the near future. Harvesting operations on awarded timber sale at Jocassee Gorges (40 acres of white pine removal) have yet to begin. Harvesting operations remain suspended at James L. Mason WMA (408 acres natural loblolly marked thinnings) due to wet conditions. Harvesting operations on awarded timber sales at the South Heritage Tract (276 acres planted loblolly second thins) and at Draper WMA (60 acres of oak woodland thinning, 57 acres of planted loblolly first thins) have yet to commence. Recently awarded timber sale at Belfast WMA (591 acres planted loblolly second/third thins) has yet to begin. Recently awarded timber sale at Love Farms (64.5 acres planted loblolly pine for dove field expansion and shooting complex, 7.6 acres of thinning) has been completed, except for a few acres. Recently awarded timber sale at Santee Coastal Reserve timber sale (338 acres of marked natural mixed pine thinning, 81 acres of natural mixed pine clearcut) has yet to commence. Held bid opening for sale next scheduled thinnings at Woodbury WMA (1,132 acres planted longleaf and loblolly), and awarded contract to Tracy's Logging Forest Products, out of Steadman, SC. Continued working with staff on planning/preparation of numerous upcoming sales.

WILDLIFE AND FRESHWATER FISHERIES

ASSISTANT DEPUTY DIRECTOR'S OFFICE

Completed administrative and budgetary tasks. Served on SC Environmental Awareness Awards Committee. Participated on interview panel for senior administrative assistant. Completed and submitted Comprehensive Permanent Improvement Plan for division. Reviewed amended request from Duke Energy to use DNR property in Lancaster County and examined site. Investigated request to use DNR property at Lake Johnson. Prepared and submitted documentation to Department of Administration for Phase II approval of property purchase in Greenville County. Amended appraiser certification letters for federal Forest Legacy land acquisitions and sent to USFS for approval. Wrote one sales contract for property purchase in Colleton County and another in Greenville County. Contacted appraiser regarding property acquisition in Greenville County. Contracted for appraisal of property in Aiken County. Obtained asbestos containing materials report on structure at Bear Island. Continued work on seven other real estate projects. Examined one tract for sale in Horry County and another in Sumter County. Visited life estate tract granted to DNR in Orangeburg County. Examined conservation easement violations on property in Charleston County. Provided guidance to SCPRT on property acquisition. Engaged in conversations with Naturaland Trust, The Conservation Fund, Open Space Institute, and The Nature Conservancy about potential/ongoing property acquisitions. Consulted with WFF staff on matters concerning Forest Legacy and State Wildlife Grants. Meetings and events attended: Habitat Protection Committee meeting, Forest Legacy Program conference call, conference call with Quail Forever, and conference call with SC Conservation Bank.

State Wildlife Action Plan (SWAP) Implementation & State Wildlife Grants (SWG) Coordination [Anna Smith]

Smith continued to read, edit, and upload interim and final SWG/C-SWG reports to the USFWS Grant Solutions website and send reminders to PIs about upcoming due dates. Nine new SWG proposals were submitted this cycle and were read and edited before being compiled with an overall Excel summary and sent to the SWG Review Committee for consideration. Smith participated in a 4/1/2021 NatureServe Network USA and Canada Van Tour to Lewis Ocean Bay HP. The media was present as NatureServe's CEO and SCDNR's Fowler highlighted how biodiversity is being sustained by states and what more is needed. A Habitat Protection Committee evaluation was completed for the Horse Creek HP addition, Carter Stillely Phase II/Cowpens Tracts, Weyerhaeuser Florence Tract, Willow Bend Tract, Weatherwax Tract, Spence Pond, and Slater Additions. A possible Cainho strategy was discussed with Riggins and Prosser. A site visit was conducted on 4/13/2021 at the Slater Addition tracts, of which all four will be considered for acquisition. Smith and Grosse spent three days (April 14-16) in Region 1 touring HPs and State Parks to look for rare herpetofauna in the SWAP. Dr. Jachowski and her grad student were present for the Brasstown Creek HP visit as they are conducting field work there under a SWG grant funded by SCDNR. Other properties visited included Oconee State Park, Raven Cliff Falls, Bald Rock HP, Chandler HP, Watson-Cooper HP, and Glassy Mountain HP. Smith investigated the Southeastern Partnership for Forests and Water newsletter link to NRCS Regional Conservation Partnership Program (RCPP) funding. A conference call was had with the AFWA liaison to the USFWS to facilitate progress on landscape conservation and how it merges with SWAPs and shared science priorities in the SEAFWA-WDC. The AFWA/Alliance SC RAWA flier compiled by Smith with input from Wildlife, Freshwater Fisheries, and Marine staff was received in its final format and distributed to SCDNR's Director and Media Outreach staff. A site visit was made to Willow Bend on 4/21/2021. This property may be one of SCDNR's NCWC proposals this grant cycle. Smith provided comments on a UTK working group call on SC's inclusion of climate change in our SWAP and our vision for participating in the "30 by 30" initiative. Updates to the SWG final reports webpage were sent to the Webmaster and these were completed by the end of the month. Smith participated in a site visit to Santee Island with Treptow and SCCB's West on 4/26/2021. The SCCB provided funding towards the acquisition of this parcel. Conference calls were had with PIs for various C-SWG proposals in progress. An online version of the LRCF final report for our 2018 Nichols Tract grant was submitted online. (A more thorough version had already been submitted via email on 7/20/2020.)

Forest Legacy Program (FLP) Coordination [Anna Smith]

The FY21 FLP Admin Grant application was completed and submitted to the USFS. The findings of the recent QAI for SC's Forest Legacy Program were reviewed with USFS staff and an Action Plan is being drafted to address changes that will be made to our Program. The response/cover letter for this Action Plan was drafted.

Other Activities / USFWS Liaison [Anna Smith]

Smith is part of a workshop by VTECH that is studying constituent responses to agency relevancy questions. Smith reviewed the proposed questionnaire and provided comment. Smith assisted Kindel and techs with bat netting at Santee Coastal Reserve on 4/22/2021. Smith provided a Natural Heritage database review of the Bramlett Tract for Mac Stone of Naturaland Trust.

Summary of meetings attended / conference calls / webinars watched / training programs or workshops:

- UTK Working Group webinar on climate change inclusion in SWAPs and the new “30 by 30” initiative (4/20/2021).
- Watched recorded TWS Talks: “Reptile and Amphibian Response to Prescribed Fire and Silvicultural Disturbances in Upland Hardwood Forests” [C. Moorman, NC State Univ.] (4/24/2021)
- Participated in the USFWS FY21 C-SWG webinar (4/29/2021)
- Participated in the VTECH Wildlife Viewing Steering Committee call (4/29/2021)

Natural Heritage Database Program / GIS Manager [Joe Lemeris]

Meetings:

- 4/2 – Lemeris organized for a site visit between SCDNR/Heritage Trust staff and NatureServe President/CEO Sean O’Brien at Lewis Ocean Bay Heritage Preserve. Sean is undertaking a large network van tour, visiting/meeting with staff of each heritage program in the US and Canada. In attendance were Robert Boyles, Will Dillman, Bill Marshall, Anna Smith, Trapper Fowler, Matt Lerow, Amy Tegeler, Keith Bradley, David Lucas. Press was invited for a portion of the day to highlight the work SC Heritage Trust and the NatureServe Network are doing, and the importance of LOB to the state/Myrtle Beach area. The visit was very successful!
- 4/6 – 4/8 – Lemeris attended the virtual Esri Developer’s Summit to watch presentations/hear from esri developers on new updates/use cases for creating customized applications for GIS processes.
- 4/12 – Lemeris met with James Cox (USGS) to discuss methods for standing up USGS-NA Bat survey forms on SCDNR GIS servers for more easily customizable surveys, without sacrificing the ability to share data easily back with USGS.
- 4/13 – Lemeris attended the April edition of the SCDNR GIS webinar, which discussed lidar products available for use/analysis from state products.
- 4/13 – Lemeris met with Diadromous Fish program staff/Lorianne Riggin to discuss incorporation of BMPs related to sturgeon exclusion zones, in the species reviewer tools for consultants.
- 4/15 – Lemeris and Arrington met with Esri staff to discuss next steps for identifying projected GIS needs for the next 3 years for a potential enterprise agreement (quote pending).
- 4/16 – Lemeris, Arrington and Thachik met with Esri EAP staff to discuss project status, next steps, new technology, and plan for upcoming meetings at a bi-weekly checking conference call.
- 4/21 – Lemeris, Arrington and Esri marketing staff met to discuss the opportunity for Esri to promote/highlight SCDNR’s GIS evolution as a featured organization for blogposts, printed newsletters, etc.
- 4/22 – Lemeris presented an overview of the Heritage Program’s GIS upgrades to data management/species review, and updated data website, as well as limitations for data protection to the SCDNR Board in Orangeburg.
- 4/26, 4/28, 4/29 – Lemeris attended the virtual Biodiversity without Boundaries conference, hosted by NatureServe. Talks pertain to species data management, modelling, conservation/research, environmental review, and general network program administration. Additional virtual dates will take place on May 3, 5, and 6.

Project Progress Updates:

- Esri Enterprise Advantage Program Update:
 - Arrington and team are continuing to compile GIS data from across WFF to incorporate into a managed lands database. Continued tweaks/improvements have been made to the demo managed lands hub sites/applications.
 - Fishing/Boat Access data have been pulled into a web format, and applications are now being developed by DNR and esri to help the public find locations for boating/fishing access.

- Distribution Modelling Workflows: all 5 modelling scripts have been converted to python and ensemble modelling scripts have also been created. Lemeris plans to validate these scripts/test them in the coming months.
- SCDNR/SCCB Joint position update:
 - Lemeris/Arrington continue to wait on SCCB to sign the MOU to contribute funding to a temporary grant position housed in the heritage program; they have been waiting until budgets are confirmed for their agency. The Position Description is ready to be submitted once the MOU is signed by both parties (which has been updated to reflect contact changes).
- **The Natural Heritage Hub Site has been viewed 730 times in April (10,730 since April 2020), and 17 new users (total of 267 since April 2020)** from state/federal/local agencies, land trusts, and private environmental consultants have requested/gained access to review species data and generate reports.
 - Now that 1 year has passed since initial launch of the GIS portal to external users, Lemeris has implemented a system to identify inactive accounts (created more than 1 year ago, has not logged in over a year), to warn them that their account will be deleted in 30 days, to proactively manage our accounts.
- **115 of 428** Users accessed the Heritage Trust GIS Portal in April, compared with 103 in March.
- **Over 170** new records were added to the database in April, comprising of a mix of herps, diadromous fish, and plants.
- **71 species reviews were completed automatically** using the new species reviewer tool for environmental professionals in April, compared with 111 in March.
- Lemeris worked with Smith and Dillman to create a factsheet about Natural Heritage Data/Sensitive Species Information, and how SCDNR hopes to better protect sensitive species from poaching/disturbance and private landowners from potential trespassing concerns through the legislative process.
- Lemeris met with Kern/developed a workflow for managing landowner permission form information for mussel surveys in the state.
- Lemeris met with Tegeler and Hope to discuss/develop a public location-enabled bald eagle nest sighting form to replace the current google form. Lemeris trained Tegeler and Hope to use the form and edit data associated with it.
- Lemeris met with Kindel and Monarchino to discuss updates to bat netting forms and creation of bat roost and emergence count forms.
- Lemeris assisted various staff in the development of maps for projects, informational documentation, advisory board materials, etc.
- Turner (hourly intern) worked to convert historic aerial imagery from the UofSC Digital Library collection to incorporate into our GIS portal for use in ArcGIS software in April.

FRESHWATER FISHERIES

Highlights

Staff assisted with youth bass tournament at Dorn boat ramp on Lake Thurmond. Handled fish caught by anglers and redistributed them in the lake at various boat ramps.

Fieldwork for a study evaluating the seasonal distribution and summer habitat use of adult Striped Bass in the Edisto River continued.

Staff expended 4 days of effort on the Great Pee Dee River for STB Abundance Index sampling.

Staff traveled to Newberry, SC to spend three days sampling Broad and Congaree rivers with the intention of collecting Robust Redhorse. This annual monitoring is completed as part of a current SWG addressing RRH population status within their historic range. During the three-day trip, staff collected a total of 15 mature RRH individuals and one suspected juvenile RRH.

Staff attended a workshop organized by the Southeast Aquatic Resources Partnership (SARP) on the assessment of stream crossings for aquatic organism passage.

This month 6,755 grass carp were processed for sterility testing at Cohen Campbell Fisheries Center.

Striped bass brood was collected from several locations throughout this month. Bass spawned four times in April. A total of 8,023,089 striped bass fry were produced with a grand total of 11,812,222 striped bass fry for the season.

Diadromous Fisheries Project efforts this month included: downloading acoustic receivers and manual tracking in Charleston Harbor, Lake Marion, the Rediversion and Diversion Canals, and the Congaree, Wateree, Cooper, Santee, Edisto, Waccamaw, Great Pee Dee, and Savannah Rivers; gillnetting for Atlantic and shortnose sturgeon in the Great Pee Dee, Waccamaw, Santee, Edisto, and Savannah Rivers; monitoring elver ingress at Goose Creek Reservoir and St. Stephen Dam

Trout in the Classroom activities included: posting materials and lesson plans on google classroom for in-classroom teaching; hosted two Trout Tuesdays on the topics of macroinvertebrate sampling and open Q&A session; worked with Region 3 staff to clip fins of fingerlings at Riverbanks Zoo

Coordination (Chief's Office)

Staff participated in the search committee and interview panel for the USGS Fish and Wildlife Coop fishery scientist position of the Coop Unit at Clemson University.

Staff conducted Section Coordinator staff meetings by phone twice a week to monitor operations and staff status. Met with State Lakes Program staff to discuss revisions and operation updates to the program.

Staff attended the quarterly meeting of the South Carolina Boating and Fishing Alliance Board.

Met with Senator Hutto and consulting company to discuss control of nuisance algal blooms at Lake Brown in Barnwell

Staff participated in the monthly fish chief's call hosted by AFWA

Staff participated as support staff for the annual high school and middle school championship bass tournament hosted by DNR at Lake Thurmond.

Staff participated in a call of the Lake Hartwell Natural Resource Trustee to discuss a proposal to address stream restoration activities in the Twelvemile Creek drainage to finalize the activities associated with the PCB contamination settlement.

Staff hosted representatives from Plano Synergy at Campbell Hatchery to observe and be briefed on hatchery operations at the facility.

Staff met with a representative of Barnwell County Council to discuss potential water related recreation opportunities in the County.

Participated in special meeting of members of the habitat protection committee to discuss targeted opportunities for habitat protections.

Staff meet with SCDHEC to discuss the status of fish kill response SOPs and interagency coordination and cooperation.

Participated in a virtual meeting with the USFWS and AFWA as a sort of after action status check relating to the earlier zebra mussel response

Region 1

Staff completed boat electrofishing for Striped Bass and Hybrid Striped Bass in Lakes Hartwell and Thurmond.

Staff completed repairs to electrofishing boat incurred during Striped Bass sampling on Lake Hartwell.

Staff assisted with youth bass tournament at Dorn boat ramp on Lake Thurmond. Handled fish caught by anglers and redistributed them in the lake at various boat ramps.

Staff submitted a SWG proposal for Pig Pen Creek brook trout restoration project.

Staff conducted the second of three years of standardized Largemouth Bass sampling on Lake Keowee. Staff began the first of a three-year survey of LMB on Lake Hartwell and Lake Greenwood.

Staff conducted spring state lakes standardized boat electrofishing surveys on Lakes Johnson, Long, Thicketty, and Star Fort Pond.

Technicians moved equipment to Ravenel depot for surplus property auction.

Staff assisted the COE and USFS with bamboo for habitat sites on Lake Thurmond.

Continued work on the new Hartwell Fish Habitat Project permit. Prepared staging area, built artificial fish attractors, and marked trees to be cut and cabled along the shoreline. Staff assisted CU electrofishing bass for recapture data.

Creel continued as scheduled on the Saluda River below Lake Greenwood.

Trout stocking was conducted on schedule. Stocked Chattooga and Chauga DH areas. Stocked kids viewing pond at old hatchery site at Jones Gap State Park.

Staff reviewed inventory sheets and submitted them along with property transfers.

Coordinated with Greenville Water System, Naturaland Trust and TU on the North Saluda stream restoration project.

Worked on county fund approvals for fisheries projects.

Attended Fisheries Coordinator conference calls.

Reviewed and participated in conferences with DNR-OEP and Region 2 to discuss reservoir drawdown at Neal Shoals.

Region 2

Staff prepared and submitted the March 2021 activity report, daily work reports, mileage & purchasing card logs to HQ as required.

Staff provided transport around Draper WMA ponds, Mountain Lakes 1 & 2 for site inspection by Lynn Quattro and Nicole Kish.

Staff expended 4 days of effort on the Great Pee Dee River for STB Abundance Index sampling.

Staff expended several days effort on required inventory and disposal of equipment items.

Staff attended a virtual meeting of the SDAFS Small Impoundment Technical Committee & reported on statewide 2020 SCDNR activities.

Biologist Chrisman presented “Changes in Largemouth Bass *Micropterus salmoides* Population Characteristics in the Early Stages of an Alabama Bass *Micropterus henshalli* Invasion of Lake Wylie, North Carolina/South Carolina” at the virtual Southern Division American Fisheries Society meeting.

Staff expended four days of effort conducting spring electrofishing for LMB on Lake Wateree, one day on Cedar Creek Lake, and two days at Fishing Creek Lake. State lakes Ashwood, Paul Wallace, Lancaster Reservoir, Sunrise Lake, MLK 1, & MLK 2 were sampled for LMB, BLG, RES and crappie.

Region 2 freshwater fisheries staff attended a 4-hour refresher Driver Training Course at the Florence Office.

Staff provided required documentation to Columbia HQ regarding 14-year pay plan step increase for Biologist Marsik.

Staff provided logistical support for the high school bass tournament on Lake Thurmond.

Staff provided for 0.68 miles of litter removal at MLK 1, Lancaster Reservoir, & MLK 2.

Staff met with Darlington City personnel to discuss a future fishing potential at a proposed pond site in Darlington.

Staff provided LMB, BLG, RES, & BLC from Sunrise Lake and LMB, RES, ALA, & CCF from Lake Wylie to DHEC personnel for fish tissue analysis for determination of inclusion in fish consumption guidelines.

Staff participated in 6 required conference calls during the month.

There were no weed identifications nor water quality tests conducted in Rock Hill during the month. In Florence, 3 weed identifications and 1 water quality test were performed for pond owners.

One telephone pond consult was conducted at the Rock Hill Workstation (general pond management), and 7 fisheries information requests were received from the public. Twenty-five calls regarding fisheries information were received at the Florence Office with 3 of those calls being pond related. Constituents seeking fisheries information were served by Ginger Ridgill, Jason Marsik, or Gatlin Edge in Florence and by Robert Stroud or Preston Chrisman at the Rock Hill Workstation. Recommendations and pertinent pond management literature was disseminated as necessary via telephone, in-person, through the US Postal Service, or by email to pond owners.

Contact with NGOs: One.

Region 3

To assess the Santee Striped Bass population boat electrofishing was conducted on two dates in the upper Congaree River where a portion of the population congregates each spring to spawn. Mean length of collected Striped Bass was 529 mm (Range; 394 mm to 990 mm). Mean catch rate among sites and dates was 48 fish/hour (Range; 12 – 126). Of the 257 fish collected 80.3% were less than 23-inches, 10.5% were between 23 and 25-inches, 7.7% were greater than 26-inches and only 1.5% were in the protected slot (25 – 26-inches). Based on the condition of collected Striped Bass most fish spawned between April 6th and 15th during 2021.

Annual sampling of the Lake Murray Largemouth Bass population was conducted with boat electrofishing on 5 dates between April 6th and 13th. Mean catch rate among dates and sample zones was 53.2 fish/hour (range = 38.8 - 78.0), which was greater than the 2019 mean catch rate of 43.9. Mean length of collected Largemouth Bass was 348.7mm (min= 178 mm, max= 581 mm). Fifty percent of the 321 Largemouth Bass collected were greater than the 14-inch minimum length limit for Lake Murray. Otoliths and fin clips were collected from 223 Largemouth Bass for future analyses.

To assess the Largemouth Bass population in Parr Shoals Reservoir boat electrofishing was conducted on three dates between April 21st and 27th. Fifty-four Largemouth Bass were collected with a mean catch rate of 10.8 fish/hour. Mean length was 322 mm (range; 175 – 550 mm TL). Due to frequent and extreme water level fluctuations the statewide standardized largemouth bass sampling plan does not appear suitable for efficiently

sampling Parr Shoals Reservoir. Future sampling efforts will likely require a modification to our current sampling design.

Fieldwork for a study evaluating the seasonal distribution and summer habitat use of adult Striped Bass in the Edisto River continued. Two days of electrofishing were conducted in the lower Edisto River to capture striped bass for transmitter implantation.

Rainbow Trout fingerlings raised at Riverbanks Zoo and Garden as part of the trout in the classroom education program were marked (fin-clipped). The 136 Rainbow Trout fingerlings raised in that program will be stocked into the lower Saluda River during May and the fin clip will allow differentiation of those fish from other stocked or wild trout.

Staff provided pond management assistance to 6 pond owners involving queries on vegetation control and general pond management. Staff responded to several calls or emails seeking information on boat titling, fishing licenses, animal harassment at Lake Brown and fishing in Regional lakes and streams.

Staff met with a member of the Barnwell County Recreation Committee to discuss recreational enhancements in Barnwell County, participated with other state and federal agencies at the annual Article 31 meeting to discuss water quality in the lower Saluda River below Dominion's Saluda Hydroelectric Project, and met within the Section to discuss a plan to address potential water quality issues in Lake Brown due to blue-green algal blooms.

Region 4

Technical/Meetings

Robust Redhorse – State Wildlife Grant Planning

Staff participated in multiple meetings with cooperating partners (GADNR and NCWRC) that will jointly apply for a competitive State Wildlife Grant through USFWS. The potential new grant will propose a continuation of some current work, as well as introduce newly identified research needs to address the Robust Redhorse populations throughout Georgia, South Carolina, and North Carolina with the goal of establishing self-sustaining populations among the three ESUs for this species.

USFWS cSWG Webinar

Staff attended a webinar through USFWS whose focus was to highlight changes to the cSWG application process. These changes will be implemented while drafting the proposal for the multistate Robust Redhorse cSWG.

Field Work

Goose Creek Reservoir Sampling

Staff sampled Goose Creek Reservoir utilizing the state lakes protocol for assessing Largemouth Bass populations. Although GCR is not a state lake, it is a 600-acre publicly accessible reservoir within the Charleston metro area that is heavily utilized by local anglers, particularly for its bass and bream fisheries. To our knowledge, SCDNR has not performed any sportfish population surveys on this system in over ten years and it was determined that gathering baseline data would be of value. Preliminary analyses indicated a CPUE of 80 LMB/hour with relatively high growth rates and maximum size, providing quantitative evidence for the quality of this fishery. A full write up of analyses will be included in the 2021 annual report for Region IV fisheries. Staff plan to revisit GCR and perform similar sampling with a focus on sunfish in the coming 4-6 weeks.

Robust Redhorse Monitoring

Staff traveled to Newberry, SC to spend three days sampling Broad and Congaree rivers with the intention of collecting Robust Redhorse. This annual monitoring is completed as part of a current SWG addressing RRH population status within their historic range. During the three-day trip, staff collected a total of 15 mature RRH individuals and one suspected juvenile RRH. None of the RRH collected were recaptures from previous sampling events, as evidenced by their lack of CWT and PIT tags. As such, all collected individuals had a PIT tag injected into the base of their dorsal fin and a tissue sample was collected for genetic parentage analysis. Further sampling for RH on Wateree River is planned for May.

Fish Attractors

Staff replenished material on multiple fish attractors on Lake Moultrie. Replenishment of individual attractors on lakes Marion and Moultrie will occur throughout the spring and summer months.

Lab work

Otolith sectioning

Staff sectioned and aged otoliths from all LMB sacrificed during Goose Creek Reservoir sampling.

Other

SCDNR Youth Bass Angling Championship

All regional staff were in attendance to work at the annual youth bass championship held on Lake Thurmond, April 16-17.

Hatchery WMA Cleanup

Staff participated in a cleanup day organized by the Santee Cooper environmental team and held at the Hatchery WMA boat landing.

Statewide Research

We continued data collection for the development of a Stream Quantification Tool for South Carolina. Fish sampling was completed at 11 sites in April 2021, bringing the study total to 47 sites completed (study total target of 100). This study will provide the data for development of biological indicators to evaluate the effectiveness of stream restoration and mitigation activities in South Carolina.

We sampled streams in McCormick County to collect Bartrams Redeye Bass.

Staff presented in the virtual meeting of the 2021 Spring Meeting of the Southern Division of the American Fisheries Society, in the Black Bass Biodiversity, Conservation, and Management Symposium a paper titled 'Conservation and taxonomic status of the endemic Savannah River black bass species'.

Our co-authored manuscript titled "Integrating regional frameworks and local variability for riverine bioassessment" has been accepted for publication in the journal *Environmental Management*.

Staff attended a workshop organized by the Southeast Aquatic Resources Partnership (SARP) on the assessment of stream crossings for aquatic organism passage. The two-day workshop took place in the Sumter National Forest and included site visits to many types of stream crossings (e.g. culverts and bridges) for training on data collection for integration with the SARP Southeast Aquatic Barrier Prioritization Tool.

We provided input and assessment data to the Office of Environmental Programs on fish species distributions and assemblage composition in the mid to lower Savannah River mainstem and tributaries to aid in the evaluation of proposed channel restoration activities.

Staff submitted a SC State Wildlife Grant proposal to revisit the South Carolina Stream Assessment ten years after completion of the first project, as a first step in systematic evaluation of trends in aquatic resource conditions in the state.

Staff contributed to drafting two separate C-SWG grant proposals, one focused on clarifying the taxonomic status of Christmas and Savannah Darters and the other on population genetic health of Sandhills Chub.

We teleconferenced with collaborators at Clemson and the Population Genetics Lab at Ft. Johnson to discuss population structure results for Bartrams Redeye Bass in the upper Savannah River Basin.

Staff met with a technical group developing flow-ecology relationships to inform the water planning process in SC.

We virtually attended the thesis defense entitled "Development of a habitat model for an endemic leuciscid, the Sandhills Chub (*Semotilus lumbee*)", by Garrett Herigan of Coastal Carolina University. Dr. Mark Scott was on Herigan's thesis committee.

Hatcheries and State Lakes Activities

Coordination

This month 6,755 grass carp were processed for sterility testing at Cohen Campbell Fisheries Center.

Three (3) vendor permits were issued for grass carp distribution statewide.

Dennis Wildlife Center (DWC) and Bayless Hatchery

Striped bass brood was collected from several locations throughout this month. Bass spawned four times in April. A total of 8,023,089 striped bass fry were produced with a grand total of 11,812,222 striped bass fry for the season. Fry were then distributed to the Cohen Campbell Fish Hatchery, Cheraw Hatchery, Dennis Wildlife Center, East Fork Hatchery in Indiana, Welaka National Fish Hatchery in Florida, and Mammoth Springs National Fish Hatchery in Arkansas.

Pamela Corwin stocked >3 million American Shad fry, where >2.7 million were stocked in the Broad River and 444,285 were stocked in the Wateree River for April. The season of American Shad fry stocked from Bayless Hatchery total is 3,330,930 as of April 27.

Staff picked up 1.2 million Savannah strain striped bass fry from Richmond Hill Hatchery in Georgia, which were later stocked in Dennis Wildlife Center ponds for grow out.

Staff collected 64 American Shad for Clemson University to do a tag retention study at Bears Bluff National Fish Hatchery.

Staff cross white male bass with female striped bass to produce 1.5 million hybrid striped bass fry. The fry was stocked in ponds at the Dennis Wildlife Center for grow out to fingerling size.

Five million Santee Cooper strain striped bass fry were stocked in ponds at the Dennis Wildlife Center for grow out.

Several automatic fish feeders were ordered in preparation of Channel Catfish, Phase II Striped Bass, and Bluegill production this summer.

Hybrid and striped bass fingerling production ponds were sampled to determine whether they need to be harvested based on size.

A faulty gate valve that provides water to one of the 1-acre production ponds at the Dennis Wildlife Center was replaced.

Staff continue to fertilize ponds, spray herbicide, remove tadpoles, and other maintenance in the production ponds at the Dennis Wildlife Center.

Staff completed and submitted daily staff reporting logs, monthly reports, mileage sheets, fuel logs, procurement statements, and purchase requisitions.

Staff performed routine water quality monitoring, fish feeding, and grounds and equipment maintenance.

Walhalla State Fish Hatchery

A total of 45,150 trout were stocked during the month of April.

Staff continued to rear fry and fingerlings while production was continued in outside raceways.

Staff completed several maintenance projects, such as the bridge maintenance for anglers and roofing projects at hatchery residences, throughout April.

Cohen Campbell Fisheries Center/Barnwell Substation

Performed general maintenance and upkeep at both Cohen Campbell and Barnwell substation.

Finalized redesigning the Shad brood and Hatching system.

Completed American Shad spawning – 2,337,525 fish were stocked into the Broad and Wateree rivers.

Tested three (3) grass carp loads.

Continued striped bass preproduction protocols.

Cheraw State Fish Hatchery

Spring spawning season is in full production with a total of 54 spawning events being recorded.

The second phase to install electrical outlets at the production ponds was completed.

Buildings and ponds were secured to prevent further otter predation.

Smallmouth bass brood were stocked, and fry have been relocated into 4 rearing ponds for grow out.

A total of 750,000 striped bass fry were obtained from the Saint Stephens hatchery and were stocked into 5 separate rearing ponds.

Redear sunfish brood were stocked into 2 ac/ rearing ponds. Threadfin Shad were stocked into .75 ac. rearing ponds. Over 20,000 Redear sunfish fingerlings have been trained to accept commercial feeds and 10,000 more are currently being trained.

An emergency backup generator was put online to power the fish holding facility in case of power outages.

Staff continued to perform routine maintenance services for water quality, feeding, and disease control.

Spring Stevens State Fish Hatchery

One million Striped Bass Fry were stocked in all ponds at facility.

Continued with care and holding of redbreast brood in the flow-through system for summer stocking into ponds at the facility.

Continued with the care and holding of Bluegill fingerlings and Advanced Fingerlings in the flow-through system for summer stocking into Dennis Center ponds.

Replaced and added boards to the riser in reservoir and all leaks repaired.

State Lakes

Met with contractor about leaking pipe repairs on Sunrise Lake's back dam.

Met with Litter control personnel about new ideas on how to handle littering issues around State Lakes.

Removed old signs and started investigating replacements with updated signage.

Remodeled bridge on upper walking/fisherman trail at Lake Ashwood.

Removed and renovated multiple picnic tables at numerous lakes.

Removed logs from spillway at Lake Warren.

Assisted Region 1 staff with Largemouth Bass electro-fishing at Lake Monticello.

Fertilized the following lakes: Sunrise, Oliphant, Mountain Lakes 1 and 2, Long, Jonesville Reservoir, Cherokee, Johnson, and Star Fort.

Sprayed aquatic weeds at Lake Warren, Lake Ashwood, and the Lancaster Reservoir.

Took 120 soil samples at Lake Brown to determine phosphorus levels.

Routine maintenance (i.e., grass cutting, litter control, and terrestrial weed spraying) at all 18 State Lakes.

"Fresh Eyes" Program

Made multiple site visits during the month and wrote reports on site visits made.

Worked with IT to try and resolve continuing technical issues with tablet 00085.

Collaborated with Santee Cooper staff and diadromous folks on fish sanctuaries.

Established an agreement with contractors to haul more dirt to the Cohen Campbell Hatchery.

Continued to follow CDC guidelines in public.

Worked on inventory-related issues.

Completed all monthly paperwork and reporting.

Outreach and Training

Staff attended multiple coordinator meetings via phone.

Administration

Cohen Campbell Hatchery, Dennis Wildlife Center, Cheraw Hatchery, Walhalla, and Spring Stephens Hatchery executed all COVID-19 safety protocols.

Weekly trout stocking reports continue to be updated on the SCDNR website.

Diadromous

Activities—Summary

Efforts this month included: downloading acoustic receivers and manual tracking in Charleston Harbor, Lake Marion, the Rediversion and Diversion Canals, and the Congaree, Wateree, Cooper, Santee, Edisto, Waccamaw, Great Pee Dee, and Savannah Rivers; gillnetting for Atlantic and shortnose sturgeon in the Great Pee Dee, Waccamaw, Santee, Edisto, and Savannah Rivers; monitoring elver ingress at Goose Creek Reservoir and St. Stephen Dam; fulfilling telemetry data requests; maintaining the comprehensive telemetry database and cleaning up false detections and duplicate station names; submitting telemetry data to the FACT network; submitting monthly, quarterly, and annual reports to fulfill grant obligations, such as the annual ASMFC project report.

Breakdown of Project Activities

Great Pee River Sturgeon Project

This month's focus was a mixture of sampling and maintaining the receiver array. Two trips were made at the beginning of the month to sample for Atlantic sturgeon above Bull Island on the Great Pee Dee River, concluding the spring Atlantic sturgeon sampling. Six trips were made to download receivers in Winyah Bay, the Sampit River, and the Great Pee Dee River. Three trips were made in effort to transmit shortnose sturgeon. Sampling efforts took place on the Waccamaw River near Butler Island and at the river's entrance. Five juvenile Atlantic sturgeon were captured; none of these fish were transmitted with acoustic tags.

Winyah Bay Juvenile Sturgeon Project

Seven sampling trips were conducted this month for a total of 33.59 100-yard net hours. Seventeen sturgeon were captured including, 13 virgin and one recaptured sturgeon in the Sampit River, and three virgin sturgeon in the Black River. All first capture fish received a PIT tag and the standard work up. All sturgeon were of target size, and one transmitter was implanted in a fish caught in Sampit River. Gear maintenance this month included an oil change for the truck, the mending of all nets, and the full build of a 2" mesh set net. Full sampling gear set up for the second project sampling boat was purchased by CCU, put together with the help of our team, and is ready to deploy for the May/June sampling season.

Savannah River Sturgeon Egg Project

The Savannah Egg project made six trips to the Savannah River, manual tracking in the Allendale (rkm 212–168) and Augusta (rkm 295–301) areas of the river. No sturgeon were identified in these areas. Staff downloaded and serviced receivers in the lower Santee River array and downloaded and removed receivers from the Santee-Cooper Lakes array. Personnel also responded to the recovery of an unidentified sturgeon on Folly Beach.

Savannah Harbor Expansion Project (SHEP)

Savannah Harbor Expansion Project fished 35.06 net hours and captured 19 Atlantic and five shortnose sturgeon. Three juvenile and one adult shortnose sturgeon were implanted with sonic transmitters for telemetry tracking. Receiver maintenance included cleaning, replacing riggings, and changing batteries. Manual tracking was performed to locate sturgeon not picked up on a stationary receiver. Staff participated in the annual US Army Corp of Engineers SHEP meeting.

Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA)

This month, project ACFCMA completed seven American shad sampling trips (three in the Waccamaw River and four in the Santee River). Fin clips were collected from shad on the Waccamaw River and Great Pee Dee River for genetic testing. Biological scale samples were collected along with genetic samples on the Waccamaw River and Great Pee Dee River. The annual ACFCMA report was completed and submitted. Shad nets have been broken down from the 2021 sampling season and are being reconstructed for the 2022 sampling season. Preparations were made for the upcoming Edisto sturgeon sampling season. The eel ramp at Goose Creek Reservoir was monitored twice a week every week this month. Pigmentation analysis was concluded this month on the last of the juvenile glass eels collected. The McKee craft was taken to Marine Warehouse center for the new Honda motor to be installed.

Santee Accord Juvenile American Shad Study

One gillnetting trip was made targeting American shad (AMS) on the Santee River at Blowout and two AMS were collected. Two gillnetting trips were made targeting blueback herring (BLH) on the Santee River at Poleyard and 16 BLH were collected. Gillnetting for both species has ended for the season. Electrofishing surveys targeting adult AMS were made on the Congaree and Wateree Rivers. A total of 46 AMS were collected, and fin clips were taken. Electrofishing for AMS will not continue into May as the run is over. Four trips were made to the Edisto River to help the USFWS with collecting brood stock, and fin clips were collected for genetic analysis.

Rediversion Project

American eel passage at the St. Stephen dam continued without pause this month, totaling 44 eels measured and passed into Lake Moultrie (n = 173 for 2021). Passage at the fish lift remains suspended due to mechanical failure of gate 1, capping current fish passage figures at: ~70,921 American shad, ~17,377 blueback herring, ~489 striped bass, and ~98 catfish. A construction crew arrived on-site April 28 to begin repairs. Discharge continued to follow periods of peak and no power generation (ex. 18 to 24 hour on, < 6 hours off), remaining at a 24hr cycle during the first weeks in April, and cycling off more recently. Downstream water levels have started dropping whenever turbine activity ceases, and bank anglers have made consistent use of the Platt Road downstream access (major bank fishing site) throughout the month. Nearly all shad boat landings have shifted to the rediversion canal, with very few surveys recorded at the Cooper River Tailrace Canal. Overall shad fishing pressure appears to have markedly decreased over the month, with most anglers now targeting crappie, bream, and catfish.

Project staff continued communications with Duke Energy concerning elver transport and stocking and gave a fish lift tour and interview to the Post and Courier about the rediversion project. Staff completed all biological sampling for the season, and all other operations are planned to cease effective May 1. Focus has now shifted to otolith and scale processing and data management, as well as aiding the juvenile American shad field crew in ongoing sampling.

Meetings and Outreach

Staff gave a presentation to the USACE Savannah District on the annual Savannah Harbor Expansion Project updates. Staff also gave a fish lift tour and interview to the Post and Courier about the rediversion project at St. Stephen. Staff participated in the Youth Bass Tournament on Lake Thurmond, and the Berkeley Elementary School career day.

Staff participated multiple virtual meetings and conference calls regarding:
Project update with Coastal Carolina University,
The annual Southern Division American Fisheries Society Virtual Meeting,
ArcGIS diadromous fish mapping tool with OEP staff.

Mussels

Performed 5 CPUE surveys.
Attended Freshwater Mollusk Conservation Society Virtual Symposium.
Attended Brook Floater Working Group meeting.
Began working with volunteer for outreach tank maintenance.
Set up summer culture systems.
Initiated contact with landowners for sites SAL010, SAL001, and SAL002.
Launched landowner contact dashboard (Arc Web App).
Continued pond culture of *V. delumbis* and *U. imbecillis* cohort 2019VdA and 2019UiA.

Aquatic Education

Family Fishing Clinics & Certified DNR Fishing Instructors

Continued communicating schedule changes to volunteers and the public
Planning for upcoming clinic
Held an Earth Day outreach informational session with Augusta County Parks
Began scheduling fishing clinics for the spring and summer

Fishing Rodeos

On-going participant survey data collection
Responding to inquires about schedule

Fishing Tackle Loaner Program

Site user logs collected for data collected for input
Collecting follow up surveys from participants
Provided new equipment to Wateree and Aiken State Park
Loaned tackle to two Boy Scout groups

Trout in the Classroom (TIC)

Posting materials and lesson plans on google classroom for in-classroom teaching
Hosted two Trout Tuesdays on the topics of macroinvertebrate sampling and open Q&A session
Worked with Region 3 staff to clip fins of fingerlings at Riverbanks Zoo

Youth Bass Fishing Club

Continued to field questions and provide assistance to schools creating clubs for the first time
Preparing materials for event

Formalized registration and communicated updates to participants

Recorded a captains meeting video and posted to Facebook page in lieu of in-person meeting

Tournament held on April 17 at Dorn Fishing Facility on Lake Thurmond with 50 boats carrying 99 anglers from 29 different schools

Freshwater fisheries staff and Region 1 Law Enforcement contributed significant man hours into the success of the tournament

Black Bass Slam

Received first completed slam submission

Other

Attended rules and regs meeting

Discussed updates to the Fishing Access platform

Will Mundhenke participated in Driver Training

Joined Plano Synergy for tour of Cohen Campbell

Completed inventory

Cleaned out storage and relocated offices

Outreach materials provided to: 4 members of the public and 31 phone interactions

WILDLIFE SECTION STATEWIDE PROGRAMS – APRIL 2021

Coordination and Administration

Participated in numerous meetings with Deputy Director Cope, Chief Dukes and Assistant Chiefs Swaynham and Chappelear on various topics including, coordinating staff work schedules, activities, field operations, implementation of regulations, and budgets. Supervision of Statewide Programs staff continued. Attended discussion with Quail Forever staff to discuss their Build a Wildlife Area Program and discuss potential projects in SC. Participated in Nature Serve visit to Lewis Ocean Bay. Toured parcels adjacent to the Slater Tract for evaluation. Discussed 2021 Alligator surveys and planning with staff. Met with herpetology, permitting, and outreach staff to discuss and plan for rollout implementation of tegu regulations. Spent significant time developing plans and materials for implementation of Tegu Regulations. Attended and participated in the SEAFWA Wild Hog Working Group meeting virtually. Meet with staff stationed at Clemson Sandhills in Northeast Columbia to discuss new office space and equipment needs. Participated in interviews for the Red-cockaded Woodpecker Biologist 2 position. Attended budget meetings and began preparing budget information.

Big Game Program

General Activities

Responded to 44 phone calls and 56 emails from the public related to new or proposed hunting regulations, deer/turkey tagging, sick or nuisance animals, urban deer, and other general deer, turkey, and black bear related topics.

Law Enforcement related activities involved answering questions from the public concerning legal issues related to deer, turkey, bears, hogs, weapons, and hunting (9 calls and 11 e-mails approximately 1.6 hours). Consulted directly with field officers (5) related to turkey tags, turkey harvest reporting, and DNA analysis.

Attended legislative committee/subcommittee meetings (3) as needed and provided testimony on proposed legislation.

Conducted the second edit of the annual Hunting and Fishing Regulations Guide.

Attended (virtually) a meeting of the SC Wild Hog Task Force.

Coordinated with OMO on news releases, social media posts, etc. related to deer fawns, turkey nests, turkey season closes, and turkey harvest updates via SC Game Check.

Mileage logs/receipts were scanned and forwarded to appropriate staff. PCard statements/receipts were scanned and forwarded to the PCard email address.

Participated in 2 interviews with the media.

Completed 2 surveys from other agencies/entities.

Provided one public speaking engagement with approximately 50 in attendance.

Deer Research and Management Project

The Deer Quota Program (DQP) required effort related to preparing for the 2021 renewal process which will begin in May. This included working with The Sourcing Group on tag and envelope procurement and updating the application materials. The cooperator renewal mailing list database was prepared.

Coordinated with The Sourcing group on procuring tags and envelopes for the general hunter-based tagging program. Began work on tag, envelope, and CWD insert digital files with edits and updated colors for 2021.

The 2020 Deer Hunter Survey required ongoing effort. Data was received from the data entry company and statistical analysis followed. During the 2020 season it is estimated that approximately 107,212 bucks and 90,681 does were taken for a total of 197,893 deer. This represents a 2 percent increase over 2019. Other statistics indicate that there were approximately 150,163 deer hunters who expended 2,215,133 man/days of effort up 6 and 7 percent, respectively from 2019. Steps are being taken to post the harvest report on the agency website.

Continued working with Cornell University on a project to develop a Chronic Wasting Disease Risk Assessment and Surveillance Plan. Participated in a virtual meeting related to the project with Cornell, and staff from Georgia DNR, Alabama DCNR, and Virginia DWR who are also participating in the project.

Work on the cooperative deer and coyote study with Clemson University Department of Forestry and Environmental Conservation was ongoing during the month. Fawning began during the month with 4 fawns captured and fitted with GPS units. Twenty-one does are currently being monitored for birthing events.

Continued coordination and communication with the PhD student from University of Georgia on the cooperative research project entitled "Use of fecal genotyping and spatial capture-recapture modeling to investigate coyote abundance in South Carolina. Year 3 sampling will begin in May and continue through July.

A letter regarding guidance on white-tailed deer and SARS-CoV-2 (COVID 19) was developed and distributed to 73 deer rehabilitators.

The Antler Records Program required effort as the end of the 2020-21 cycle nears. All records received during the cycle were edited and entered into the records system.

Deer Depredation Permits were entered as they were received.

Measured 4 sets of antlers in the office by appointment.

Wild Turkey Research and Management Project

Ongoing effort related to the SC Game Check system was required and included troubleshooting minor issues, answering questions from hunters, assisted hunters with reporting, etc. In coordination with IT and OMO harvest updates were made available to the public on the agency website. Many positive comments followed. By months end approximately 9,000 turkeys had been reported. Other statistics indicate that hunters from over 30 states have reported SC turkey harvests, 92 percent of harvests have been on private land, 94 percent of harvested birds were adult gobblers, and 78 percent of birds were taken in the morning.

Work began on the 2021 Turkey Hunter Survey which will be executed following the close of the season on May 10. Worked with Graphics to update and edit the survey form and forwarded to The Sourcing Group which will print and mail the surveys. Coordinated with IT on the mailing list database.

Completed data analysis and final report for the 2020 Summer Turkey Survey and forwarded to webmaster for posting on the agency website.

The wild turkey gobbling chronology study with Clemson University Department of Forestry and Environmental Conservation continued during the month. Autonomous Recording Units (ARUs) were deployed in early March on public and private land in the mountains/foothills. Units were serviced during the month with batteries and SD cards. Data analysis from the 2019 and 2020 field seasons is ongoing.

Continued coordination and communication related to the study entitled "Reproductive Ecology of Wild Turkeys in an Unhunted Population." This is a cooperative study between SCDNR, USDA Forest Service-Southern Research Station, University of Georgia, Louisiana State University, and University of Missouri. The objectives focus on determining reproductive parameters in turkeys that are not hunted. Monitoring of instrumented birds (approximately 60) continued during the month. By months end a little over half (20/36) of instrumented hens had begun continuous incubation. Eight hens have lost their nests due to predation and the first hen hatched on May 2.

Black Bear Research and Management Project

Upstate - Staff handled 15 bear complaint calls/sightings. Bears are starting to move around with the warmer weather and the calls are increasing. There were 2 road kills and a couple of nuisance calls about bears in trash cans, breaking into chicken coops, and knocking down bird feeders. Staff presented two community education programs on how to be bear wise this month. (125 people). Staff analyzed bear tooth age data from 2020 harvest season and updated database.

Furbearer and Alligator Program

Furbearer Project

Responded to thirty-one nuisance wildlife complaints. Seventy-seven other technical assistance contacts were also made during this time via phone and email.

Compiled fox and coyote enclosure data over the last several years as well as a history timeline at the request of the DNR Board. Several programming and reporting modifications were made to the Fox and Coyote Enclosure Permitting database program in order to be able to retrieve this permitting information and make data extraction easier.

Staff continued entering trapper fur harvest data and fox and coyote pen transactions data. Fur harvest data is required to be in by April 15th and the enclosure data is due by May 15th in order to renew an enclosure permit.

Gave an on-camera interview to a Winthrop University student in regard to the spotting of a coyote on campus.

A virtual interview was given to WBTV regarding the possibility of Horry County instituting a beaver bounty for the county. Correspondence about the beaver bounty was also provided to the Carolina Forest Chronicle and WBMF news in Myrtle Beach.

A virtual interview was given to WCBD in Charleston regarding the increased sightings of coyotes in the area.

Began compiling harvest data and other information for the SC State Report for next month's virtual meeting of the Southeast Furbearer Working Group Meeting.

Three new WCOs were added to the database and the file uploaded to the DNR website.

Alligator Project

Participated in a virtual meeting to discuss alligator survey methodologies and the timing of these surveys for this summer.

Alligator distribution and the states that allow alligator hunting was compiled and sent to the Executive Office.

The alligator hunting guide, alligator hunting information, as well as lottery hunt page changes were updated on the DNR website in anticipation of the opening of the alligator hunting lottery beginning May 1.

Biologist Hart Activity

General Activities and Accomplishments

- Monitored movement of GPS tagged alligators.
- Finalized most procurement bids for Alligator agents
- Visited two captive alligator permit holders up for renewal
- Issued four transport permits
- Building and troubleshooting Access database for all non-public hunt alligator permits
- Debugging final Access database for Captive alligator permits
- Coordinating regularly with Clemson researchers regarding alligator movements
- Ongoing permitting website and data management improvements
- Updating nuisance alligator agent protocols and region maps.
- Held three statewide meetings for new purchasing and contracting protocols for nuisance alligator agents
- Working on harvest summaries and reports for all types of harvest.
- Held two trainings for Radio Room personnel

Alligator Program Biologist Accomplishments

- Display/Transport Permits - 8
- Private Lands Permit Packages approved - 2
- Nuisance Calls - 70
- Nuisance Permits- 35
- Media Inquiries- 1
- Presentations- 2

Permitting and Lottery Hunt Program

During the month of April, Biologist Kears continued to review, and process permits. These permits consisted of 20 field trial permits, 1 falconry permit, 2 bird banding permits, 7 scientific collection permits, 18

Canada goose depredation permits, 32 predator management permits (146 to date), 9 furbearer depredation permits, 1 airport and airfield depredation permit, and numerous fox/coyote enclosure permits. Continued working on new native turtle permits following the new law that provides protection of South Carolina's native reptiles and amphibians (Act 177).

Completed one falconry inspection in the upstate for an apprentice falconer. Prepared for the alligator lottery to open on May 1st. Updated the public lottery hunts page to include alligator lottery information and application and set up a GovDelivery email to be sent to over 48,000 individuals notifying the alligator lottery application is now available.

Attended a virtual WHEP practice session to prepare for the upcoming virtual WHEP state contest. Got my headshot photo taken for the SCDNR directory.

Assistance was provided by email or phone concerning lottery hunts, permits, and other general wildlife questions.

Other

Participated in a Teams meeting related to new regulations pertaining to the ownership and permitting of black and white tegus.

Created a new Access database to track and issue permits for the possession of restricted nonnative wildlife along with the creation of fillable application forms.

Herpetology Conservation Program

General Activities and Accomplishments

- Processed Froglogger Data – Cainhoy, Santee Coastal, Bonneau Ferry, Groton
- Processed Camera Trap Data for Woodbury WMA
- Participated in Natureserve field trip Lewis Ocean Bay
- National Wildlife Week Postings – Gopher Frogs/Gopher Tortoises
- Participated in National Horizon Scan Exotic/Invasive Species Monthly Meeting
 - Rapid Assessment for 8 non-native species with invasive potential
- Presented Native Reptiles and Amphibian Regulations in SC/Exotic Species in SC
 - University of SC Herp Club
- Presented Turtles of SC
 - Outside In Webinar – Marine Division of SCDNR Outreach
- 3 yellow bellied sliders with unidentified shell rot died from infections and were submitted to SQDWS for a full examination. 2 additional sliders remain in treatment at the SC aquarium. Cause of death and infection has not yet been identified.
- Slater site visit to identify potential new parcels
- Media Interview for Daniel Island Magazine – Common snakes of Coastal SC
- Box Turtle Site Visit for Temporary Exemption Permit/Marked 34 box turtles – David Bernshouse
- Rehabbed Gopher Tortoise Transferred from SC Aquarium to SREL for quarantine, then Aiken GTHP
- 7 long term captive gopher tortoises transferred from SREL Outreach to quarantine, then Aiken GTHP
- Assisting with Tegu Website Construction and Layout

McCrary Herpetological Surveys - McCrary surveys are underway – Kiley has found at least 5 locations for Chamberlains dwarf salamanders

Catawba-Wateree Herp Surveys - Kiley and Andrew met Don C. and got keys to access and survey Liberty Hill and McBee WMA

-Kiley and Andrew met Allyne at Carolina Sandhills National Wildlife Refuge, discussed surveys and toured the property

-Kiley Trapping for spotted turtles on Wateree WMA – has identified at least 4 individuals basking/captured 3

Multi-State Sandhills Restoration Project – Tillman - -Waiting for right conditions to burn restored blocks

Multi-State Wetland Restoration Project – Webb - Working with Gary/April to line up contractors to do the restoration work on 3 wetlands at the Webb Center

Gopher Frog Population Augmentation and Headstarting - Monthly virtual meeting with SC gopher frog working group

-Genetic vials submitted to Stacey L. at SREL who is working on statewide genetics

-Species ID vials submitted to Bear's Bluff Hatchery for egg mass species ID

Green Salamander Population Assessment across Forest Disturbance Gradient – No activity during the month

Patchnose Salamander Environmental DNA - Field surveys are underway

-Andrew visited Brasstown Creek HP to see historic Ursperperes site and newly discovered site

-Andrew spent a day helping Cathy J. and Chelsea (M.S. student) with Ursperperes surveys at multiple sites

Statewide Bat Program

Recorded first known maternity colony for northern long-eared bats in South Carolina, counting 11 bats exiting the roost during emergence count at Santee Coastal Reserve WMA. Netted Upstate bridge thought to harbor endangered Gray Bat, but none captured. Worked with Carmen Addison on closing bat grants, Joe Lemeris on Survey123 apps for the field. Hired Ky Miller for NABat technician 4-month position. Communicated with Christy Greenwood Jeffcoat at SCDHEC about frozen bats for SCWDS Pd testing. Shipped 8 DHEC bats to SCWDS. Worked with Kaley Lawrimore on FB posts for Big Rock & TR rappelling surveys and Bat appreciation day.

Statewide Bat Monitoring (Bat Biologist, Jennifer Kindel, WNS and SWG grants)

- Apr 1: WNS call
- Apr 2, 14, 28: calls with Carmen regarding bat grants
- Apr 6, 12, 14: Survey123 forms discussion with Joe
- Apr 12: Hampton Plantation virtual meeting
- Apr 13: NABat community of practice meeting
- Apr 14: Year end closeout meeting
- Apr 15: WNS call; netted upstate bridge for MYGR – only NYHU captured.
- Apr 19 – 23: Netting at Santee Coastal. Recorded first known maternity colony for northern long-eared bats in South Carolina, counting 11 bats exiting the roost during emergence count. Tracked female to multiple maternity trees and conducted emergence counts. She generally roosted singly until found at snag with 10 others.
- Apr 30: SCNDR Photo day
- Managed bat netting survey season housing, permissions, equipment, volunteers, permits, etc. Obtained TNC permit to net on Washo Reserve road, McCrady IDT paperwork, ordered transmitters and other necessary equipment. Submitted travel requests for Maria and Cara in FY21 and FY22. Submitted Any Lab Test Now paperwork for titers for Maria, Cara and myself. Met with Sullivan Center doc regarding results and discussions re: potential rabies exposures. Contacted Anne Ballmann about adding LABO, CORA, TABR to Santee spring Pd samples. Bat survey123 forms discussions with Joe.
- Submitted final report for SWG SC Bat Monitoring and Research Project.
- Worked with Kaley Lawrimore on FB posts for Big Rock & TR rappelling surveys and Bat appreciation day (289 total likes).
- Offered NABat job to Ky Miller, who accepted. Sent non selection memos to other applicants.
- Communicated with Christy Greenwood Jeffcoat at SCDHEC about frozen bats for SCWDS Pd testing. Shipped 8 DHEC bats to SCWDS.
- Created 2 MYGR capturing devices for bridge netting.
- PBC update letter provided to Carmen. Emailed volunteers and staff re: SWG match to obtain volunteer timesheets. Requested Lake Hartwell match letter
- Submitted inventory sheets
- Scheduled Hampton bat meeting; finish last meeting notes;
- Communications with NABat tech; timeline w/housing info
- Made sure all pcard charges moved to correct account if not default
- Responded to multiple bat nuisance and information calls

Hourly technician, Maria Monarchino

- Conducted acoustic survey on Hampton Plantation bat cameras to determine if cameras were disturbing bats and adjusted camera view onto colony of +50 Rafinesque's big-eared bats
- Met virtually with Hampton Plantation partners to discuss next steps for project
- Worked with GIS staff to refine survey123 data collection forms for the summer field season
- Built 2 PVC framed bridge nets for bridge surveys
- Conducted 1 bridge survey in Oconee Co and caught 1 evening bat
- Worked with new bat technician to organize equipment for the field season
- Consulted with Clemson doctor about results of rabies titer results
- Conducted 6 mist-net surveys at Santee Coastal WMA, each lasting approximately 5 hours
- Caught a Northern Yellow Bat, four target species MYSE, and other bat species

- Radio-tagged 3 northern long-eared bats
- Radio-tracked bats over 3 days and located 6 male roost trees and 3 female roost trees
- Recorded tree, stand, and landscape data for each roost tree located
- Conducted 3 emergence surveys on the 3 female roost trees
- Conducted decontamination protocols on all equipment that came in contact with bats
- Discovered maternity colony for northern long-eared bats and counted 11 bats exiting the roost

Temp hourly technician, Cara Rogers

- Conducted 6 mist-net surveys at Santee Coastal WMA, each lasting approximately 5 hours
- Caught a Northern Yellow Bat, four target species MYSE, and other bat species
- Radio Tagged 3 of the MYSE (one was too small)
- Tracked all 3 of the bats tagged
- Recorded all roost tree data
- Found a female maternity colony for the MYSE
- Performed emergence counts on the known roosts
- Took WNS samples from bats of applicable species
- Met with doctor to discuss what to do if bat seems rabid
- Sanitized all used nets and equipment
- Helped prepare NABat letters for distribution for volunteers

SWG: NABat Project (Clemson MS student/Dr. Susan Loeb)

Anna Siegfried and Dr. Susan Loeb manually vetting calls and submitting to NABat online.

Small Game Program

General Small Game Program Activities and Accomplishments

Responded to a minimum of 17 phone calls and numerous emails requesting technical assistance.

Mileage logs and Pcard statements received to date were filed in current personnel files.

Program Leader Hook and Assistant Program Leader Small reviewed and edited the 2021-22 SCDNR

Rules and Regulations brochure.

Program Leader Hook and Assistant Small Game Biologist Small picked up 1 rabbit in Sumter county and provided it to the Southeastern Cooperative Wildlife Disease Study at the University of Georgia to screen for possible rabbit Hemorrhagic Disease Virus – 2. One domestic rabbit was collected in Newberry county and delivered to Clemson University Veterinarian for analysis. No RHDV-2 has been found in tested rabbits.

Program Leader Hook interviewed with UGA researcher Hannah Shapiro concerning RHDV-2 in SC.

Small Game Staff participated in the photography sessions for the online directory.

Assistant Leader Small entered, formatted, and began work on annual Rabbit Hunter Survey report.

Assistant Leader Small participated in a webinar on GIS based LIDAR produced by SCDNR staff.

Assistant Leader Small reviewed Swamp Rabbit proposal created by Clemson University for inclusion in the SWAP proposals.

Assistant Leader Small participated in a Multistate Ruffed Grouse virtual meeting to discuss abundance and life history, current research and research priorities for the Eastern Ruffed Grouse Working Group.

Mileage logs/receipts were scanned and forwarded to Lindsay Wood. PCard Statements were scanned and forwarded to the PCard email address.

Issued two new bird dog training area licenses and 23 shooting preserve licenses. Deposits associated with shooting preserve renewals were delivered to Accounting.

Started the application process for one new shooting preserve in Region 1. An inspection request was forwarded to Captain Riley on 3/31/2021. The safety inspection passed and a legislative approval request was sent to Representative Cox's office. A copy of the request was forwarded to the applicant.

Shooting preserve release/harvest data reporting reminders and renewal forms were mailed out to 113 shooting preserve operators.

Inventory sheets were distributed to staff outside the Columbia office. Upon return inventory sheets were scanned and turned in to business manager.

Posted 2 social media post on SCDNR Facebook page: RHDV-2 Awareness (4/20) and Fire Ant Myth Buster (4/26). Completed one interview for a traditional print publication.

Mourning Dove Project

Assistant Leader Small updated mourning dove band recovery information from bi-weekly reports and completed quality control for accuracy on reward bands entered.

Program Leader Hook presented information on mourning dove ecology and survey information at the Columbia East Rotary Club meeting in Columbia, SC.

Assistant Leader Small compiled GIS data for public dove fields and trapping locations for analysis.

Assistant Leader Small coordinated dove survey preparations with staff participants.

Assistant Leader Small took receipt of 1,000 new mourning dove bands and performed initial quality control and strung them in preparation for annual banding later this summer.

Bobwhite Quail Project

Program Leader Hook completed one management plan for Marty Barnes and Ruck Barnes in York County.

Program Leader Hook participated in one virtual NBCI executive committee meeting where he serves as Chair Elect of the National Bobwhite Technical Committee.

Program Leader Hook and SCBI Biologist Carmichael met with Quail Forever staff members Kent Adams and Matt Holland to discuss a possibly acquiring the Player Tract near the Lee/Sumter county line.

Program Leader Hook presented information on bobwhite ecology and survey information at the St. Paul's Men's Group in Lexington, SC.

SCBI Biologist Carmichael and Program Leader Hook participated in three Joint Chiefs Proposal Committee meetings to develop a proposal for the Joint Chiefs Landscape Restoration program 2022.

Assistant Small Game Biologist Small entered, formatted and began writing report for annual Quail Hunter Survey Report.

SCBI Biologist Carmichael picked up the Indian Creek newsletters at the Newberry USDA Service Center and transported them to the Columbia DNR HQ for postage and mailing as a part of our participation in the Indian Creek Partnership Committee.

Program Leader Hook reviewed and provided comments on the Climate Smart Agriculture document produced by the National Bobwhite Technical Committee Grasslands Subcommittee.

Program Leader Hook participated virtually in the first National Bobwhite Technical Committee Working Lands for Wildlife ad Hoc Committee Meeting.

Program Leader Hook and SCBI Biologist Carmichael participated in prep and trial run of a Quail Panel virtual meeting for the Long Leaf Alliance scheduled for May 4.

SCBI Biologist Carmichael and Program Leader Hook visited with USFS staff at the Savannah River Site to discuss bobwhite quail habitat and management on SRS.

SCBI Biologist Carmichael expended four days inspecting roads to be maintained on the US Forest Service Enoree Ranger District and showing prospective contractors the work required pursuant to an Advertisement to Bid published on SC Business Opportunities as a part of the Good Neighbor Authority agreement between the USFS and DNR.

SCBI Biologist Carmichael participated in a virtual meeting with USDA, Farm Service Agency Washington DC staff, coordinated by the Association of Fish and Wildlife Agencies was joined with state fish and wildlife agency biologists from several other states to discuss challenges with the new Conservation Reserve Program Forest Management Incentive Program.

SCBI Biologist Carmichael completed a technical assistance site visit on an 1,800 acre tract in Charleston county and written recommendations were provided to the landowners.

SCBI Biologist Carmichael participated virtually in the monthly Indian Creek Partnership Committee meeting.

SCBI Biologist Carmichael continued work on the Good Neighbor Authority agreement with the USFS with the planning for implementation of the Scope of Work and coordinating with DNR Grants office on budget set-up.

SCBI Biologist Carmichael expended several days reviewing and revising the DNR Bobwhite Quail booklet, originally part of the "Game On Your Land Series".

SCBI Biologist Carmichael drafted an amendment to the grant agreement between DNR and Quail Forever for the Indian Creek Coordinating Biologist Position and signatures were secured for both parties.

Program Leader Hook and SCBI Biologist Carmichael met with DNR Region III Lt. Bedingfield to discuss potential quail hunting regulation changes on the Indian Creek Focal Area.

SCBI Biologist conducted a technical assistance site visit at the Webb Center Complex with managing biologist Atkinson, and seed for bobwhite quail brood and food patch plantings were delivered.

Farm Bill/Ag Liaison Activities

Farm Bill Biologist Krieg wrote 2 management plans for potential EQIP and CSP applicants.

Farm Bill Biologist Krieg met with farm bill participants in Chesterfield and Lee Counties to discuss future EQIP possibilities.

Farm Bill Biologist Krieg planted 2 acres of beneficial insect/pollinator habitat on Samworth WMA in Charleston County.

Farm Bill Biologist Krieg completed 3 EQIP/CSP certifications in Chesterfield County.

Farm Bill Biologist Krieg completed a CSP certification in Florence County.

Farm Bill Biologist Peeples assisted Calhoun, Clarendon, Richland and Orangeburg county Natural Resources Conservation Service offices with program applications and planning.

Biologist Peeples visited with landowners in the above counties as well as Bamberg and Aiken counties to assess the goals and conditions of the properties and make recommendations on improvements to reach landowner objectives, matched with the lands ability to produce those objectives.

Biologist Peeples also participated in a meeting with the Department of Energy at Savannah River Site to discuss their management practices and how to best work these practices for the benefit of quail.

Nongame Bird Conservation Program

Migratory Landbird Project

Worked with bird conservation program staff to develop ways to complete work during the Covid-19 restrictions and communicated the need for high priority projects to the WFF Assistant Chief.

Collaborated with Coastal Carolina University on project researching reproductive success and survivorship of loggerhead shrike in coastal SC as part of an international work group efforts to conserve the species.

Collaborated with Clemson University project researching high elevation early successional bird communities.

Organized and hosted virtual meetings to help determine Atlantic Flyway landbird priorities and compiled solar resources from Atlantic Flyway states as chair of the Landbird Committee.

Worked with SCDNR web and media staff to develop falconry webpages and update bald eagle webpages.

Worked with heritage database staff to update the bald eagle nest reporting form and develop a loggerhead shrike survey123 monitoring form.

Attended outreach event with the Natureserve Director, media and SCDNR staff at Lewis Ocean Bay Heritage Preserve.

Conducted interviews for the Red-cockaded woodpecker biologist II position.

Compiled peregrine falcon breeding data and sent to USFWS as part of the peregrine falcon species status assessment.

Worked with furniture stores to begin the process of purchasing furniture for new offices.

Served on NAWCA committee and ranked the current NAWCA proposals for funding.

Provided information for 2 social media posts highlighting nongame bird projects.

Served as SC state coordinator and recruited SC volunteers for the USGS Breeding Bird Survey.

Worked with SCDNR media staff to develop 2 social media posts and a video.

Attended annual virtual Loggerhead Shrike Working Group meeting.

Approved 1 permits to further bird research in South Carolina.

Provided technical assistance on 3 bald eagle nests.

Worked with ACJV to develop ideas for a Black Rail Competitive State Wildlife Grant proposal.

Monitored loggerhead shrike on 6 days to contribute to a full annual cycle model to help determine conservation priorities for the species.

Participated in International Loggerhead Shrike Working Group calls.

Conducted a spring Raptor Survey for SC Army National Guard McCrady Training Center.

Wrote press release on Baltimore Oriole Winter Survey results prepared and sent out.

Continued developing a more efficient way to organize and maintain past and future landbird data sets.

Made changes to the relational database, began creating a spreadsheet to more easily import data from different databases, and submitted banding data to the Bird USGS Bird Banding Lab.

Conducted routine activities for the Atlantic Coast Joint Venture, Partners in Flight, Atlantic Flyway, and other committees.

Directed activities of landbird, wading bird, marshbird, shorebird, and seabird SCDNR staff by providing guidance on projects, developing grant proposals, and managing budgets.

Answered over 200 calls and emails related to technical assistance and other bird conservation efforts.

Red-cockaded Woodpecker Project

Conducted weekly nesting surveys of 54 RCW clusters on 7 SCDNR properties throughout the state – currently 26 active nests.

Conducted weekly nesting surveys of 4 RCW clusters on 2 SC State Park properties in Aiken and Georgetown Counties.

Currently training seasonal RCW Technician in all RCW management protocols.

Organized/conducted first round of interviews for RCW Bio II opening.

Began training one SCDNR employee on RCW nesting season monitoring.

Replaced three artificial cavity inserts at Santee Coastal Reserve WMA.

Completed two new enrollments into the Safe Harbor Program and mailed documents to landowners.

Inspected mitigation compliance at Lynchburg Savanna Heritage Preserve

Conducted Safe Harbor Site Visits to two enrolled properties in Georgetown County and discussed potential effects and protocol of proposed development on neighboring property.

Conducted two site visits to potential Safe Harbor enrollees in Charlestown and Allendale Counties.

Discussed with landowners/managers the transfer needs of several Safe Harbor properties that have changed ownership.

Attended virtual meeting with USFWS and Charleston County Parks regarding potential Safe Harbor enrollment.

32 phone calls and 53 emails were received and responded to regarding Safe Harbor and wildlife assistance and information.

Waterbird Project

Conducted aerial surveys of wading bird colonies to determine which colonies are active this year and which colonies should be surveyed more thoroughly from the ground/canoe. We plan to survey approximately 50 colonies during April and May. Contacted property owners and conducted ground counts at a subset of colonies.

Monitored Wood Stork nesting at seven index colonies. DNR staff monitored 5 colonies, USFWS monitored 1 colony, and volunteers monitored 1 colony.

Conducted call-playback surveys for Black Rails at two SCDNR properties. Completed first and second of five repetitions of surveys scheduled for this spring.

Researched irrigation equipment and techniques. Prepared multistate competitive State Wildlife Grant proposal to request funding to experimentally implement irrigation on a SCDNR property.

SCDNR's extensive ARU (autonomous recording unit) dataset from wetlands occupied by Black Rails is being used for testing the capabilities of two types of automated call recognizers (BirdNET/Cornell and MATLAB/Adam Smith, USFWS I&M). Manual validation of recognizers by SCDNR is underway. If the recognizers produce accurate results, they may be used to analyze past and future recordings to determine site occupancy and improve the accuracy and efficiency of Black Rail monitoring.

Participated in monthly virtual meeting for the Firebird Project (Gulf Coast rails), which included the discussion of survey protocols and acoustic sampling. Shared protocols used by SCDNR's Black Rail Project.

Installed and maintained arrays of research equipment for Black Rail monitoring. Reviewed and updated IDs for camera trap photos. These data will be used to compare detection methods and ensure future Black Rail monitoring is as efficient and effective as possible.

Deployed/maintained water level loggers at field sites to learn about fine-scale habitat conditions in wetlands occupied by Black Rails. Collected water level and rainfall data in wetlands where Black Rails have been consistently detected during recent surveys.

Assisted colleagues in other states who have initiated or are planning projects to monitor Black Rails.

Responded to data requests. Provided rookery and stork banding data to other natural resource professionals.

Continued meeting virtually with Kaley Lawrimore from SCDNR Public Information Office/Social Media Manager and Kristin Coulter, SCDNR Marketing Director to discuss ideas for a PSA concerning dogs on beaches and the harm caused to birds.

Continued preparations at alternative nesting sites for Least Terns including at: Pier Romeo, Dominion Williams Station, Summerhouse Condo roofs, and INEOS Plant (BP). Preparations include set up of shade structures, checking fencing and drainage openings, and first of season contacts with site owners and managers. Alternative nesting sites require adaptations to facilitate nesting success by Least Terns.

Posted islands in Cape Romain NWR - Bulls Island, Capers Bar, Lighthouse Island, North Cape Island, and North Inlet. Posting involves placement of signs, string, and flagging around nesting areas for colony seabirds and

for shorebirds. Signage closes areas for nesting birds and keeps detrimental disturbance to a minimum. Also posted beach bird nesting areas at Folly Beach Lighthouse Inlet, Edisto Beach State Park, Morris Island, Botany Bay, Deveaux Bank and Seabrook Island.

Assisted with USC graduate research project studying Whimbrel movement at Deveaux Bank; provided boating, transporting of materials and staff, and set up of equipment for trapping attempts. Completed NFWF interim grant report that is partly funding this project.

Accompanied CBS Sunday Morning filming crew to Deveaux. This program will feature a story about Whimbrel, airing mid-June.

Gave a presentation to a local ecotour company staff. Presentation consisted of information about SC seabirds and shorebirds and ways to minimize disturbance to nesting and migrating birds while operating tours in coastal areas.

Checked Castle Pinckney to ensure that all archeological areas remained covered to avoid trapping nesting birds. Areas were clearly marked with flags. In addition, signage at Shutes Folly and Crab Bank was checked. Assessed nesting status at Castle Pinckney and Shutes Folly.

Began nest monitoring at Botany Bay to help inform the public engagement campaign of nesting shorebirds and the perils, challenges, and successes they experience in the breeding season. Created content for the shorebird display in the kiosk at Botany Bay to inform visitors about nesting and migrating bird species on the property.

Trained in use of conibear traps to control mink populations. Mink are detrimental to nesting seabirds and shorebirds.

Continued to conduct and enter data from International Shorebird Surveys (ISS) at Capers Island and Bird Key. Surveys are part of a larger study to better estimate shorebird populations during migration throughout their range and to guide management decisions.

Educated visitors about shorebirds at several ecotour company "Beach drops" on the Northern end of Bulls Island. Interacted over 3 separate days with 45 people who were shuttled to the beach by Coastal Expeditions.

Attended Shorebird Outreach meeting via Microsoft Teams.

Attended 8-hour AAA driving school course at Ft Johnson.

Interacted with volunteers interested in assisting with monitoring of and education at seabird colonies within the Cape Romain Region. Shared information about Steward training hosted by Audubon SC.

Interacted via email with Diane Krishon, Biology teacher at Wando High School, and planned further discussions to bring forth a program at the High School level for future Sea/shorebird stewards.

Met multiple times with Cornell Lab of Ornithology and SCDNR media staff to organize a shorebird event scheduled for this summer to educate about threats to shorebirds and the rich diversity of birds on the SC coast. Visited Charleston museum to begin planning an in-person event at this venue.

Spoke with Clemson PhD candidate, Tyler Cribbs about his research of public use of the ACE Basin NERR and shorebird nesting in the study area.

Transported SCDNR drone operator and Marine Division staff and seasonal Audubon employee to Crab Bank Seabird Sanctuary in Charleston Harbor. SCDNR staff obtained aerial photography, benthic samples, and GPS points of Crab Bank for pre-construction data before dredge material is deposited on the island when the harbor gets deepened this year.

WILDLIFE SECTION- April 2021

Regional Operations Activity Summary

Wildlife technical guidance was provided to 344 contacts along with 27 technical guidance site visits. Five (5) management plans were written. Other agencies were assisted on 49 occasions requiring 56 person-days. Seven hundred thirty-six (736) nuisance wildlife complaints (including 33 bear and 272 alligator calls) were handled. Four (4) alligator site visits and 19 nuisance site visits were made. Field studies required 100 person-days and data analysis required 46.5 person-days. Sixteen (16) quail surveys, 1 bear survey, 80 bat surveys, and 23 other surveys were conducted. RCW cavity surveys conducted included 173 trees checked and 27 clusters checked. RCW nest surveys conducted included 37 clusters checked and 14 nests checked. Eighteen (18) woodduck boxes were checked. Twenty-four (24) antlers were scored. There were 5 social media posts. Nine (9) news releases were submitted, 4 interviews were granted, and 1 environmental review was conducted. Nine (9) programs/presentations were given with 214 in attendance. There were a total of 76 water level management days.

Heritage Preserve (HP) Habitat Management Summary

Heritage Preserve staff conducted 318 site visits. Prescribed burning occurred on 668 forest acres. Exotic control occurred on six (6) heritage preserves. Fifty-seven (57) miles of trails were maintained, 52 miles of firelanes were disced, 5 miles of roads were mowed, 14 miles of roads were scraped and 1 mile of road was graveled. Seven

(7) acres of annuals were planted. Eight (8) miles of boundaries were cleared/painted and 80 HP boundary signs were posted.

Wildlife Management Area Habitat Management Summary

Field agricultural activities on WMAs included 170.5 acres mowed/bushhogged, and 1,019 field/agriculture acres disced. Sixty-three (63) miles of roads were scraped, 7 miles of roads were mowed and 11 miles of roads were graveled. Prescribed burning occurred on 4,251 forest acres, 5 agricultural acres and 74 marsh acres. Agricultural herbicide occurred on 513 acres. Seven and one-half (7.5) miles of trails were mowed, 30.5 miles of dikes were mowed, 2.1 miles of dikes were retopped, and 36 miles of firelanes were disced. Seventy-seven acres of perennials were planted and 604.5 acres of annuals were planted. Four (4) water control structures were installed. Sixty-nine (69) WMA signs and 64 other signs were posted. Five (5) gates were refurbished or installed. Two hundred sixteen (216) WMA phone calls were answered.

WMA Hunts and Visitation

Marsh WMA – 107 visitors, of which all were hunting or scouting. Hunters reported harvesting 3 turkeys.

Woodbury WMA – 111 visitors, of which 96 were hunting or scouting and 15 were fishing. Hunters reported harvesting 5 turkeys. Data is incomplete as one sign-in book was stolen.

Pee Dee Station Site – 96 visitors, of which all were hunting or scouting. Hunters reported harvesting 3 turkeys and 2 hogs.

Great Pee Dee HP – 129 visitors 101 were turkey hunting, 15 were sight seeing walking or wildlife viewing, 11 were fishing, 2 were scouting for turkeys. 7 turkeys were reported harvested.

McBee WMA - 86 visitors, including 73 hunting, 2 hiking, 7 scouting, 3 fishing and 1 birding. No turkeys were reported harvested.

Draper WMA - 40 hunters 2 turkeys harvested

Worth Mtn. WMA - 124 users – 89 turkey hunters (3 harvested), 15 fishing, 13 hiking, 6 scouting, 1 photography

Liberty Hill WMA - 353 visitors, including 284 hunting, 21 fishing, 16 scouting, 14 hiking, 8 sightseeing, 3 biking, 2 birding, 3 photographing and 2 swimming. Six turkeys were reported harvested.

Belfast WMA - 4 Youth turkey hunts; 12 hunters harvested 4 turkey. 4 Lottery hunts; 13 hunters harvested 3 turkeys.

Wateree HP/WMA - 4 Youth turkey hunts; 12 hunters harvested 1 turkey. 4 Lottery hunts; 13 hunters harvested 1 turkey.

Love WMA - 2 TOMO turkey hunts; 2 hunters harvested 0 turkeys.

Crackerneck Wildlife Management Area - Harvest: 19 Eastern Wild Turkeys, 2 bluegill, 135 channel catfish and 1 largemouth bass

Bonneau Ferry WMA - On 4 adult lottery turkey hunts, 36 hunters harvested 3 turkeys. On 4 youth lottery turkey hunts, 31 hunters harvested 1 turkey.

Donnelley WMA - Youth Turkey – 24 hunters harvested 1 turkey. Adult Turkey – 30 hunters harvested 2 turkeys

Hamilton Ridge/Palachucola/Webb - Turkey Season- 26 days, 824 hunter days of effort, 36 birds harvested. 144 Non-Hunting WMA users.

Wildlife Regional Operations – Chief

Meetings attended during the month (in-person or virtual) included the biennial USFWS Service Regulations Committee, an Atlantic Coast Joint Venture Executive Committee meeting, an Atlantic Coast Joint Venture Management Board meeting, a DNR Habitat Protection Committee meeting, a meeting with WFF Staff and Fiscal staff to discuss FY22 and FY23 budget planning, and a meeting with representatives of Pintail Partners and South Carolina Waterfowl Association to discuss aquatic weed control on Hickory Top WMA.

Conducted a site visit to a potential DNR property acquisition in Sumter County as part of Habitat Protection Committee inspection and due diligence. Conducted a site visit, habitat assessment, and infrastructure assessment of all waterfowl impoundments at Love Farm and Wateree River HP/WMA. Completed annual Legal Updates to maintain DLEO certification. Assisted Deputy Director Cope with planning for a survey to assess opinions on Sunday hunting on WMA lands. Reviewed four WMA management plans and forwarded to Deputy Director Cope for approval. Responded to a minimum of 17 miscellaneous technical guidance calls during the month. Administrative duties related to the migratory bird program and maintaining agency bird banding permit included: Coordinating transfer of reward bands for doves, distribution of band recovery records to appropriate banding personnel, and assisting the Bird Banding Lab with data requests.

Regions 1 & 3 Assistant Chief Activities

Completed administrative activities including budgeting, purchasing, personnel and correspondence. Covid-19 related activities continued including coordinating with staff on work schedules and questions. Made 4 trips to Columbia to meet with senior staff and perform administrative duties. Attended an online meeting of the Rules and Regs committee. Met with staff at Duncan Creek WA. Attended at site visit to a Sumter County acquisition proposal. Attended site visit to a Laurens County acquisition proposal. Met with Mark Hall on Jocassee on future management needs. Attended a WFF senior staff budget meeting in Columbia. Met with Tammy Wactor and Pat Cloninger on improvements planned for Beaverdam and Clemson WAs.

Surveyed impoundment at Clemson for sand removal. Transported dozer to Clemson WA and began dike work. Checked road conditions and needs on Jocassee. Notified summer interns of their start date and orientation info. Revised 2nd draft of the Rules and Regs brochure and submitted it to graphics. Continued substantial budget work for FY22. Began budget work for FY23. Organized inventory sheets for the section and sent to staff for review. Reviewed CPIP request, DLEO directive, budget balances, personnel actions, purchasing requisitions, purchasing card submissions, media releases, travel requests, WMA management plan, WMA use requests, and proposed acquisitions. Checked WMAs including Belfast, Clemson, USFS Andrew Pickens, USFS Enoree, Fant's Grove, Keowee, and Jocassee. Checked HPs including Glassy Mountain and Stumphouse Mountain.

Regions 2 & 4 Assistant Chief Activities

Met with and/or conducted multiple conference calls with Chief Dukes, Deputy Director Cope and assistant Chiefs Swayingham and Dillman on various topics. Biologist Kneece and I provided a tour of the Samworth impoundments to Board member Swygert and Deputy Director Cope. Jamie Dozier and I provided a tour of Yawkey to Director Boyles. Participated in multiple conference calls and provided comments concerning the proposed waterline on Lewis Ocean Bay Heritage Preserve and the rezoning for the hospital along International Drive. Met with Van Whitehead on proposed waterline to be located on Lewis Ocean Bay Heritage Preserve. Attended Region 4 administrative meeting. Met with Deputy Director Cope, Donna Maples, Scott Speares, Denise Froehle, and WFF senior staff concerning Fy22 and FY 23 budgets. Met with Deputy Director Maier on Botany Bay issues. Met with Biologists Treptow, Kneece and Regional Coordinator Farrell on various topics. Met with Regional Coordinator Farrell on numerous topics, future work plans and budgets.

Inspected Dungannon Heritage Preserve and Ellis Tract on the Waccamaw Heritage Preserve. Inspected Sandy Beach and Canal WMAs. Inspected multiple properties for possible purchase in Horry and Hampton counties. Provided comments on potential land acquisition in Horry County. Proofed and submitted a copy of the 2021-2022 Rules and Regs. Participated in RCW Biologist interviews. Assisted with prescribed burning Rabbit Island impoundment. Assisted two days with prescribed burning on Yawkey. Assisted with prescribed burning on Bonneau Ferry for two days. Updated Wildlife Section on-line directory. Submitted extension requests and tracking sheets for various FEMA projects that are ongoing. Conducted orientation with new employee at Santee Coastal. Spent time inspecting and coordinating fireline clearing on Francis Marion National Forest. One deer was scored. Assisted with collection of and provided a copy to Deputy Director Cope of drone footage on work conducted by staff on Samworth impoundments.

Wildlife Region 1

Summary

Staff handled 53 nuisance wildlife investigations, made nine site visits, and issued five depredation permits. Received 28 bear calls, two road kills, and made seven bear site visits. Significant time was spent on USACE permit applications for planned improvements at Clemson and Beaverdam Waterfowl Areas. Blue Ridge Electric Cooperative partnered with SCDNR to install two non-active powerlines to improve dove field habitat at Tall Pines WMA. HP staff assisted LE with a court case involving illegal vehicles on Stumphouse HP. Delivered a dead cottontail rabbit from Greenwood County to SCWDS for rabbit hemorrhagic disease testing. Met with USFS and DU at Duncan Creek waterfowl area to discuss water control structure and dike improvements. Led a group of regional botanist on a trip to Wadakoe HP. Completed annual equipment inventory.

Region 1 Coordinator

Completed administrative activities including budgeting, purchasing, correspondence, special use permits, and daily staff status reports. Met with DU and USFS staff at Duncan Creek Waterfowl Area to discuss planned improvements. Spent significant time working with Unit 1A biologist and OEP office on USACE permit applications for Clemson and Beaverdam Waterfowl Areas. Reviewed and submitted revisions for the 2021-22 rules and regulations brochure. Assisted HT botanist in daylighting mountain sweet pitcher plants in Greenville County. Completed annual equipment inventory. Created a training map for LE showing Fant's Grove WMA. Participated in the Clemson University Animal Care and Use Committee meeting and reviewed two research protocols. Checked

WMAs including Beaverdam, Duncan Creek, Fant's Grove, Keowee, Jocassee Gorges, Tall Pines and Tyger River. Checked Wadako HP.

Nuisance Wildlife Activities

Conducted 53 nuisance wildlife investigations and made nine site visits. Issued five depredation permits. Checked and maintained hog trapping sites on WMAs. Checked Lake Conestee Nature preserve for an alligator after two reports. Assisted landowners with complaints on deer damage and hog issues.

Upstate Bear Report

Handled 28 bear complaint calls/sightings, two road kills and made seven site visits. Presented two community education programs on how to be bear wise. Analyzed bear teeth age data from 2020 harvest season and updated database.

Unit 1A (Anderson, Greenville, Oconee & Pickens)

Worked on maintaining proper water levels in the waterfowl areas. Pumps are running due to lower high water levels in impoundments. Checked boundary marking on WMAs and reposted as needed. Safety zone areas were marked on Fant's Grove due to problems with turkey hunters in closed areas. Conducted equipment inventory.

Property Management Activities:

Beaverdam Waterfowl Area – Worked on maintaining proper water levels and worked on stabilizing dikes. Beaver trapping continued on riser structures. Worked on permit application to dredge sediment from Little Beaverdam Creek.

Tall Pines WMA – Performed trail maintenance on the nature loop by the lake. Prepared dove fields and planted 12 acres in sunflowers. Blue Ridge Electric Cooperative partnered with SCDNR to install two fake powerlines to improve dove field habitat. Dove field parking area was repaired and access gate was improved for better access.

Caesars Head WMA – Monitored boundaries on WMA and reposted signs as needed.

Clemson Waterfowl Area – Monitored water levels and removed beaver dams. Met with environmental consultant to determine what actions are needed to restore the waterfowl area. Improved the access gate area and stabilized erosion.

Fant's Grove WMA – Two hog trap sites were monitored. Safety zone signs were reposted in areas where the signs had been stolen or damaged. Worked with Law Enforcement with hunter trespass issues. Dove fields were plowed and prepared to plant this season.

Gravelly WMA – Installed three cable gates on Causey Farm to restrict vehicles from accessing dove field and damaging fields.

Keowee WMA – Boundary signs were reposted as needed.

Long Creek Tracts WMA – Monitored field conditions. Dove fields were cultivated and planted.

Pickens Rifle Range Dove Field – Dove fields were cultivated and planted.

Ross Mountain Dove Field – Dove fields were cultivated and planted. Wheat was fertilized. Installed new hog trap gate system.

Sumter NF - Andrew Pickens WMA – WMA signs were reposted as needed.

Unit 1B (Abbeville, Edgefield, Greenwood & McCormick)

Considerable time was spent prescribed burning with a total of 815 acres burned by 1B staff and 105 acres burned by private contractor. Reviewed proposal for Bordeaux Work Center quail focal area. Corresponded with USFS, APHIS, and private landowner to discuss ongoing beaver issues near James L. Mason WMA. Led pig dissection for a Greenwood homeschool group's science class. Delivered a dead cottontail rabbit from Greenwood County to SCWDS for rabbit hemorrhagic disease testing. Technician Stone participated in Long Cane Primary career day.

Property Management Activities:

James L. Mason WMA – Prescribe burned 193 acres and private contractor burned 105 acres.

Bordeaux Dove Field – Sprayed herbicide on 30 acres, chisel plowed 8 acres, mowed 5 acres ryegrass in attempt to reduce seed production and 2 miles of field roads.

Plum Branch Dove Field – Sprayed herbicide on 10 acres, planted 6 acres sunflower, and worked on electric fences.

Parksville Dove Field – Sprayed herbicide on 10 acres, planted 6 acres sunflower, and worked on electric fences.

Russell Creek Waterfowl Area – Installed 8 duck boxes. Monitored water levels and beaver activity.

USACE-owned "unnamed" WMA – Prescribe burned 204 acres at Torchia's Store. Prescribe burned 33 acres at Hester's Point. Prescribe burned 75 acres at Patterson Branch. Prescribe burned brush piles at Greenoaks. Prescribe burned 25 acres at Old Augusta.

Unit 1C (Cherokee, Laurens, Spartanburg, Union)

Met with USFS and DU at Duncan Creek waterfowl area to discuss water control structure and dike improvements. Mowed dike at Duncan Creek waterfowl area for DU to complete necessary surveys. Conducted site visit to Pacolet Recreation Site for FERC recreational management plan update. Completed equipment inventory. Planted corn in all dove fields and planted the first round of sunflowers. Responded to wildlife call regarding a deer fawn on the front lawn at Union County HS. Measured and entered one black bear skull for Boone and Crockett records. Collected GIS data at Cliff Pitts WMA. Conducted one private lands site visit to provide technical assistance to landowner.

Property Management Activities:

Cliff Pitts WMA – Fertilized ragweed plantings in logging decks. Prescribe burned 18 acres of thinned pines. Worked to prepare new dove field to plant.

Gaffney Dove Field – Prepared and planted dove field.

Gray Court Dove Field – Prepared and planted dove field.

Herbert Dove Field – Prepared and planted dove field.

London Creek WMA – Assisted Duke Energy personnel with prescribe burning.

Santee Cooper Dove Field – Prepared and planted dove field.

Sedalia Dove Field – Prepared and planted dove field.

Sumter NF – Duncan Creek WMA – Mowed the dike and trail from the parking area.

Thurmond Tract WMA – Prepared and planted dove field.

Jocassee Gorges

Over 40 phone calls or email inquiries were handled with questions about camping, road conditions, Sassafras, hunting seasons, and general use of Jocassee Gorges. Continued coordination with TNC on a future control burn. Continued communications with the Ruffed Grouse Society on a potential timber harvest. One special use request was evaluated and the applicant was informed of our decision. Re-opened the Sassafras restrooms after maintenance and repairs. The Jocassee Journal and SC Wildlife Magazine articles on the pollinator project generated much interest from the public. Biologist Hall organized and backed up files for the transition due to retirement.

Property Management Activities:

Jocassee WMA – Completed road work and firebreak work on eight miles of roads. Completed the final spring/winter burn with about 300 acres treated. Mowed vegetation along roadsides. Four culverts were installed on secondary roads. Fertilized wheat in dove field.

Heritage Preserve Activities

Assisted Clemson University researchers, State Wildlife Grants Coordinator and State Herpetologist with a search for patch-nosed salamander at Brasstown HP. Led a group of regional botanists with the HT botanist on a survey of Wadakoe Mountain HP. Completed inventories. Prepared a presentation on Bald Rock HP for the May HTAB meeting. Assisted HT Botanist with daylighting a pitcher plant population on private land south of Bald Rock HP. Assisted LE with a court case involving illegal vehicles on Stumphouse HP.

Property Management Activities:

Ashmore HP – Picked up trash. Checked gate and trails. Changed lock on Lawton rd. gate and met with landowner about access.

Bald Rock HP – Picked up trash, three man hours of pick-up.

Blackwell HP – Checked gate and inspected for possible problems.

Brasstown Creek HP – Completed exotic control, picked up trash, checked gate, and assisted SCFC with road work.

Bunched Arrowhead HP – Inspected trail, picked up trash, and mowed.

Chestnut Ridge HP – Checked gate, inspected roads/trail, and cut trees.

Eastatoe Creek HP – Inspected trail and re-built footbridge.

Stevens Creek HP – Inspected trail and completed exotic control.

Stumphouse HP – Checked gate and sign.

Wadakoe HP – Led inventory trip with regional botanists.

Watson-Cooper HP – Inspected road.

Wildlife Region 2

Summary

Region 2 staff spent significant time preparing and planting dove fields. Timber harvesting, including a 70 acre clearcut and over 600 acres of thinnings, were completed on April 23 at McBee WMA. Heritage preserve management staff worked on endangered species and ecosystem monitoring, restoration and management; on longleaf and shortleaf pine, piedmont savanna and prescribed fire management, outreach, policy and education; on

management plans; on conservation planning, and on maintaining and improving access and other preserve attributes Staff adhered to SCDNR C-19 emergency protocols in field work and office work, following social distancing and sanitation measures. The department has continued to provide personal protective equipment and sanitation supplies to staff to help us work safely and productively.

Regional Operations Activities

Unit 2A

Unit A staff attended the SCDNR photo day at the Florence Office. Unit A technicians attended the AAA driving class. Biologist Oates completed edits for the Rules and Regulations guide. Biologist Oates assisted Unit C with a prescribed burn at McBee WMA. Biologist Oates coordinated road repairs at Woodbury WMA with Marion County Public Works. Technicians Parsons and Parsons assisted Marion County Public Works with the repair of 4 miles of roads, where approximately 400 tons of rock were spread over this 4-mile stretch. Biologist Oates contracted Cov-19, become mildly sick from, and recovered while following the state mandated quarantine guidelines. Biologist Oates submitted the furbearer depredation report and renewed the permit for Marsh WMA for the removal of nuisance beavers. Technicians Fitts and Parsons sprayed herbicide on 42 acres of dove field at Pee Dee Station and 50 acres at Lake Wallace. Technician Fitts and Parsons planted 22 acres of sunflowers and 20 acres of corn at Pee Dee Station. Technician Fitts planted 25 acres of sunflowers and 25 acres of corn at Lake Wallace. Biologist Oates met with a timber buyer who was logging a tract of land adjacent to Woodbury WMA to determine the property line and discuss daylighting a shared road. Technician Parsons mowed 4 acres around Pee Dee Station dove field. Technicians Parsons and Alston graded 25 miles of roads in Marsh WMA. Technicians Parsons and Parsons spread 8 loads of rock on road at Marsh WMA. Technician Parsons and Parsons mowed 18 acres of undesirable hardwoods. Technician Parsons daylighted ½ mile of roads in Woodbury. Technicians Parsons and Parsons extinguished wildfire that had developed in Woodbury WMA. Region staff had 124 technical assistance contacts (mostly phone calls) pertaining to wildlife, regulations, and WMA lands and 18 nuisance calls.

Unit 2B

Unit 2B staff began planting public dove fields in York and Chester Counties. Unit 2B staff spent considerable time on scheduled equipment maintenance. Technician Moses maintained roads, firebreaks, and wildlife openings at Draper WMA. Technician Wyatt maintained roads and wildlife openings at Worth Mountain WMA. Technician Scales and Technician Smith began mulching and reclaiming old fields at Worthy Bottoms. Technician Smith continued trapping beavers at Broad River WMA.

Technician Smith maintained roads and wildlife openings at Broad River WMA. Technician Wyatt continued clearing an old road to a prospective wood duck bait site at Worth Mountain WMA. Technician Smith, Biologist Kesler and Technician Scales continued draining impoundments, monitoring beaver activity in ditches, and maintaining water control structures at BRWMA. Unit 2B staff regularly inspected gates and kiosks at multiple WMA properties. Biologist Kesler, Technician Scales, and Technician Smith repaired a water control structure at Broad River WMA.

Unit 2C

Staff completed driver's training refresher and got pictures taken for the staff directory on April 14 at the Florence office. Staff completed annual inventory of equipment during the month. Biologist Cockman provided comments for edits to the Rules and Regulations Guide. Biologist Cockman met with DNR Herpetology staff at McBee WMA on April 6 to discuss possible upcoming herp surveys. Biologist Cockman found and documented an active (2 adults and 2 juveniles observed) eagle nest on Liberty Hill WMA. Information was forwarded to Biologist Hope. Biologist Cockman reflagged a boundary and inspected a future site for placement of a temporary construction office trailer and parking area by Duke Energy on the Catawba River WMA (Heritage Tract East). Catawba River WMA (Heritage Tract West) experienced a 17 acre wildfire that spread from adjacent private land on April 6. Biologist Cockman responded and assisted the SC Forestry Commission with suppression operations. No timber was damaged. Biologist Cockman and Technician McManus replaced 32 boundary signs that received damage. Biologist Cockman assisted the Sand Hills State Forest with suppression of a 25 acre wildfire on the Forest on April 19. Staff conducted 2 prescribed burns totaling 42 acres at McBee WMA. Coordinator Stokes and Unit A Biologist Oates assisted with the burns. Construction continued on the McBee WMA equipment storage building during the month. An additional 3 loads of clay were hauled to the site by Technician McManus. Biologist Cockman delivered 5 "road closed" signs to a leased WMA landowner in Chesterfield County. Technician McManus assisted the Sand Hills State Forest with dove field planting on April 26. Technician Lowder mowed and applied herbicide to 4 acres of bicolor lespedeza and 4 acres of velvet grass, mowed 2 acres of gasoline right of way, and disked 1.5 miles of firebreaks at McBee WMA. Technician McManus graded 1 mile of roads, spread rock on ¼ mile of roads, repaired fence and mowed 4 acres of grass at the shop and kiosk at Liberty Hill WMA and removed debris from 2 culvert pipes at Catawba River WMA.

Wildlife Management Area Management Summary

Throughout Region 2, staff prescribe burned 76 acres of WMAs and 247 acres of HP/WMAs, staff mowed 36.5 acres, scraped 31 miles of roads, applied ag. herbicide to 94 acres and applied 8 acres of forest herbicide, planted 118 acres of dove fields, graveled 5 miles of roads, cleared ½ mile of debris from road. Re-topped 1/10 of a mile of dike.

Property Management Activities

Marsh WMA: Scraped 25 miles of roads. Mowed 18 acres of undesirable hardwoods. Mowed clubhouse, skeet range, and campground (6 acres). Cleared ½ mile of road of debris after flooding. Hauled 6 loads of rock to build up low spot in road. Applied herbicide to 1 acre at skeet range.

Woodbury WMA: Daylighted ½ mile of road by mowing roadsides. Assisted Marion County Public Works with repair of 4 miles of roads and the spreading of 400 tons of rock. Extinguished wildfire that developed. Met with adjacent landowner to discuss logging operation and property boundary.

Pee Dee Station WMA: Applied herbicide to 42 acres of dove field. Planted 22 acres of sunflowers and 20 acres of corn. Applied herbicide to fence (1 acres). Mowed 4 acres around dove field.

Lake Wallace DF: Applied herbicide to 50 acres of dove field. Planted 25 acres of sunflowers and 25 acres of corn.

McBee WMA: Monitored visitor use. Disked 2 miles of firebreaks. prescribed burned 42 acres. Completed timber harvesting. Mowed and applied herbicide on 4 acres of bicolor lespedeza and 4 acres of velvet grass. Mowed small gasoline right of way (2 acres).

Liberty Hill WMA: Monitored visitor use. Graded 1 miles of roads. Rocked ¼ mile section of road. Mowed 4 acres at shop and kiosk. Repaired fence at boat landing.

Catawba River WMA: Assisted SCFC with 17 acre wildfire. Replaced 32 boundary signs. Cleaned debris from 2 culvert pipes. Reflagged north boundary of east Heritage Tract.

Draper WMA: Performed general depot and equipment maintenance. Scraped 2 miles of roads. Mowed 21 acres of openings. Mowed 6 miles of roads. Disked 3 miles of firebreaks. Disked 37 acres of dove fields. Applied prescribed fire to 34 acres. Applied fertilizer to 37 acres of dove fields. Re-topped dike of pond #3.

Worth Mtn. WMA: Performed general equipment maintenance and repair. Disked 44 acres in dove fields. Scraped 2 miles of road.

Broad River Waterfowl Management Area: Performed general equipment maintenance and repair. Conducted 14 days of water level management. Mowed 2 miles of dikes. Scraped 1 mile of road.

Worthy Bottoms PDF: Planted 8 acres of sunflowers and 3 acres of corn. Applied herbicide to 8 acres of sunflowers. Fertilized 11 acres of sunflowers and corn. Mulched 5 acres of old fields to increase field size.

Landsford Canal FLA: Fertilized 20 acres in dove fields.

Heritage Preserve Management Activities

Heritage preserve management staff worked on endangered species and ecosystem monitoring, restoration and management; on longleaf and shortleaf pine, piedmont savanna and prescribed fire management, outreach, policy and education; on management plans; on conservation planning, and on maintaining and improving access and other preserve attributes. Staff continued to adhere to SCDNR C-19 emergency protocols in field work and office work, following social distancing and sanitation measures. The department has continued to provide personal protective equipment and sanitation supplies to staff to help us work safely and productively. Staff discussed Great Pee Dee River Mitigation Bank Mill Creek bridge replacement project with Bob Perry. Staff spoke with SC National Guard about request to use Great Pee Dee River HP/WMA for training and dealt with a special use request from SCETV to use Forty Acre Rock HP/WMA for a feature video shot from a drone. Staff worked with Josh Castleberry, Sumter County Soil and Water Commissioner and instructor at Central Carolina Tech about forming a Prescribed Burning Association. Staff worked on business for the SC Prescribed Fire Council and the International Association of Wildland Fire. Staff conducted 3 controlled burns on two HPs, burning 247 acres to restore and maintain habitat for 2 federally-endangered species (Canby's dropwort: *Tiedemannia canbyi*), and the red-cockaded woodpecker (*Picoides borealis*). Staff spent several non-work days teaching landowners and managers and their families in Lee, Sumter and Clarendon counties how to burn. Staff assessed firebreaks, soil and water-table conditions, and fuels; cleared around cavity trees of the federally-endangered red-cockaded woodpecker as well as snags, cat-faced trees, gates, signs, utility poles and other hazards or sensitive elements; and worked on equipment and gathered supplies in preparation for prescribed fire. Staff attended mandatory 4 hour driver training class; had photos taken and completed information for the SCDNR Directory; provided justification for received approval for two laptops; and swapped trucks, turning in an old vehicle and getting a less-old replacement. Staff maintained

preserves by assisting the SCDNR LED with enforcement, by monitoring for abuse, by removing trash, by managing vegetation and by maintaining gates, trails, parking areas and boundaries.

Property Management Activities

Forty Acre Rock HP/WMA: Staff conducted two burns, totaling 157 acres (87 acres & 70 acres) and cleared 1 mile of firebreaks. Staff continued clearing firebreaks and raking around or cut snags and preparing other sensitive elements on all burn units. Staff walked firebreaks and all burn units to assess fuel and soil conditions in preparation for prescribed fire. Staff maintained the preserve by assisting game wardens with surveillance (SCDNR issued 6 tickets and 1 warning), by monitoring for abuse, by removing trash and hazardous trees, by managing vegetation, and by maintaining gates, trails, parking areas and boundaries. Staff dealt with a special use request from SCETV to use Forty Acre Rock HP/WMA for a feature video shot from a drone. The preserve continues to see have extremely heavy use. On Sunday 25th April there were at one time 33 vehicles in Upper Parking Area, 8 in Lower Parking Area and 5 on the roadsides. Most of these vehicles had multiple visitors, and vehicles came and went all day.

Great Pee Dee HP/WMA: Staff spoke with SC National Guard about request to use Great Pee Dee River HP/WMA for training and discussed Great Pee Dee River Mitigation Bank Mill Creek bridge replacement project with Bob Perry. Bob requested information about the preserve's Hurricane Creek Bridge, which we recently replaced. Staff checked flood conditions, closing the preserve to vehicles as needed and posting these closings on the SCDNR website.

Longleaf Pine HP/WMA: Staff assessed firebreaks, soil and water-table conditions, and fuels; cleared around cavity trees of the federally-endangered red-cockaded woodpecker (RCW; *Picooides borealis*) as well as snags, cat-faced trees, gates, signs, utility poles and other hazards or sensitive elements; and worked on equipment and gathered supplies in preparation for prescribed fire.

Lynchburg Savanna HP/WMA: Staff conducted one controlled burn, burning 90 acres that included two federally endangered species: Canby's dropwort (*Tiedemannia canbyi*, fka *Oxypolis canbyii*), a fire- and flood-dependent plant; and the red-cockaded woodpecker (*Picooides borealis*: RCW). This was a patchy burn, leaving a mosaic of significant unburned areas. Staff assessed firebreaks, soil and water-table conditions, and fuels; cleared around cavity trees of the federally-endangered red-cockaded woodpecker (RCW; *Picooides borealis*) as well as snags, cat-faced trees, gates, signs, utility poles and other hazards or sensitive elements; and worked on equipment and gathered supplies in preparation for prescribed fire.

Woods Bay HP: Staff assessed firebreaks, soil and water-table conditions, and fuels; cleared around snags, cat-faced trees, gates, signs, utility poles and other hazards or sensitive elements; and worked on equipment and gathered supplies in preparation for prescribed fire.

Wildlife Region 3

Summary

Continued high river levels resulted in many days spent regulating water control structures on Wateree River Heritage Preserve Wildlife Management Area and Love Wildlife Management Area. Staff from Region 3A assisted with a prescribed fire at Aiken Gopher Tortoise Heritage Preserve. Biologist Bennett and Technician Baldwin spent several days repairing washed out firebreaks at Congaree Bluffs Heritage Preserve. Staff worked every Wednesday and Saturday morning for scheduled lottery draw turkey hunts on wildlife management areas within the region. Bennett met with DNR staff in Horatio to discuss potential property acquisition. Staff completed this year's equipment inventory report.

Regional Coordinator

Assisted regional staff with purchase requisitions, receiving and inspection reports, and personnel transactions forms. Submitted purchase card summaries by email for Region 3 Staff on April 15 and 19. Attended a site visit to the White Plains Tract in Newberry County on April 30. Visited the following heritage preserves and wildlife management areas in Region 3; Belfast, Congaree Bluffs, Henderson, Hickory Top, Janet Harrison High Pond, Love Farm, Peachtree Rock, Shealy's Pond, and Wateree River.

Unit 3A

Staff made needed repairs on hog panel surrounding waterfowl impoundments. Waterfowl impoundments have been prepped, planted, and fertilized on Wateree River Heritage Preserve Wildlife Management Area. The dike repair is still underway as wet weather conditions and high river levels have remained and issue in completing repairs on the Cook's Mountain waterfowl impoundment. An old and compromised riser pipe was removed, and dike reconstructed on a small portion of the Cook's Mountain waterfowl impoundment. The Green Tree Reservoir restoration which includes understory mulching is still underway as wet weather conditions and high river levels have remained high. Turkeys were scouted to prepare for the upcoming draw turkey hunts. Waterfowl

impoundment improvements are still underway. Technician Kiker, Technician Flemming prepped and installed 3 youth deer stands. Leaking hydraulic cylinders and pallet forks were replaced on backhoe.

Baldwin spent every other day managing water levels on the Love Farm Wildlife Management Area. Efforts to keep ditches and water control structures cleared of debris to waterfowl impoundments was ongoing. The bid was awarded for the stumping/clearing of the dove field and shooting course and is projected to start the first week of May. Staff replaced 2 pipes that was caved in going to the small waterfowl impoundment and river. Staff finished grading the small impoundment with efforts to take out high spots. Baldwin mowed all wildlife openings for preparation of spring planting. Hog panel was repaired and replaced as needed. With preparation of spring planting equipment maintenance took up a good amount of time. Soil samples were collected for upcoming planting season.

Staff spent most of their time prepping and planting dove fields at Belfast Wildlife Management Area, Saluda Dove Field, and McCullough Dove Field. Technician Rex and technician Stephens installed and electric fences on 2 dove fields. Work on windows at the Belfast house and bath house is still under way. Work on the shop roof and interior lights and windows has also been awarded and is under way. Turkeys were scouted to prepare for the upcoming turkey draw hunts. Staff spent time dealing with beavers and high water at Enoree Waterfowl Area.

Unit 3B

Crackerneck Wildlife Management Area was open to the public for 9 days in April and had 246 visitors for Turkey hunting and fishing. Wildlife Biologist Hank Forehand and Wildlife Technicians Michael Chapman and Johnny Rinder manned and worked the gate for all opens days. Technician Chapman and Rinder planted 20 acres of corn, fertilized 25 acres, and disked 50 acres of the dove field at Crackerneck Wildlife Management Area and planted 18 acres of corn, fertilized 50 acres, and disked 60 acres at Hallman dove field. Technicians Chapman and Rinder also worked on equipment for 3 days, herbicided 2 miles of electric fence and worked of the roads for 3 days. Biologist Forehand planted 20 acres of wildflower seeds donated by United States Forest Service -Savannah River Site and planted 25 acres of annual legumes in the area and roller chopped during the winter.

Unit 3C

Technicians Smith, Greenthaler, and Mackey made further repairs to equipment. Staff continued to prepare and plant all dove fields with the unit. A new strand of fence and an additional fence charger were installed on Santee Cooper Wildlife Management Area Dove Field. Water levels were monitored and adjusted as needed on Hickory Top Wildlife Management Area. Shuler cleaned around all water control structures on Hickory Top Wildlife Management Area that had beaver activity. Staff fielded called from the public and answered alligator calls. Staff worked draw youth and adult turkey hunts on Santee Cooper Wildlife Management Area.

Heritage Preserves

Heritage Preserve Biologist Young and Technician Kiker conducted multiple site visits to the Heritage Preserves and Wildlife Management Areas in Region 3. Kiker has continued to update signage at the heritage preserves in Region 3. Young assisted the Love Farm Wildlife Management Area staff with installing a new drainage pipe to a waterfowl impoundment. Kiker mowed the grass around the Education Center at Congaree Bluffs Heritage Preserve. Young disassembled the hog trap at Congaree Bluffs Heritage Preserve. Young and Kiker conducted a prescribed burn of 67 acres at Aiken Gopher Tortoise Heritage Preserve with assistance from Technicians Gary Stephens and Adam Rex. Young and Kiker have been cleaning out the shop at Styx. Young removed a discarded couch at the Shealy's Pond Heritage Preserve. Lexington County Sheriff's Office was on scene during the pickup and was made aware of the increase in litter found on the property and will monitor for any suspicious activity. Young and Kiker helped plant 7 acres of quail food plot mix at Aiken Gopher Tortoise Heritage Preserve. The seed was donated by Danny Epting, a gentleman who regularly hunts quail on the heritage preserve. Young and Kiker conducted a 2-acre prescribed burn at Congaree Bluffs Heritage Preserve. Young met with Forester Gary Burger to plan out spraying 71 acres at Congaree Bluffs Heritage Preserve. Young, Kiker, Unit 3A Biologist Travis Bennett, and staff from Love Farm and Wateree River Wildlife Management Areas helped in resurfacing a firebreak at Congaree Bluffs Heritage Preserve. Old, outdated erosion control measures were updated as well as new water bars and turnouts added. Several trees were removed that compromised the integrity of the firebreak to make it easier for public access. Kiker assisted Wateree River and Love Farm Wildlife Management Areas staff move equipment, materials, and seed around the properties. Young and Kiker attended the photo day for Intranet pictures. Young and Kiker assisted the Red-cockaded woodpecker biologist Matt Lerow with the camera survey cavity inserts at Aiken Gopher Tortoise Heritage Preserve and Aiken State Park. One nest was found with four eggs at Aiken Gopher Tortoise Heritage Preserve. Young assisted the Region 3B Biologist Hank Forehand in staffing the check in station at Crackerneck Wildlife Management Area for a Friday morning turkey hunt. Young assisted the Wateree River Heritage Preserve Wildlife Management Area staff with the installation of a new drainage pipe at the Cook's Mountain waterfowl impoundment. In March, Region 2 Heritage Preserve Biologist

Johnny Stowe burned 32 acres at Bennett's Bay Heritage Preserve. Young and Kiker have gathered materials to replace the roofs and plexiglass at all kiosks in need of updating around Region 3 heritage preserves. Young and Kiker have continually picked up litter from Congaree Bluffs Heritage Preserve, Peachtree Rock Heritage Preserve, and Shealy's Pond Heritage Preserve.

Wildlife Region 4

Highlights

Region 4 staff spent significant time during the month of April on preparations and execution of management of Public Dove Fields and CAT 1 Waterfowl Area impoundments. Prescribed fire was a priority throughout the month, with 3,324 acres burned on Region 4 properties. Staff performed RCW nest and cavity surveys, checking a total of 164 trees. Staff continue to make progress on infrastructure projects.

Regional Coordination

Site visits for three potential land acquisitions were conducted and guidance and reports submitted as appropriate. Habitat management activities including significant dove field progress and prescribed fire use was inspected on multiple WMAs. Current budget expenditures were monitored with year-end close out in mind and FY22 budget requests were reviewed with WMA staff and Assistant Chief Chappellear. An Administrative Assistant Workshop was hosted (in person!) at Ft. Johnson with the assistance of Karen Rourk, Denise Froehle, and Shelley Ivester; all Region 4 Wildlife Admins attended. A prescribed fire at Yawkey Wildlife Center was monitored. Post fire activity at Donnelley WMA was documented. Interviews for a vacant General Maintenance Technician III for Upper Coastal Waterfowl Project were attended. A day was spent with the photo/video crew for new directory photos as well as filming for our Waterfowl Area media plan. After hours nuisance alligator calls were answered.

Assistant Regional Coordination

Assistant Regional Coordinator Hook worked on prescribed burns on multiple properties throughout the month of April. Recent prescribed burns in Region 4 were monitored. Hook checked all dove fields in Region 4 and coordinated with staff on herbicide needs and changes for necessary weed management measures. Property visits were made to check conditions of waterfowl impoundments on Category 1 Waterfowl Management Areas. Interviews were conducted for Natural Resource Technician positions for the Upper Coastal Waterfowl Project. Inventories were reviewed and completed. A seed order for chiwapa millet for statewide Waterfowl Management Areas was completed and delivered. One property visit was made to a site in Jasper County. Multiple Post Construction Forms for Region 4 Waterfowl Management Areas were completed for the USACE.

Unit 4A: Georgetown & Horry

Coastal bear activity continued to pick up in April, as expected. There were 5 sightings and 3 roadkill's reported. Biologist Brantley conducted educational outreach that covered 15 subdivisions within Carolina Forest. In addition, OMO handled a news release on social media related to black bears. Educational door hangers were ordered to be used for problematic bear areas. Heritage Preserves in Horry County were visited 14 times. Staff spent 2-man days peeping and updating Red-cockaded woodpecker cavity statuses on Lewis Ocean Bay Heritage Preserve. Biologist Brantley removed 2 flying squirrels from 1 nest tree. Seven bird houses were installed to discourage other species from using the RCW cavities. Technician Matthews split his time between Samworth and assisting the HP crew with multiple projects. Those projects included: 2 prescribed burns (Cartwheel Bay HP and LOB HP); disking and maintaining firebreaks at LOB HP for preventative wildfire measures; repairing an impassable road (LOB HP) and transporting a tractor with box blade back to LOB HP from Samworth. The road project has been planned but was halted due to wet ground conditions until now. Additional projects are in the works while dry conditions continue. Technician Matthews also repaired the fuel fill on the Argo, a radiator and fuel issues on 2 tractors, and was able to get the hot water heater working at the LOB HP shop. Staff continued to maintain the Samworth grounds. Technician Matthews completed a SCEIS training on the updated timesheet. Matthews also hung double doors on new tool shed extension for the UCWP. Staff completed the annual inventory. Corn was planted in the Samworth dove field and a pre-emergent was applied. The field cultivator was used prior to the corn being planted. Electric fences were monitored and repaired as needed. Wildflowers were planted in the boat landing field. The FY21-22 regulations were reviewed, and edits were submitted that pertained to Unit 4A. Biologist Brantley hosted 2 HGTC soils lab at Samworth. Brantley assisted Biologist Kneece with a prescribed burn in one impoundment. Brantley attended a deer scoring event held in Horry County with retired Biologist Mark Bara and Biologist Fowler.

Unit 4B: Berkeley & Charleston

April activities were dominated by agricultural work in waterfowl impoundments and dove fields, as well as prescribed burning and fence installation.

Bonneau Ferry WMA: 67 hunters and 114 general visitors utilized Bonneau Ferry. Roads were graded, limbed, and potholes repaired. Staff prescribed burned 609 acres. Bonneau Ferry staff housed USDA-APHIS personnel who trapped coyotes for two weeks on Waterhorn. Staff began installing fencing around Pump Pond impoundment.

Canal WMA: Staff continue to work with USACE personnel via weekly conference calls. Staff also met with USACE personnel to plan road repairs. Planting, fertilizing, spraying, fence construction, and depredation control are all proceeding aggressively across the dove fields. Approximately half of the dove fields have been planted.

Sandy Beach, Cross and North Dike WMA: Staff disced almost all impoundments, which have dried out nicely, and corn planting is under way. Fence installation has begun on the Prairie impoundment. Wildlife openings on North Dike have been disced and some planted in summer mix or corn. Impoundments and openings were fertilized and sprayed as needed. Pump was serviced.

Francis Marion National Forest: Staff have begun disking wildlife openings in preparation for planting summer mix and/or chufa. USDA- APHIS personnel spent two weeks trapping coyotes as part of the coyote management approach the DNR has begun. Staff assisted Law Enforcement during turkey season and assisted many turkey hunters with advice on the FMNF.

Other Unit activities: Staff made several trips to vendors to pick up seed, fence supplies, and other needs. DWC staff were involved in discussions regarding recent internet upgrades and issues with the upgrades. Staff attended a driver safety course online. Paperwork for Pay Plan increases was submitted for two technicians. Procurement documents were compiled for agricultural supplies and equipment.

Wildlife: A total of 469 wildlife calls were handled at the Charleston office (157 alligator, 312 other nuisance animals). There were 31 licensing/boat titling and deer tags calls emailed to the licensing/permitting office. Hunting regulation and property calls were handled for 11 callers. 19 Property and 16 Individual Alligator Depredation Permits were mailed or picked up. 4 harvested Alligators have been reported through end of April. Alligator Signs were mailed to 5 Property Managers for posting. Two of these properties also received signs in Spanish for posting.

Unit 4C: Colleton & Dorchester

Routine administrative and management duties were conducted for the month. Visits were made to WMAs within the unit to assess habitat conditions and other management items. Water levels in all impoundments on Donnelley and Bear Island were monitored and adjusted appropriately. Spring drawdowns continued to provide foraging habitat for migrating shorebirds and to prepare the pond beds to grow brackish SAVs this summer. Unit wide spring agriculture plantings took place totaling 64 acres in our dove fields. Staff were also busy burning as weather permitted and were able to burn 1,900 acres. Dike and impoundment maintenance consisted of 1,200 linear feet of dike topping. One water control structure was constructed and installed. There was a minimum of 11,801 visitors and 54 hunters for the month in Unit 4-C.

Bear Island WMA: Agriculturally, approximately 10 acres have been prepared for spring wildlife opening planting. Road and dike maintenance encompassed 1,200 linear feet of dike topped. A new water control structure was constructed and installed. The old trunk that previously worked this area was decommissioned. A bulkhead in need of repair was evaluated and repaired. The large flap gate on Matthew's canal had worked its way loose from one of its supporting chains, we removed the gate, repaired, and reinstalled it. Miscellaneous jobs addressed during the month include, two staff members attended driver training at Fort Johnson, ten staff members had directory pictures made at Fort Johnson, yearly inventory was checked, and grass has been mowed as needed.

Botany Bay Plantation WMA: Staff disked, bedded, planted, and sprayed 32 acres of sunflowers in the dove fields. A fence was constructed around 15 acres of sunflowers to prevent deer depredation. Fences are checked daily to ensure they are working properly. Staff burned 250 acres. In preparation for the new equipment shed to be built staff moved all equipment out of the way so construction could begin. Construction and maintenance technician Joe Armstrong has been at Botany Bay's big house where it is being refurbished. The kitchen, apartment, and a bathroom are done. He is now in process of repairing the floor and plumbing in laundry room along with the plumbing in the other 5 bathrooms. A 40' x 80' tractor shed at Botany has had site prep and construction started. Technician Armstrong continuously orchestrates with contractors and paperwork for present and future projects. Volunteer work consisted of clearing back trail in the woods for the turtle ATVs to get to North end of the beach; moved beach kiosk towards red gate in the beach parking lot and continued to clean the Big House where the new intern will live. Out of the 92 Bluebird boxes 90% of them are occupied with Bluebirds and other species. 77% of the Wood Duck boxes are occupied as well. Kaley Nevin with OMO is coming March 29, 2021 to film nests and actives of 1 AMOY nest with 3 eggs and 1 WIPL nest with 3 eggs, both nests are expected to hatch early May. The new turtle intern, Emma Diutkowski, will arrive May 3, 2021. We had 8 homeschoolers from Charleston come out and do a beach and marsh walk with two volunteers on April 1st. On April 4th volunteers posted the 78 shorebird nesting site posts. We had 11,801 visitors with 3,618 cars. Volunteer Hours were 216 for the month of April. There were 6 horseback riding parties with 15 riders. There was 3.04" of rain for the month of March.

Donnelley WMA: Agriculturally, dove field planting and spraying began in April with 20 acres of corn and 12 acres of sunflowers. In addition, 50 acres are being prepared for sunflowers. Electric fencing surrounding the dove fields is checked daily and repaired as needed. Due to hogs and deer continuing to access these fields some additional strands of hot wire were run several feet outside of the original fence in efforts to save some crops. Six prescribed burns covered approximately 1,650 acres. Miscellaneous jobs addressed during the month include, staff getting directory pictures taken at Fort Johnson, debris removed from a clogged trunk, received new furniture at lodge and hauled old furniture to good will, lodge and office had extensive spring yard maintenance.

Edisto River WMA: Law enforcement patrolled the property regularly during the month for any violations during turkey season. The kiosks were checked and replenished with maps as needed.

GIS/GPS/Miscellaneous: Lidar maps of Webb WMA, Palachuola WMA and Hamilton Ridge WMA were completed and mailed to the area biologist to assist staff with property management activities. The water levels and kiosk at Dungannon HP/WMA were checked. Assistance was provided to Yawkey staff with a burn by providing monitoring assistance using the UAV. Bear Island WMA exterior dike photo documentation was conducted on three days using the UAV. Two 24x36 posters were printed and laminated for the kiosk at Botany Bay HP/WMA. One 8 x 11 map of the Wood Duck Web Tag Project showing tagging locations of hours old ducklings and 2020-2021 recovery locations was generated for Waterfowl Biologist Kneece to assist with sharing the harvest information with the hunters. Met staff in Mt Pleasant to transfer equipment. The prescribed burn data for Donnelley WMA, Webb WMA, Palachuola WMA and Hamilton Ridge WMA was updated. The map of Edisto River WMA was edited and sent to the web master for updating on the Public Lands page. The new time entry information through SCEIS was reviewed. Region 4 property data was shared with Columbia GIS section. Miscellaneous GIS work was conducted. Miscellaneous supplies were picked up.

Unit 4D: Beaufort, Hampton, Jasper

Staff spent significant time preparing and planting dove fields as well as servicing & maintaining fences around fields. Staff also spent time monitoring red-cockaded woodpecker nesting activity. Staff conducted prescribed burns on 210 acres. 144 non-hunting users signed in to the 3 WMAs during the month with activities including: scouting for hunting, birding, wildlife viewing, archery range, fishing, paddling, and photography. Biologist Atkinson met with State Forester Berger to look at current timber harvesting on Palachuola WMA, met with potential architect for upcoming Mistletoe Grove Renovations, and met with multiple contractors to discuss and inspect the flooring and foundation issues at the Webb Center office. Atkinson attended Zoom meeting to discuss upcoming hardwood project on Hamilton Ridge WMA and coordinated with vendor to ensure gravel was delivered and properly tailgate spread on Hamilton Ridge and Webb WMA. Atkinson and Biologist Moss attended the Turkey Invitational in Gifford. Moss attended the GIS meeting and the April Lunch and Learn Event. Moss conducted a site visit for nuisance alligators at Port Royal Plantation. Technician Klecan attended Driver Training virtually at Donnelley. All Webb staff attended and completed CPR training at the Webb Center. Lower Coastal Alligator activity for the month: issued 11 commercial permits with 36 tags, issued 2 individual permits with 4 tags, and received 20 nuisance calls.

Habitat Management: Significant staff time was spent on dove field preparations and planting. Preparations included disking, cultivating, spraying, and fertilizing the fields before planting corn and sunflowers. Significant staff time was also spent repairing and installing fence around Webb dove fields. 210 acres were prescribed burned on Webb. Staff used the Brown tree mower to control the midstory on 20 acres. Annual RCW cavity and tree monitoring was conducted in 7 clusters with 76 cavity trees being checked. Annual nest monitoring began on the 15th with 10 nests being documented by the end of the month.

Facilities & Infrastructure Maintenance: Staff graded 15 miles of roads. 6 miles of rock delivered for road maintenance (approximately 2600 tons). 10 loads of rock and 5 loads of dirt were hauled for road maintenance and 4 culvert pipes replaced. Staff spent time with mowing and general grounds maintenance.

Equipment Maintenance: Staff spent significant time rebuilding 36' boom sprayer. Staff spent time repairing the sidearm mower on the John Deere 6415. Time was spent on general equipment maintenance & repairs.

Upper Coastal Waterfowl Project

Santee Coastal Reserve WMA

Uplands: The grounds were repeatedly mowed. The campground was repeatedly cleaned up. Several wildlife openings were planted.

The Cape: Several interior water control structures received a complete upfit using a mini excavator to add wingwalls to the structures. We dug up the old cables and replaced them with stainless steel rods. We also added mud seals to the box. Once completed, FLBC was added on top of the structures. Water levels were repeatedly checked and adjusted as needed.

Murphy Island: The long-reach excavator was refueled and re-topped 1,275 feet of dike, thereby finishing the re-topping work on the Murphy Island dike. The machine was barged back to the mainland for line boring and general maintenance. Water levels were repeatedly checked and adjusted as needed.

Cedar Island: A location for the new trunk on Cedar Island was established. The amphibious excavator was moved to that spot. A new trunk, lumber, and hardware for that trunk was loaded on a barge, floated down the South Santee River and unloaded at that location. Water levels were repeatedly checked and adjusted as needed.

Repairs: Several broken bushhogs were loaded up and taken to a mechanic for a repair quote. The zero-turn mower had new spindles installed. A starter was replaced on a tractor. The pumper truck was taken in for repair.

Other Activities: Inventory was completed. Interviews were held for Tech II and Heavy Equipment operator positions. Staff assisted the shorebird team in posting bird closures. Staff assisted with a prescribed fire on Yawkey Wildlife Center. All staff attended a bat presentation by bat biologist Kindel at the Santee Coastal Reserve office. Several staff members attended the Driving class at Fort Johnson and online. One staff member got her physical for the Captains License.

Santee Delta WMA

Staff mowed the Santee Delta East parking lot and several of the dikes. The area is currently not accessible by large tractor due to bridge painting activities and restricted lanes. A small tractor was taken to the site, but the removal of that tractor proved to be very complicated and dangerous, so all mowing attempts for that area are on hold until the construction situation improves.

Samworth WMA

Considerable time was invested this month on Rabbit Island. The amphibious excavator cleared vegetation and silt from 1.75 miles of ditches surrounding field beds in the impoundment, including 0.25 miles of trees lining those ditches. In total 2.25 miles of ditches have been cleaned out and water flow restored. Historical quarter drains totaling 3.75 miles were also restored to functional use in the impoundment. The cleaning of ditches and restoration of quarter drains on Rabbit Island should serve to improve the overall drainage of the field beds within the impoundment. Five acres were mowed, twenty-eight acres were burned, and one mile of internal dikes were also retopped on Rabbit Island in April. On Mill Pond, 11 acres were mowed on the field beds, 2.5 miles of dikes were mowed, and 42 acres were burned. Quarter drains are being restored to functional use in the impoundment. At the conclusion of the month, 0.8 miles of quarter drains had been completed in Mill Pond. On Cane Patch, 0.5 miles of internal dikes have been mowed, as well as 22 acres of field bed. Four acres were burned in the denser white marsh areas as well as internal dikes. Excellent low tides and low precipitation have created conditions that allowed for 19 acres of disking on the Cane Patch field beds. Staff also completed a full fluid service on a Marsh Master and serviced the v-ditcher. Deck level indicator cables were replaced on two Marsh Masters. Fire extinguishers were installed on two Marsh Masters, the Marsh Runner, and the amphibious excavator. Numerous barging trips were made throughout the month.

Heritage Preserves

Prescribed burning continued early in the month at Cartwheel Bay and Lewis Ocean Bay but then quickly concluded given lack of precipitation, high KBDI, and combinations of high wind/low relative humidity. Staff finished river boundary on Waccamaw and started back boundary on Little Pee Dee River HP.

Cartwheel Bay HP: Coordinating with SCFC, staff was able to get 160 acres burned in the growing season this month. Restoration that started last year for rare plants such as the Venus flytrap, received needed fire deeper into previously suppressed vegetation.

Dungannon HP: On site tractor was hauled to shop and permanent signage for wood stork closures were posted. Catwalk decking around water control structures were taken up to remove t-post strainers to be extracted and moved out front of catwalks. One board was added to each structure to catch water as minimal levels were approaching (3.8' minimum for when storks are present). One half board was taken from site to make new boards back at shop in Horry.

Lewis Ocean Bay HP: Optimum weather and site conditions allowed for 161 acres to be burned on upper Telephone Rd. in the early growing season this month. Due to several spot overs fire lighting had to conclude but what was burned, will surely reap many benefits. With burning came need of many equipment repairs including repairs to the Argo, tractors, and several disks. Staff coordinated a tour of the preserve for Nature Serve's cross-country tour of Heritage Programs. Biologist Fowler interviewed and discussed the management challenges facing such a diverse ecosystem in an urbanized area of the state. Thanks to a grad student, staff was able to coordinate with LE to prosecute some poachers with a car full of pitcher plants. Ongoing pine snake research through CCU continues on-site and daily movements of one individual snake is now being tracked by a graduate student. The encroachment issue on the preserve's northern boundary off Centex Rd. continues to be coordinated with residential developer and

SCDNR legal staff. All firebreaks were disked late in the month as the preserve became very dry due to no rainfall. Two large requisitions were advertised this month including a generator for shop power and a tractor shed.

Little Pee Dee River: Biologist Fowler and Technician Bell scouted out boundary needs and posted boundary between Hwy 501 and 917. Several loads of trash were hauled off river beaches and LE was contacted about litter issues.

Tillman Sand Ridge: Technician Kalinowsky disked all firebreaks again for upcoming planned burns after large storms carried debris across lines. Routine property checks were completed, and litter patrolled.

Waccamaw River HP: Staff continued posting and painting boundary from river near Red Bluff. Boundary was touched up at the Ellis tract where signage was missing. The contracted survey work on the Waccamaw was also coordinated, supplies delivered, and is to begin within weeks. Several potential property acquisitions abutting the current preserve was researched and recommendations were given to upper-level staff.

Miscellaneous: Biologist Fowler handled bear calls this month that included 3 road kills. Technician Ward unfortunately was on sick leave most of the month given some recent health complications. Biologist Fowler assisted with a deer antler score event held at a local taxidermist shop. Inventory for the project was checked and sent to Columbia. Staff collectively made 35 site visits to 6 preserves this month including Tillman Sand Ridge, Dungannon, Lewis Ocean Bay, Waccamaw River, Cartwheel Bay and Little Pee Dee River HPs.

Tom Yawkey Wildlife Center

Staff conducted and assisted with numerous research and survey projects during the month. Water quality and levels were monitored for waterfowl food production. The annual report was completed and will be distributed next month. Staff continued to work closely with Georgetown County and its contractors over the renovation of the South Island Boat Landing. Several pours of concrete parking areas were conducted this month. There were extended periods of time where we did not have vehicular access to YWC as the concrete was curing. The Lower Reserve managed wetland had 250 feet of new dike constructed or repaired in the southernmost compartment. A spillway was decommissioned between the Penfold-Blackout managed wetlands and will be replaced when the ponds are drained again. Five blocks totaling 1,556 acres were burned on Cat Island. Several infrastructure repair projects were conducted this month. Contractors removed all asbestos containing material from the interior of two buildings on South Island. Contractors also installed a new HVAC system and electrical wiring on a third building. Five miles of roads were graded and shaped, 2 miles of dikes were side-cut, and a culvert was replaced on Firelane Road.

Clemson University graduate student Mikayla Thistle continued investigating Bachman's sparrow nesting ecology and habitat usage in the longleaf pine stands. SCDNR Biologist Spencer Weitzel spent several days working on the black rail project on Cat Island. Remote cameras were placed at key locations and a solar powered water pump was installed to investigate the potential for creating new rail habitat. Staff assisted with two black rail survey transects. Four nests were located during the month. Numerous birds that were banded last spring have also been resighted on nesting territories this year. Archaeologists with SCDNR's Heritage Trust Section completed preliminary field work on the shoreline assessment project at YWC. Nine locations have been investigated along Winyah Bay and the North Santee River. Over 1,150 shovel tests were conducted and 359 had positive hits (31%). Staff assisted University of Georgia graduate student Samantha Bock with recapturing 54 hatchling alligators on Cat Island. These animals are part of a long-term survival study and were marked out of the nest last fall. Seasonal sea turtle technician Julie Barrios began work and will be monitoring sea turtle nesting activity on South and Sand Islands until October. The education program conducted 8 socially distanced field programs for 52 participants. An Eagle Scout project installed three purple martin nest boxes on Cat and South Islands. Three interns from Horry-Georgetown Technical College continue to work with staff several days each week. The interns completed 256 hours of work this month.

Statewide Forester

Continued working with the three local Longleaf Implementation Teams (LIT's) in SC, including virtual SOLO-ACE Partnership meeting, the State Longleaf Coordination Team, and the South Carolina Prescribed Fire Council (SCPFC). Continued various duties as SEAFWA representative to the regional Longleaf Partnership Council (LPC). Participated in virtual LPC semi-annual meeting. Continued collaboration with Forest Stewards Guild, USFWS, and Clemson University (Dr. Stephen Peairs) on hardwood management demonstration/outreach area grants, including timber harvest planning at Hamilton Ridge WMA. Continued collaboration with USFS on Good Neighbor Authority project on the Enoree RD of the Sumter NF. Timber marking and cruising on this GNA project completed, finalizing sale preparation. Forestry mulching on Mason WMA, Webb WC, and Hamilton Ridge WMA scheduled to commence soon. Land clearing at Love Farms for dove field and shooting complex scheduled to commence early May. Contracted Spring Velpar applications at Congaree Bluffs HP, Angleus WMA, and LOBHP. Preparing bid specs and packages for wetland restoration work on Webb WC. Working with Biologist

Cockman on brood field clearing bid specs and package. Continued working with Milliken Forestry and DNR staff re: ongoing GIS timber stand database additions. Monitored and administered ongoing timber harvesting operations. Assisted Chief Dukes and Asst. Chiefs with timber budgets.

Harvesting operations have been completed on timber re-sale at Palachuola WMA (266 acres of planted loblolly second thinning), close-out finalized. Harvesting operations remain suspended at Hamilton Ridge WMA (618 acres of plantation loblolly second thinning and 77 acres of clearcut), Woodbury WMA (792 acres of plantation loblolly first thinning and 28 acres of second thinning), but are very close to completion. Completed harvesting activity at Edisto River WMA (bird dog training area, 73 acres of planted loblolly second thins), close-out in progress. Harvesting operations on Bonneau Ferry WMA (784 acres of natural loblolly first thinning, 160 acres of planted loblolly and longleaf first and second thinning, and 80 acres of natural loblolly clearcut) are schedule to resume in May. Harvesting operations on two timber sales at Hamilton Ridge WMA (521 and 504 acres of plantation loblolly first thinning) are scheduled to resume in May. Harvesting operations at McBee WMA (426 acres planted loblolly marked thinnings, 221 acres of operator-select planted loblolly, and 75 acres of clearcut for longleaf restoration) were completed, close-out in progress. Continued harvesting operations at Palachuola WMA (270 acres planted loblolly and slash marked thinnings and 138 acres clearcut for longleaf restoration), and made substantial progress. Harvesting operations at the Thurmond Tract WMA (116 acres of planted loblolly first thinning) are scheduled to resume in May. Harvesting operations on awarded timber sale at Jocassee Gorges (40 acres of white pine removal) have yet to begin. Harvesting operations remain suspended at James L. Mason WMA (408 acres natural loblolly marked thinnings) due to wet conditions. Harvesting operations on awarded timber sales at the South Heritage Tract (276 acres planted loblolly second thins) and at Draper WMA (60 acres of oak woodland thinning, 57 acres of planted loblolly first thins) have yet to commence. Recently awarded timber sale at Belfast WMA (591 acres planted loblolly second/third thins) has yet to begin. Recently awarded timber sale at Love Farms (64.5 acres planted loblolly pine for dove field expansion and shooting complex, 7.6 acres of thinning) has been completed, except for a few acres. Recently awarded timber sale at Santee Coastal Reserve timber sale (338 acres of marked natural mixed pine thinning, 81 acres of natural mixed pine clearcut) has yet to commence. Recently awarded timber sale at Woodbury WMA (1,132 acres planted longleaf and loblolly) has yet to commence. Continued working with staff on planning/preparation of numerous upcoming sales.

Law Enforcement

DIVISION SUMMARY – COL CHISOLM FRAMPTON

Officers issued 570 summonses and 1603 warnings with 934 cases clearing court with fines totaling \$170,487.10 being assessed. A total of 2661 hours were spent on boating patrols resulting in 3694 boats being checked. Officers spent 170 hours on Homeland Security, 584 hours on litter patrols and a total of 282 hours were spent patrolling Heritage Trust Preserve properties. Officers also spent 1423 hours on night patrols. A total of 358 JEA hours were worked.

SEAHAWK – FSGT Gregg Brown/ PFC Neal Sutler

SeaHawk IOC analysts assisted with 174 requests from 32 different agencies during the month of April. IOC analysts also assisted with an additional 20 SCIIC requests.

Partial Tag/ALPR Successes:

- **Trespass to Hunt Turkey (SCDNR)** – Investigator requested assistance in locating a vehicle photographed leaving a private hunting club near Cheraw where shot shells were located. IOC analysts were able to quickly obtain a list of vehicles and suspect was #3 on the list. Officers were informed and went directly to the suspect's residence where they located the vehicle, UTV, & poached turkey in the truck bed. The suspect ultimately confessed to trespassing to hunt with his father. Both the individual and his father were charged.
- **Abandoned Vessel – (SCDNR)** – Officers in Beaufort County requested assistance identifying the owner of an abandoned sailboat. The vessel documentation was out of date and the documented owner was deceased. Analyst provided responding officer with the last known information for surviving family member who presented officers with paperwork verifying the sale of the vessel to another party. That subject admitted to purchasing the vessel and was issued citations for failure to register the vessel and improper vessel lighting.

K9 TEAM – LTC JAMIE LANDRUM

K9 Team – LT Brady Branham

- K9 Teams were called out 34 times during the month of April. K9s were deployed 30 times in the month. 26 were DNR related callouts resulting in 30 cases and 1 public presentation. 14 were other agency assists.
- K9 Teams continued in the month of April to be a great asset to field officers during turkey season. K9s assisted in turkey bait cases, intentional trespass to hunt cases, over the limit of turkey cases, and tagging violation cases.
- K9s also assisted other agencies this month with a missing two year old, a runaway juvenile, burglary cases, locating weapons, etc.

Community Relations, Officer Wellness, & Diversity Recruitment – CPT Henry Stackhouse

- Attended funeral service for Retired DWCO Charles Cummins.
- Attended monthly meetings for all 4 Regions and ASG Detention Center in Richland County to lead a debriefing of a suicide of an inmate.
- Met with LT Dennetta Dawson and LCPL Dale Tanner for a 3-day SCLEAP Peer training class at Myrtle Beach.

INVESTIGATIONS / REGION 4 – MAJ GARY SULLIVAN

Investigations – MAJ Sullivan/ LT Tony Spires

The result of an in depth inspection of a boat dealership will warrant 181 written violations.

Investigators issued 5 summons and 5 warnings, with 14 cases cleared. Investigators assisted with 4 cases, inspected 30 boats, 2 motors, and accrued 254 boating hours. Investigators conducted 21 night patrol hours, 16 search and rescue hours, and 243 boating accident investigations hours. Investigators attended or assisted with 39 hours of training this month.

Aids to Navigation/Dive Team

- Aids to Navigation received 14 maintenance requests from the Charleston Office.
- The investigations office received 5 zoning requests this month.
- There were 363 hours of Aids to Navigation work.
- There were 3 dive assignments this month.
- There were 60 Marine Event Permits approved and the year to date total is 304.

Investigations/Marine Theft

- The investigations office received and processed 21 boating accident reports bringing the year to date total to 31.
- We had 2 boating fatalities this month bringing us to 5 year to date.
- Investigators conducted 163 Marine Theft Investigations hours.

Region 4 – CPT Michael Paul Thomas

Officers issued 187 summonses and 829 warnings. 384 cases cleared court, with fines of \$49,791 being assessed. Officers checked 900 hunters and 3,369 fishermen, with a total of 1,336 hours spent on boating patrols resulting in 2,028 boats inspected. Officers spent 86 hours on Homeland Security, and 103 hours on litter patrols. A total of 154 hours were spent on patrol of the Heritage Trust Preserve properties. A total of 609 hours were spent on night patrols. Officers gave a total of 52 public presentations. Officers also spent 358 hours on JEA patrols. During the month there were 14 hunting accident investigation hours and 120 boating accident investigation hours conducted. 5 BUI screenings were conducted, with 4 BUI cases written.

Captain's Spotlight

Region Four Units E, F, G, and H assisted the ROC Solid Foundation in building a "Ready to Build Hope" playground in Beaufort for a three-year-old girl named Elizabeth who is battling cancer. Officers arrived in parade fashion with lights and sirens to her house. She was presented with gifts and deputized as a Junior Game Warden. Officers constructed the playset, cooked lunch for the family and volunteers, and spent the day making sure Elizabeth felt loved and celebrated for coming through a year of treatment and battle with cancer.

Unit 4A (Horry) FSGT Kevin Pardue

- Officers responded to a vessel v. dock accident on the ICW that resulted in a fatality. The vessel operator was screened prior to Investigations' arrival and the operator was arrested for felony BUI. Buckhannon and Hering secured search warrants and obtained blood at the hospital.
- LCPL Burton and PFC Buckhannon made 2 BUI cases on the ICW during a directed BUI enforcement patrol. One of the subjects had several DUI charges pending, the most recent less than a week old.

Unit 4B (Georgetown) FSGT Ryan Williams

- LCPL Capps and PFC Dozier caught two subjects with a net set in Murrells Inlet. The subjects cut the entire creek off and were waiting on the tide to fall.
- FSGT Williams, LCPL Capps, PFC Dozier and CO Hamblen worked a turkey bait site and made several cases.

Unit 4C (Charleston North) FSGT Huger McClellan

- LCPL Duncan responded to a call from a landowner concerning trespassing to hunt. Cases were made for trespassing to hunt and no hunting license.
- Officers assisted the county with a barricaded subject in the McClellanville area.

Unit 4D (Berkeley) FSGT Brian Crawford

- PFC Angotti-Smith made cases for trespass to hunt turkey and trespass to fish resulting in 10 contacts.
- FSGT Crawford and PFC Angotti-Smith observed 28 jugs placed on the Berkeley County side of Lake Marion. Jugs are prohibited on Lake Marion and were also marked incorrectly. The subject was charged for illegal non-game fishing device and incorrectly marked jugs.

Unit 4E (Charleston South) FSGT Greg Garner

- FSGT Garner and LCPL Whaley conducted a patrol of the provisional trawl zone on opening day of the provisional zone. They observed a trawler from NC dropping nets overboard and start trawling in the provisional zone 15 minutes prior to opening. The trawler was boarded and issued a citation for illegal trawling.
- CO Bissell worked with the covert team and made a case for selling of deer parts. The case was made through a Facebook investigation that resulted in a buy set up by the covert team for an individual selling a deer head mount.

Unit 4F (Dorchester/ Colleton) FSGT Andrew Godowns

- PFC Tanner and SGT Gantt stopped a vessel in the Ashley River for plowing through a no-wake zone. Upon further inspection the operator had several indicators of being intoxicated. The operator did not perform SFST very well and was charged for BUI as well as several other boating violations.
- PFC Woodward caught an individual who has been hunting county-owned property/airport for years. After a couple of years of trying to catch the subject, PFC Woodward saw the subject's vehicle parked at a gate and used his knowledge of the property and tracked the subject through the woods. The individual was hunting on county property which is strictly prohibited. The subject was charged for intentionally trespassing to hunt turkeys. The subject told PFC Woodward he was the first game warden to apprehend him.

Unit 4G (Beaufort) FSGT Adam Henderson

- Pritchler worked a Sig 6 involving a large vessel throwing excessive wake in a small creek creating dock damage. The Ring Doorbell footage was located allowing Pritchler to identify the vessel and operator leading to the charges of reckless operation of a watercraft and a wake zone violation.
- Pritchler participated and assisted with planning for "The First 10" turkey tournament to raise money for the Outdoor Dream Foundation. 18 teams participated raising over \$3,000 dollars for the foundation.

Unit 4H (Jasper/ Hampton) FSGT Earl Pope

- PFC Moskos was patrolling Hamilton Ridge WMA and apprehended a subject that was in possession of a resident license but was not a SC resident. The subject also did not have turkey tags. Multiple violations were documented.
- PFC Wells apprehended two subjects hunting turkeys over bait in Jasper County. Subjects did not have turkey tags and there were also license violations.

FIELD OPERATIONS REGIONS 1-3 – MAJ Mike Isaacs

Region 1 – CPT DJ Riley

Officers issued 122 summons and 284 warnings with 100 cases clearing court with fines totaling \$14572.50 being assessed. Officers checked 1362 fishermen, 758 hunters checked, and a total of 295 hours were spent on boating patrols resulting in 486 boaters checked. Officers gave a total of 11 public presentations. Officers spent 30 hours on Homeland Security, 264 hours on litter patrols. A total of 2 hours was spent patrolling Heritage Trust Preserve properties. A total of 96 hours was spent patrolling Jocassee Gorges resulting in 5 summons and 7 warnings being issued. Officers also spent 315 hours on night patrols. During the month, there was 2 hunting incidents and 1 boating incident.

Captain's Spotlight

LCPL Harvey and PFC Jones utilized K9 Blade and K9 Max to make cases for failure to tag turkey, use of electronic call, taking over the limit turkey, and improperly tagging turkey. On opening day officers heard shots and checked the hunter on the property. He came out stating he had missed the bird. After seeing fresh blood on the hunter's hands K9 Blaze was called to help find shell casings, waddings, and the location of the dead turkey. Before coming out the hunter cut the breast out of the turkey and stuffed them down his pants to keep from using a tag.

K9 Max was used to find the kill location of a bird suspected of being killed in Edgefield, after being checked in killed in Aiken. After finding the spot and a wadding the hunter was charged with taking turkey over the limit in the first 10 days as well as, improperly tagging turkey. K9 Max was also used to find the kill location of two turkeys killed over bait.

Unit 1A (Oconee / Pickens) FSGT Ron Hedden

- SGT Busha wrote two summonses for over the limit of trout on the East Fort of the Chattooga River. The subjects caught 35 trout total which resulted in 25 trout over the legal limit. LCPL Caddell also made 2 trout violation cases. One for possession of trout in the delayed harvest and one for use of prohibited bait in the delayed harvest.
- LCPL Brooking wrote five summonses for unlawful camping and ATV violation while patrolling the Horse Pasture area of Jocassee Gorges.

Unit 1B (Greenville / Spartanburg) FSGT Joe Cartee

- LCPL Miller, and Holliday received a trespassing to hunt complaint. Once they received the complaint, the officers went to the location and found where the subject had been seated and 2 fresh shotgun wads. After further investigation, the officers identified and located the subject. The subject admitted to killing two turkeys on opening day over the limit on the first 10 days, failure to tag both turkeys, trespassing to hunt, and failure to report. He was cited for over the daily limit and failure to tag. LCPL Miller, and Holliday issued warnings for trespassing to hunt, failure to report 2 turkeys harvested in the first 10 days.
- LCPL Tatum received a call for trespassing to hunt in progress in the Taylors area of Greenville County. The landowner had heard shots from the backside of his property where he does not allow any hunting. One individual was located hunting in the property owners' field adjacent to a property he had been given permission to access. The individual had killed 4 mature turkeys with three separate shots. The individual was cited and jailed for intentional trespass to hunt turkeys and 3 charges were made for each turkey over the daily bag limit. The firearm and equipment were seized as evidence in the cases pending trial. Restitution will be asked at court for the 3 illegally harvested turkeys.

Unit 1C (Cherokee / Union) FSGT John McCraw

- LCPL Woodlief, LCPL Burnett, and Officer Gardner worked a hunting accident in Union county where a hunter shot another hunter in the face at approximately 18 yards. Investigation ongoing.
- Officer Gardner completed a week of SFST Training at Tega Cay PD and re-certified as a Defensive Tactics Instructor at SCCJA

Unit 1D (Greenwood / Laurens) FSGT Travis Dudley

- LCPL Ryan Abernathy, LCPL Chris Keller, LCPL Chase Stewart, and FSGT Travis Dudley caught 2 subjects who shot a turkey while trespassing in Laurens county. Both subjects were apprehended with the assistance of the DNR dog tracking team resulting in several citations being issued.
- PFC Turner caught subjects trespassing to remove artifacts in Greenwood county and issued citations.

Unit 1E (Abbeville / Anderson) FSGT Rhett Barwick

- LCPL Ginn and LCPL Moon located a suspect who was offering for sale opossums and met the suspect at a gas station. Suspect was charged with selling game animals. The opossums and babies were turned over to a Wildlife Rehabilitator.

Unit 1F (Edgefield / McCormick) FSGT Michael Davis

- LCPL Harvey and PFC Jones utilized K9 Blade and K9 Max to make cases for failure to tag turkey, use of electronic call, taking over the limit turkey, and improperly tagging turkey. On opening day officers heard shots and checked the hunter on the property. He came out stating he had missed the bird. After seeing fresh blood on the hunter's hands K9 Blaze was called to help find shell casings, waddings, and the location of the dead turkey. Before coming out the hunter cut the breast out of the turkey and stuffed them down his pants to keep from using a tag.

- K9 Max was used to find the kill location of a bird suspected of being killed in Edgefield after being checked in killed in Aiken. After finding the spot, a wadding the hunter was charged with taking turkey over the limit in the first 10 days also, improperly tagging turkey. K9 Max was also used to find the kill location of 2 turkeys killed over bait.

Region 2 – CPT Matt McCaskill

Officers issued 129 summons and 180 warnings with 197 cases clearing court with fines of \$25,589.00 being assessed. Officers checked 643 hunters and 1045 fishermen, a total of 313 hours were spent on boating patrols and 407 boats inspected. Officers spent 13 hours on Homeland Security and 104 hours on litter patrols, and a total of 93 hours were spent patrolling Heritage Trust Preserve properties. Officers gave a total of 16 public presentations. Officers also spent 284 hours on night patrols.

Captain's Spotlight

- Officers Owen, Oliver, Ruff, Santangelo, and Vissage did an outstanding job locating and apprehending subjects for hunting turkey illegally. These officers issued 14 summonses for turkey bait, 1 summons for taking a hen turkey, 2 summonses for trespassing to hunt turkey and 6 other summonses for turkey hunting violations.

Unit 2A (Chester, York) FSGT Jason Plemmons

- Officer Oliver received a call of a hit and run incident on Lake Wylie. Officers Stewart and Timmons assisted Officer Oliver with the call. The officers tracked down the operator who had left the scene. After interviewing and collecting statements, the officers issued summonses for reckless operation and failure to transfer title.

Unit 2B (Fairfield, Lancaster) FSGT Will Coleman

- Officers made 3 cases for hunting turkey over bait and 3 cases for no turkey tags. Officers continued to work fishing in the state sanctuary at Cedar Creek which resulted in 16 cases being made.

Unit 2C (Kershaw, Lee) FSGT JC Hough

- Officer Norris charged an individual for hunting turkey over bait.

Unit 2D (Marlboro, Chesterfield, Dillon) FSGT John Hillian

- Officers Joshua Walters and Ethan McGiboney made a trespass to hunt case and a case for negligent use of a firearm in Dillon County. This was done with the exceptional interview/investigation skills of Officer Walters and the assistance of Officer Hunter Berton and the DNR K9 Harley from Horry County.
- Officer Mackenzie Gallien made 4 shining cases and 1 litter case in Chesterfield County. These cases were made as part of an ongoing investigation and the use of the department game cameras placed on a dumping site. He also wrote 2 cases for WMA violations.

Unit 2E (Florence, Darlington) FSGT John A Perry

- Officers took part in the Keep Florence Beautiful Litter Pickup from the James Hartwell Landing off Hwy 327 in Florence County. The officers picked up almost 500 lbs. of trash that consisted of 21 bags of litter, 6 tires, scrap metal, and 1 old TV.

Unit 2F (Williamsburg, Marion) FSGT William Huggins

- Officer Brant Elliott made a case for hunting turkey on a closed day and a case for no turkey tags.
- Officer Cody Britt made 2 cases for taking gamefish with a non-game device.

Region 3 – LT Brian Corbett/ LT John Bedingfield

Officers issued 125 summons and 292 warnings with 230 cases clearing court with fines of \$49,989.60 being assessed. A total of 463 hours were spent on boating patrols resulting in 708 boaters checked. Officers spent hours 41 on Homeland Security, 113 hours on litter patrols and a total of 33 hours were spent patrolling Heritage Trust Preserve properties. Officers gave a total of 29 public presentations. Officers also spent 230 hours on night patrols. During the month, officers made 1 BUI case and 56 hours were spent on boating accident investigations.

Captain's Spotlight

PFC Egan charged a woman for removing birds of prey from a nest. While off duty, he also observed subjects trespassing to fish behind a fence at the Lake Murray Dam. The trespassers left before CO Barone arrived. PFC Egan had documented the vehicle tag before they left and could identify the three. CO Barone and PFC Egan later tracked down the three trespassers through the vehicle tag and made charges.

Unit 3A (Lexington) FSGT Hunter Robinson

- LCPL Johnson and FSGT Robinson worked a boat crash on Lake Murray where 5 people were transported to the hospital.

Unit 3B (Richland) FSGT Hogan Tyler

- LCPL Stephen Bryant made a BUI on the Congaree River near highway 601.
- LCPL Stephen Bryant and PFC Hoover assisted Lexington County DNR officers with a 2 vessel boat collision on Lake Murray.

Training – LT Rusty Monnet, SSGT Jeremy Cooper, SSGT Erik Martin, SSGT Raquel Salter

- Staff conducted Spring In-service training at SCCJA on April 5th and 7th.
- Trey Baker, David Gaskins, Brandon Hass, Gilmore Stevens & Kevin Johnson attended Defensive Tactics Instructor Course at SCCJA April 12-23.
- Frank Jordan and Brandon Gardner complete Defensive Tactics Instructor recertification at SCCJA April 19-23.
- Staff worked on Styx Range and Storage Building.
- Staff conducted three HR-218 Retiree firearms dates at Styx Range.
- SSGT Cooper and Aimpoint conducted MOS training for DNR and SCCJA on April 22-23.
- SSGT's Salter and Martin mapped out scenario sites for Fant's Grove in Clemson.

Operation Game Thief/Property Watch – FSGT Sidney Rainwater

- Displayed Wall of Shame Trailer for OGT Program at Clays for Conservation IWC Fundraiser at NWTF Shooting Complex in Edgefield, SC.
- Finalizing plans for the IWC National Conference to be held in Clemson, SC in July.
- Property Watch Totals: New Members- 7 Total Collected- \$480.00

Homeland Security/EMD – LT Charlotte McKee

- SERT Hurricane Workshop
- Robinson Nuclear exercise
- Prepare for possible civil unrest.
- Continue work on Alastar contract and OGT event.
- Myrtle Beach communication meeting.
- Myrtle Beach Bike week planning.

Aviation – Chief Pilot Owen Barker

- 19 sorties for 46.5 flight hours
- SCDNR SAR Flights – 3.3 flight hours
- SCDNR Biology Flights – 18.3 flight hours
- SCDNR Law Enforcement Flight – 10.8 flight hours
- SCDNR JEA Flights – 6.3 flight hours
- SCDNR Training Flights – 7.8 flight hours

Equipment – Max McCommon

- Assisted downtown office with disposal of Office Supplies
- Received over 10 New Vehicles & Processed
- Several Vehicles taken to Holly Hill for Installation
- Continued with TID Disposal on Compound

Supply – Laken Riddle Williams

- Asset & Inventory Sheets for Styx Supply Submitted
- Styx Audit Planned & Scheduled
- Uniforms & Accessories Divided up for new hires
- Sized & Outfitted New Hire Cadets (Laken & Max)

Communications – Toby Freeman

- Working on encrypted radio programs.
- Working on tower contracts.
- Working on communications for Myrtle Beach bike week.
- Started radio programming updates.
- Assisted Aquatic Education with data connection for fishing tournament.

Radio Communications Center – SSGT Jason Smith

- Trained three new dispatchers.
- Morgan Hart with the alligator program came and gave a class on alligators to dispatchers to help with handling of alligator calls.
- Met with Axon representative about the future BWC program.
- Met with legal staff about BWC retention policies.
- Top 3 calls: General Information (158), Injured Animal (150), Trespass to Hunt/Fish (111)
- Info Provided by Dispatch: 1013; Total Calls for Service: 2406
- Warrants: Entered: 1 Arrest/ 2 Bench; Cleared: 2 Arrest/ 1 Bench
- Transmissions: 800: 15,748 Phones: 8,911 and VHF: 2,621

Law Enforcement

DIVISION SUMMARY – COL CHISOLM FRAMPTON

Officers issued 406 summonses and 1362 warnings with 327 cases clearing court with fines totaling \$53985.25 being assessed. A total of 2223 hours were spent on boating patrols resulting in 3532 boats being checked. Officers spent 157 hours on Homeland Security, 653 hours on litter patrols and a total of 289 hours were spent patrolling Heritage Trust Preserve properties. Officers also spent 1589 hours on night patrols. A total of 278 JEA hours were worked.

SEAHAWK – FSGT Gregg Brown/ PFC Neal Sutler

SeaHawk IOC analysts assisted with 214 requests from 32 different agencies during the month of March. IOC analysts also assisted with an additional 19 SCIIC requests.

The larger multiagency cases/operations worked in March 2021 are as follows:

- **MASFO (Wando-Welch Terminal)** – 33 total personnel representing 14 difference agencies.94 vehicles were stopped, scanned/inspected, and 101 people run for warrants and DMV status. One individual was identified as having an outstanding warrant, 7 warnings for equipment violations issued, and 2 containers were placed on hold.
- **Trespassing to Hunt / Bait Turkeys – (SCDNR)** – Officers in Florence County requested assistance identifying individual caught on a trail camera trespassing on private property. Officers located turkey bait and a trail camera believed to be placed by the suspect. The suspect was identified and later located trespassing on another property in possession of three turkeys. Unit Officers ended up making multiple charges and assisting Florence Co. with additional charges.
- **Completed background investigations for new hires.**

K9 TEAM – LTC JAMIE LANDRUM

K9 Team – LT Brady Branham

- K9 Teams were called out 44 times during the month of March. K9s were deployed 33 times in the month. 27 were DNR related callouts resulting in 36 cases. 17 were other agency assists.
 - K9 Teams assisted DNR officers with turkey hunting bait cases, trespassing to hunt cases, over the limit of turkeys, taking turkey out of season cases, and night hunting cases.
 - K9 Teams assisted other agencies and were able to locate armed robbery suspects, key evidence in shooting incidents, felon in possession of firearms, and other evidence for various cases.
 - K9 Teams searched for an elderly person with dementia and an 11-year-old girl who had run away from home.
- LCPL Hunter Burton and K9 Harlie graduated from K9 school and hit the ground running during the month of March.

Community Relations, Officer Wellness, & Diversity Recruitment – CPT Henry Stackhouse

- zoom meeting with command staff about the hiring requirements for DNR LE.
- Responding to Trauma and loss from COVID-19 Pandemic Training for 2 days via Zoom with Terri Rando.
- Williamsburg County LE debrief
- Met with Chief Wise at Fort Jackson in reference to career days & recruiting.
- Met with CPT Ellis, LT Dawson, and Alix Pedraza in reference to about setting up a Spanish translation of the Rules & Regulations.
- I attended the meeting in Washington DC with SCLEAP peers for counseling of US Capital Police with Trauma from the January 6th attack in DC.

INVESTIGATIONS / REGION 4 – MAJ GARY SULLIVAN

Investigations – MAJ Sullivan/ LT Tony Spires

Investigators inspected 330 boats and jet skis at a dealership in the Columbia area with numerous charges pending.

Investigators issued 5 summons and 10 warnings, with 2 cases cleared. Investigators inspected 545 boats, 6 motors, and accrued 88 boating hours. Investigators conducted 21 night patrol hours, 4 search and rescue hours, and 123 boating accident investigations hours. Section Investigators attended or assisted with 94 hours of training this month.

Aids to Navigation/Dive Team

- Aids to Navigation received 24 maintenance requests from the Charleston Office.
- The investigations office received 8 zoning requests this month.
- There were 427 hours of Aids to Navigation work.

- There were 2 dive assignments totaling 6.5 diving hours.
- There were 93 Marine Event Permits approved and the year to date total is 244.

Investigations/Marine Theft

- The investigations office received and processed 2 boating accident reports bringing the year to date total to 10.
- We had 1 boating fatality this month bringing us to 3 year to date.
- Investigators conducted 333 Marine Theft Investigations hours.

Region 4 – CPT Michael Paul Thomas

Officers issued 150 summonses and 645 warnings. 147 cases cleared court, with fines of \$19,622 being assessed. Officers checked 386 hunters and 2,002 fishermen, with a total of 1,036 hours spent on boating patrols resulting in 1,342 boats inspected. Officers spent 79 hours on Homeland Security, and 120 hours on litter patrols. A total of 157 hours were spent on patrol of the Heritage Trust Preserve properties. A total of 578 hours were spent on night patrols. Officers gave a total of 24 public presentations. Officers also spent 278 hours on JEA patrols. During the month there was 1 hunting accident investigation hour and 49 boating accident investigation hours conducted. 5 BUI screenings were conducted, with 5 BUI cases written.

Captain's Spotlight

In December CO Cooler observed a Facebook post advertising shellfish for sale. Further investigation indicated that the individuals did not possess proper licenses and permits to sell. CO Cooler, CO Gantt, along with the DHEC Shellfish Division began investigating. In March, the vehicle registered to one of the identified individuals was seen along the road near a shellfish ground. CO Cooler and DHEC officers set up surveillance and were able to observe the two individuals illegally harvesting. A traffic stop was conducted, and the two individuals were issued 10 summonses and 1 warning for Illegal Harvest and Sale of Oysters as well as other violations. 10 bushels of adulterated oysters were seized and kept out of the illegal commercial market.

Unit 4A (Horry) FSGT Kevin Pardue

- PFC Buckhannon received a video of a resident in Carolina Forest feeding Black Bears. He located the subject who had multiple food sources in her yard to attract bears, which are a nuisance in the area. Upon confronting her with video evidence she admitted to feeding the bear shrimp when he was in the yard. Several other neighbors came forward with additional evidence against the female who was charged with Feeding / Enticing a Black Bear.
- LCPL Hering received a tip of three individuals illegally killing three turkeys. Officer Hering obtained a picture and the subjects' information from social media. Two of the subjects had no big game permit and none of the three had turkey tags. He located the subjects who admitted to the violations. Subjects were issued 7 summonses and warnings for not reporting the kills.

Unit 4B (Georgetown) FSGT Ryan Williams

- LCPL's Kaminkas, Graham & PFC Dozier caught 4 people for Hunting Over Bait resulting in several warning tickets.
- LCPL Kaminkas, PFC Dozier, and CO Hamblen responded to a boat accident that resulted in a BUI case, Failure to Maintain Proper Lookout, No PFD, and Expired Registration.

Unit 4C (Charleston North) FSGT Huger McClellan

- PFC Johnson, CO Cato, and CO Beckett each made BUI's on Shem Creek.
- LCPL Allison made 2 Overlimit of Red Fish cases.

Unit 4D (Berkeley) FSGT Brian Crawford

- 8 cases were written for Hunting Turkeys Over Bait; BSGT Earhart wrote 2, PFC Angotti-Smith wrote 4, CO Ellis wrote 1 and CO Taylor wrote 1. There was also 1 warning for the same.
- BSGT Earhart received a tip about an individual who shot a turkey out of season with a rifle. After further investigation, BSGT Earhart and PFC Angotti-Smith were able to locate the individual in question. After interviewing the subject, she admitted to shooting the turkey with a rifle. K9 RIO was deployed and found the point of kill. At that point of kill there was crack corn observed. The individual was subsequently charged with Taking a Turkey Out of Season, Taking a Turkey Over Bait, Taking a Turkey with a Rifle, No Turkey Tags or Licenses.

Unit 4E (Charleston South) FSGT Greg Garner

- Unit officers conducted several JEA patrols, attended TED training, completed CPR and first aid training, continued to work several turkey bait sites, continued monitoring Wappoo Cut reporting, continued commercial crabbing investigations, issued several depredation permits, assisted USCG multiple times for sunken barge in Wappoo Cut.
- CO Bissell attended NASBLA pursuit and stop training class with CCSO, CPD, and NCPD.

Unit 4F (Dorchester/Colleton) FSGT JP Jones

- PFC Riley located several blinds with turkey bait. After working the bait for several days, he caught one subject hunting over bait. One summons was issued and the subject produced cash bond.
- LCPL DeLoach assisted FSGT Jones with catching 2 subjects Hunting Turkey Over Bait. One of the subjects shot at a Gobbler but missed. LCPL DeLoach received information about a subject possibly hunting out of the camper. The information proved to be true, and both subjects were charged for Hunting Turkey Over Bait.
- PFC Woodward observed a boat with no registration and determined the operator was impaired. PFC Woodward made 1 case for BUI and 1 case for Improper PFD.

Unit 4G (Beaufort) FSGT Adam Henderson

- CO Gantt received information involving a Facebook post of an unknown individual harassing an eleven-foot alligator on Fripp Island. The photos showed the individual straddling the gator and holding its tail. An investigation was launched to identify the individual. Working with Fripp Island security a post was created asking for information on the incident or the identity of the individual. Nearly a week later the individual turned himself in to CO Gantt and gave a full statement. CO Willis along with LCPL Jordan met the individual at his residence in Greenville County and issued a summons for Molesting an Alligator.

Unit 4H (Jasper/ Hampton) FSGT Earl Pope

- CO Wells and PFC DuPree apprehended one subject opening day for Hunting Turkeys Over Bait.
- LCPL Baxter and CO Moore apprehended one subject for Hunting Turkeys Over Bait.

FIELD OPERATIONS REGIONS 1-3 – MAJ Mike Isaacs

Region 1 – CPT DJ Riley

Officers issued 94 summons and 332 warnings with 59 cases clearing court with fines totaling \$13,970.75 being assessed. Officers checked 1836 fishermen, 82 hunters checked, and a total of 280 hours were spent on boating patrols resulting in 587 boaters checked. Officers gave a total of 35 public presentations. Officers spent 26 hours on Homeland Security, 275 hours on litter patrols. A total of 37 hours was spent patrolling Heritage Trust Preserve properties. A total of 62 hours was spent patrolling Jocassee Gorges resulting in 13 summons and 39 warnings being issued. Officers also spent 315 hours on night patrols. During the month there was 1 hunting incident, 2 boating incidents, 1 boating fatality and 1 drowning.

Captain's Spotlight:

LCPL Harvey and PFC Jones spent time working crappie fisherman on the upper end of Lake Thurmond. In total they come across 4 individuals possessing over the limit crappie and 4 to be in possession of undersize crappie. 2 citations and 6 warnings were issued.

Unit 1A (Oconee / Pickens) FSGT Ron Hedden

- SGT Busha issued 3 summons for taking trout in the delayed harvest and 1 summons for illegal bait.
- LCPL Lownsbury issued 9 summons (4 for bicycles & 5 for ATV'S in a foot traffic only) while patrolling the Stump House Mountain Heritage Preserve.

Unit 1B (Greenville / Spartanburg) FSGT Joe Cartee

- LCPL Tatum received complaint of a dog in a foot hold trap. Tatum found 3 tripped traps and 2 that were still set. The aid of a game camera showed the owner of traps went 4 days without checking traps. Subject was charged with untagged traps and trapping out of season. multiple warnings issued.
- LCPL Holliday and Miller represented DNR at a crappie tournament at Lake Bowen where the proceeds went to the End Hunger Campaign.

Unit 1C (Cherokee / Union) FSGT John McCraw

- LCPL's Woodlief and Irvin caught a subject hunting turkey out of season.
- FSGT McCraw completed the Associate Public Manager Program.

Unit 1D (Greenwood / Laurens) FSGT Travis Dudley

- LCPL Abernathy, PFC Lindsey, and Officer Sprouse assisted the Ware Shoals PD in the recovery of a deceased woman who has been missing for several months near the Saluda River.
- LCPL's Stewart and Abernathy, PFC Lindsey & Officer Sprouse participated in a litter cleanup operation coordinated by LT Baker resulting in 31 bags of trash, 8 tires and 3 TVs being collected.

Unit 1E (Abbeville / Anderson) FSGT Rhett Barwick

- Unit 1E worked 3 separate Boating Incidents for the month.
 - 1) Lake Secession (Fatality) involving a w/m who struck a downed tree on the side of the lake causing head trauma.
 - 2) Boat Fire Lake Hartwell No Injuries.

Unit 1F (Edgefield / McCormick) FSGT Michael Davis

- LCPL Henry and PFC Jones worked an illegal gill net on Lake Thurmond resulting in two citations and two warnings.

Region 2 – CPT Matt McCaskill

Officers issued 66 summons and 149 warnings with 78 cases clearing courtwith fines of \$11,072.50 being assessed. Officers checked 308 hunters and 669 fishermen, and a total of 536 hours were spent on boating patrols resulting in 170 boats inspected. Officers spent 18 hours on Homeland Security and 85 hours on litter patrols, and a total of 69 hours were spent patrolling Heritage Trust Preserve properties. Officers gave a total of 53 public presentations. Officers also spent 373 hours on night patrols. There was 1 boating accident, and 1 drowning.

Captain's Spotlight

Officers Urquhart, Stevens, Driggers, and LT Byers, along with K9 Lola made cases on a convicted felon for illegally hunting turkeys. The charges made include felon in possession of a weapon, trespass to hunt turkeys, hunting over bait, over the limit, and failure to tag turkeys, among several warnings.

Unit 2A (Chester, York) FSGT Jason Plemmons

- Officer Ruff responded to a call about someone releasing racoons in a public park. After investigating the incident, Officer Ruff located the subject. He worked for a nuisance animal recovery company. The company was charging residents for removal of nuisance animals and then releasing the animals in a nearby park. Subject was charged for relocating nuisance wildlife without a permit.

Unit 2B (Fairfield, Lancaster) FSGT Will Coleman

- Unit B Officers worked Cedar Creek Sanctuary and night patrol at 40 Acre Rock Heritage Preserve resulting in several cases and warnings.

Unit 2C (Kershaw, Lee) FSGT JC Hough

- Officer Norris located and charged an individual for hunting turkey over bait, no turkey tags, and potentially trespassing to hunt pending contact with landowner.

Unit 2D (Marlboro, Chesterfield, Dillon) FSGT John Hillian

- Officer Gallien wrote 1 case for hunting turkey over bait in Chesterfield County.
- Officer McGiboney wrote 2 cases for trespassing to hunt in Dillon county.

Unit 2E (Florence, Darlington) FSGT John A Perry

- Officers Urquhart, along with K9 Lola, Stevens, Driggers, and LT Byers made cases on a convicted felon for illegally hunting turkeys. The charges made include felon in possession of a weapon, trespass to hunt turkeys, hunting over bait, over the limit, and failure to tag turkeys, among several warnings.

Unit 2F (Williamsburg, Marion) FSGT William Huggins

- Officers Tanner, Kelley & Elliott made cases for hunting turkey over bait & case for trapping out of season.
- Officers Kelley and Elliott each made cases for hunting turkey over bait.
- Officer Britt made 1 case for hunting turkey by aid of bait, 1 case for hunting turkey under suspension, and 1 case for failure to surrender a hunting license while under suspension.
- Officer Branham made 1 case for hunting turkey by aid of bait. He also assisted SLED, MCSO, HCPD, and the FBI with the apprehension of a murder suspect of an elderly lady from Horry County.

Region 3 – LT Brian Corbett/ LT John Bedingfield

Officers issued 89 summons and 213 warnings with 34 cases clearing court with fines of \$8,110.00 being assessed. A total of 283 hours were spent on boating patrols resulting in 888 boaters checked. Officers spent 34 hours on Homeland Security, 173 hours on litter patrols and a total of 26 hours were spent patrolling Heritage Trust Preserve properties. Officers gave a total of 13 public presentations. Officers also spent 302 hours on night patrols. During the month, officers made 2 BUI's and spent 5 hours on boating accident investigations.

Captain's Spotlight

Officers received a tip from Clarendon County Sheriff Deputy Mays about a subject leaving the local hardware store with four bags of bird seed and sunflower seeds. LCPL Laney, PFC Price, and CO Grooms were able to locate two baited sites on the subject's property. The officers, along with DLEO's Watson and Lowder worked the bait sites from March 22 through March 27. They were able to catch two subjects one morning hunting over a bait site. Two cases were made for Hunting Turkeys Over Bait and two cases for No Tags in Possession. Three days later, they went back to work another bait site on the same property and were able to catch the original subject hunting over bait AGAIN. One case was made for Hunting Turkeys Over Bait and one case for No Tags in Possession. This subject has been violating for years.

Unit 3A (Lexington) FSGT Hunter Robinson

- Officers also worked a reported missing kayaker call on Lake Murray with Lexington County and SLED until 2am. Subject showed up at home around 3:30 am and would not tell anyone where he was or if he was even on the lake.
- Unit officers assisted West Columbia PD with a search for a missing firearm in the Saluda River related to a fatality. SCDNR divers found the pistol in the river. Blake Baxley responded with K9 Arya and found the spent shell case in some roots by the edge of the river within minutes that other agencies had searched several hours for the day before.

Unit 3B (Richland) FSGT Hogan Tyler

- PFC Hoover and LCPL Bryant each made a BUIs on the Congaree River.
- LCPL Marion Baker and FSGT Tyler apprehended two individuals hunting turkeys over bait out of season. One individual did not have his tags in possession and the other had also killed 2 birds and not tagged them. Resulting in the following contacts being made 2 hunting turkeys over bait, 1 no tags in possession, 1 not tagging a bird at the point of kill, 2 hunting turkeys out of season, 2 taking two turkeys within ten days.

Unit 3C (Newberry/ Saluda) FSGT Marcus Smith

- PFC Scogin and PFC Miller located some illegal traps near Lake Murray. After an investigation, two summonses were issued to the suspect. PFC Miller also located some more illegal traps while searching for turkey bait. He was able to track the suspect down and he was issued three summonses.
- LCPL Arnold made a total of five under size striped bass cases while working the rivers and lake in the unit.

Unit 3D (Aiken/ Barnwell) FSGT Steve Terry

- While on patrol for Turkey Hunting activity, LCPL McDaniel received a call about a possible road hunting incident. Upon meeting with the complainant, LCPL McDaniel was advised that they had heard and saw a strange truck come down their road. Shortly after seeing the truck a shot was heard on their property. The landowner discovered turkey feathers and blood with fresh tire tracks where the shot was heard. LCPL McDaniel collected the evidence at the scene as well as a picture of the possible truck from the landowner’s security camera. Thru diligent investigation, LCPL McDaniel was able to locate the truck and owner. The subject admitted to the violation and was charged accordingly.
- While patrolling Lake Brown, PFC. Adair and CO Pierson discovered two individuals over the limit of Large Mouth Bass and in possession of undersized Large Mouth Bass. They also discovered one individual in possession of Prohibited Grass Carp. While there, they discovered a boat that had been dumped and abandoned at the main landing of the lake. After running the registration numbers, they were able to trace it from Greenville County through three owners to the subject responsible for dumping the boat at Lake Brown. The subject was charged with several violations to include Illegal Dumping over 500 pounds.

Unit 3E (Allendale/ Bamberg) FSGT Adrian Priester/LT Corbett

- LCPL Nettles, PFC Gray, CO Baker, and DLEO Breland caught three individuals hunting over bait on two sites in Allendale and Bamberg County.
- PFC Gray and CO Cameron Baker did a public presentation at the Barnwell County Career Center.

Unit 3F (Calhoun/ Orangeburg) FSGT Eddie Lee

- PFC Pifer observed a YouTube video of a subject killing an American alligator in the closed portion of the Santee Cooper WMA on Lake Marion during the alligator season. A search warrant was obtained for the GPS from the suspect vessel which proved the suspect was in a closed area. PFC Pifer obtained an arrest warrant for the subject, and he was found guilty and fined \$1,087.50. PFC Pifer also requested restitution for the American alligator, and the judge required the subject to pay \$1,000 restitution to SCDNR.
- Officers found a total of 9 bait sites and where able to catch and charge 6 people for hunting turkey over bait and numerous other violations.

Unit 3G (Clarendon/ Sumter) FSGT Cary Robinson

- FSGT Robinson and PFC Price were able to catch some subjects running illegal trotlines on Lake Marion very close to the I-95 Bridge and Big Water Boat landing. PFC Price was only able to pull one of the lines on March 25 due to a small craft advisory. The next morning, FSGT Robinson observed the ponton with four subjects on it running another trotline exactly where the one was pulled yesterday. PFC Price responded immediately. Contact was made with the subjects by both officers and three more illegal trotlines were found. Two summons were issued for Placing a Trotline within 200 Yards of a Manmade Structure on Lake Marion, two summons were issued for No Trotline Permit in Possession, three warnings were issued for Improperly Marked End Buoys, and one warning was issued for No Fishing License in Possession.
- LCPL Laney and CO Grooms talked to the students at Central Carolina Technical College about the Department and their role as a game warden.

STAFF OPERATIONS – MAJ BILLY DOWNER

Education – CPT Steve Simpson

Officers issued 2 summons and 13 warnings with 7 cases clearing court with \$1,210.00 in fines assessed. A total of 190 presentations were given to the public.

- 81 students certified in 9 Hunter Education classes; 375 students certified in Hunter Education Internet classes
- 201 students certified in 14 Boater Education classes; 271 students certified in Boater Education Internet classes.

Outreach Activity

- TOMO – 2 turkey hunts 7 participants; 0 turkeys harvested
- SCNASP - 1217 archers for the virtual State Qualifier and 626 archers for the virtual State Championship. \$28,000 in scholarships given out.
- SCTS - The Governors’ Cup was cancelled this year but the top forty qualifying seniors from the school division and club division in Skeet and Trap were invited for a Senior only event. Also, 105 seniors were invited to the Sporting Clay Championship event. Scholarships were given for all three events totaling about \$70,000.

Range Activity

- Pickens Range (Andy Emerson) 975 Shooters
- Spartanburg Range (Brian Bailey) 664 Shooters
- Wateree Range (Richie Boykin) 1039 Shooters
- Twin Ponds Range (Ken Mikkelson) ... 1254 Shooters
- Total for Manned Ranges.....3932 Shooters

Confiscations, Grants and Records & Technology – CPT Lee Ellis

- Number of Summons entered – 201
- Number of Warnings entered – 1,025
- New Suspensions – 37
- Suspensions closed – 15
- Current Active SCDNR Suspensions – 818
- Current IWVC Suspensions- 75
- Number of Pending Suspensions - 82

Training – LT Rusty Monnet, SSGT Jeremy Cooper, SSGT Erik Martin, SSGT Raquel Salter

- SSGT. Cooper finalized negotiations with Glock-Austria and Aimpoint-Sweden. Finished requisitions and submitted to Procurement.
- Conducted In-service training at SCCJA on March 22 and 24.
- 5 Instructors attended Simunition Instructor Course at SCCJA.
- Styx Storage Building construction was completed.
- LT Monnet met with contractors at Styx Range for handrails, road and parking lot, and electric gate quotes.
- SSGT. Martin worked on Wildlife Basic logistics for 2021 Class.

Operation Game Thief/Property Watch – FSGT Sidney Rainwater

- New Members –18
- Total Acres Added –\$5,479.20
- Total Funds Collected –\$1,924.00

Homeland Security/EMD – LT Charlotte McKee

- VCSNS nuclear graded exercise.
- Hurricane season planning.
- Myrtle Beach bike week meeting and planning.
- Parr Hydro/ Saluda Hydro exercise and drill.

Aviation – Chief Pilot Owen Barker

- 19 sorties for 58.2 flight hours
- SCDNR SAR Flights – 20.7 flight hours
- SCDNR Biology Flights – 15.8 flight hours
- SCDNR Law Enforcement Flight – 7.2 flight hours
- SCDNR JEA Flights – 4.2 flight hours
- SCDNR Training Flights – 10.3 flight hours

Equipment – Max McCommon

- 21 Individual TID items taken to Surplus.
- 19 New Vehicles Received & prepped
- 3 ATV's detailed & prepped by Daniel Lucas.

Supply – Laken Riddle Williams

- 8 purchase orders received for Summer Order.
- Firearm Excel compilation of Glock 22, 27 & shotguns created.
- Summer order items list compiled.
- HEYBO shirt divided for Regions.

Communications – Toby Freeman

- Finalized new blue light PO.
- Working on encrypted radio programs.
- Working on FCC renewals and contracts.
- Repaired the Cheraw repeater.
- Repaired handheld radio for field officers.

Radio Communications Center – SSGT Jason Smith

- Interviewed and offered positions to three new dispatches.
- Did hotel tour for state hurricane preparedness.
- Attended bike week meeting in Myrtle Beach.
- Worked with Captain Ellis and LT Branham to update the BWC policy.
- Attended a virtual career fair with Captain Stackhouse.
- Top 3 Calls: Injured Animal (168), General Information Call (145), Trespass to Hunt/Fish (6)
- Info Provided by Dispatch: 318; Total Calls: 1300
- Warrants: Entered: 1 Arrest/0 Bench; Cleared: 0 Arrest/ 1 Bench
- Transmissions: 800: 35,640 Phones: 18,265 and VHF: 7,128

March 29, 2021

South Carolina Wildlife magazine's transition to bring all operations home to the Palmetto State is complete and we continue to receive positive feedback from readers. Over the long run, we will save some money, but more importantly, what we spend has a direct economic impact in South Carolina. I think that is very important. By switching to the new company, we were able to work in a few upgrades to our paper weight and finish. Besides, that we've been listening to readers and have expanded our usual content to include more photography, a few recipes and a little cultural history along with our regular line-up of SCDNR programs, including hunting and fishing traditions, too. I hope you are pleased the magazine.

Our team is about to embark on a photo journey to assist the Outreach Section in photographing every SCDNR employee and to help the Graphics section create the next Law Enforcement Directory.

Please feel free to contact me anytime with ideas or comments.

Thanks,

Joey Frazier, editor

South Carolina Wildlife

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Technology-April 2021 Report

Administrative

- Restructured IT to improve productivity and streamline organization
- Participated in debriefing of vendors not awarded contract for new customer portal application
- Participated in development of new IT Services Portal RFP for SC Department of Administration
- Planned technical upgrade of Perceptive Content software and architecture.

Application Development

- Made changes to the distribution list of Region 4 and all division reports in Law Enforcement Violation reporting system.
- Started analyzing and coding requested new changes to Alligator Permit application.
- Working on Daily Boat Motor Transaction report to extract newly added column to the report.
- Created a NEW Boat Motor Transaction SSR report and schedule it to run daily and setup the distribution list.
- Worked on identifying the applications which interact with the customer table and the relationships between this table and the other tables.
- Researched and identified the issue with Business Object reports and why they did not run on their schedule time.
- Support and maintain all the DNR internal applications, including routine maintenance.
- Ran the monthly report for National Saltwater Angler Registry (NSAR).
- Met with various business units to discuss programming requirements.

Database Management

- Boat-motor registration/title data-exchange with SC County governments:
 - Provided county developers and contractors with questions concerning the data-exchange file-format, upload interface, and assistance for rejected files.
 - Monitored weekly county invoice generation. Worked with SCDNR finance and county staff to research question and problems.
 - Developed an enhancement to the county inbound daily file processing program that logs file loading failures and makes info concerning these failures available to the county in a self-service fashion.
 - Provided county representatives with sftp access/account management/password assistance.
 - Monitored the creation and publishing of weekly invoices to the County Reg Fee portal
- Game Harvest mobile and web harvest reporting
 - Generated harvest report listings to wildlife staff
- Data extract requests
 - Updated the monthly sales comparison and analysis spreadsheet
- Boat/Motor Reg Fee/Card/Decal document fulfillment
 - Monitored the movement of data between SCDNR and the print vendor.
 - Researched and responded to questions from DNR and print vendor staff.
- VIS interface:
 - Generated and uploaded the monthly data extract for VIS.
- Disaster Recovery Project:

- o Monitored the real-time synchronization activity between the SCDNR PROD Oracle database and the standby server at the remote data center in Charlotte
- SCDSS interface: Generated and uploaded the monthly data extract for SCDSS
- Supported DNR counter sales staff by responding to requests for assistance.
- Monitored and validated the daily Oracle and SQL Server database backup jobs.

Electronic Document Management System (EDMS)

- Provided EDM System Administration, monitoring, configuration, routine scanner maintenance, EDMS software license management and performed correction actions as needed for the Electronic Document Management System
- Provided Document Management services for Boat Titling and Registration, Law Enforcement Licensing, Engineering, Executive and Marine Theft Investigations, which included imaging that contributed to 60,571 images and 17,733 records to the Agency's electronic document management repository. The total Agency's electronic document management repository currently consists of 3,656,025 records and 12,541,923 images
- Processed Boat Titling and Licensing 11,505, records for archival backup
- Performed document count and preparation for disposal of approved records
- Providing Document Management end user support and quality control and accuracy assessment of electronic document images and index values
- Coordinated with staff to validate data between Perceptive Content and Law Enforcement Database
- Assisted Boating Titling and Registration Staff with boating record searches, record retrieval
- Researching missing supporting documents transactions
- Researching duplicate customers numbers
- Performed QA/QC on Licensing data in Perceptive Content
- Revised training materials for document management processes
- Staged software and reviewing upgrade documentation for Perceptive Content system upgrade
- Collaborated with Systems Teams regarding Perceptive Content system upgrade.

Geographic Information Systems (GIS)

SCDNR Data

- The GIS Team continues to improve SCDNR property and assets data.
- All regions have been migrated to the new data schema. Kelsey Thachik, GIS database manager, is working on setting up the new central database (SOE) and migrating the new data schema to the new SDE.
- An intern continues to work on updating GIS datasets for boat ramps and pier and bank fishing access. He is currently working to make sure trout fishing access is up to date in the public fishing access data.
- Work has continued with ESRI consultants to help with the development of a public facing application for public lands and fishing access. After review of a draft and a meeting with Esri consultants, the app functionality and design is being finalized.

GIS Webinars

- A GIS webinar was conducted to inform GIS users about LiDAR data collection and how they can access the LiDAR data products.

GIS and Mapping Support

- Assistance was given GIS users in all divisions for cartography and data requests:
 - o Assistance was given to Robert Clark, LWC GIS Manager, for updating SC Hurricanes data.

- o Maps were made by Dawn Misura for Region 1 properties at the request of Mark Carroll (biologist).
- A meeting was attended for a collaborative shoreline monitoring project with LWC, WFF, MRD staff. The project will use GIS to track shoreline erosion and engage volunteers with citizen science efforts. GIS will be an important technology for this project.

GIS Expertise and Advising

- A presentation was giving to the SC Arc Users (SCARC) organization.
- SCDNR staff finished reviewing aerial imagery for the statewide imagery project conducted by the state Geographic Information Coordinator.
- GIS staff continue to review new LiDAR data collected for Fairfield and Chester Counties.

Help Desk and Phones

- Imaged and setup 16 new computers for DNR employees.
- Continued customer support for reported computer tickets.
- Setup 2 new iPads.
- Replaced 7 iPhones
- Ordered and installed 7 new VOiP phone number for Aynor.
- Setup new laptops for COVID-19 social distancing to work from home.
- Setup/ reconfigured 3 Xerox MFC's.

Systems/ Networking Section

Systems Manager

- Windows Server- applied update and security patching
- VMware - administration of VMs; vCenter applied upgrade and security patching; Procuring RAM to upgrade ESXi hosts
- Compellent SAN -Administration of storage; Licensing and maintenance renewals
- SolarWinds - Monitoring of network performance and utilization; Troubleshooting bandwidth issues at Bonneau; Licensing and maintenance renewals
- Active Directory- Administration of user and permissions; Monitoring terminations and computer changes
- PowerDMS - IT lead for the implementation of PowerDMS for LE
- SmartCop - IT lead on the installation and configuration of SmartCop; Installation of SmartCop database and application server.

Network, Active Directory and Federated Services Administration

- Continuously monitored the MPLS network to transparently overcome net-down emergencies and coordinate repairs with vendors and providers as needed to maintain all of our offices interconnected
- Continued daily administration, patching, updating and configuration of the PaloAlto firewall system
- Continued daily administration, monitoring, verification of correct operation and application of corrective actions as required/needed for all: Domain Controllers, Active Directory Federation Servers, Exchange Mail Servers, Exchange 365 Cloud environment
- Continued to maintain Microsoft urgent and important server patches and updates as needed on AD and Exchange relevant systems as well as update all auxiliary software installed on said systems
- Continued daily administration of the in-house implemented SMS/MMS "Texting" resource
- Continued daily administration of Active Directory accounts & group memberships
- Provided general network connectivity support and procedures to users as needed/required

- Coordinated needs, orders, and installation of network cabling and services at remote offices as needed/requested
- Continued Providing alert and guidance for specific high circulation e-mail threats targeting DNR employees
- Verified all vendor provided Cat 6 Network installations at the new Aynor office
- Coordinated and verified all vendor provided equipment RAC installations at the new Aynor office and mounted all equipment in place as needed and patched necessary ports from the panel to the devices
- Created site to site VPN connectivity between Aynor and Columbia & verified all connections to be working as intended.
- Coordinated provisioning of the VOiP circuit and IP segment, configured necessary routing and switching equipment for VOiP, travelled to Aynor and worked with SEGRA to assess readiness for VOiP installation at the Aynor office
- Assisted SEGRA's technician with network related questions during the actual deployment of VOiP devices
- Assisted the Help desk with questions and issues regarding IP addressing of printers and PCs at the new Aynor location as needed
- Assisted Users at parker resolving alleged network needs that were initially misdiagnosed by the Help Desk and provided further information related to the current utilization status of their local switch
- Thoroughly monitored and examined for several days the Internet Access circuit at Bonneau to assess the alleged problems with network performance that several users at that location had brought to our attention. No problems were found with the circuit or the network equipment per se. The location is operating as intended and performs at the correct rates. However substantially higher utilization than the current facilities are meant to provide were observed consistently at certain hours of the day, therefore explaining the perception related to us by the users of a "bad performance". It is my technical opinion that a higher bandwidth circuit as well as a better utilization of the limited resources is needed at that location to alleviate their needs and concerns. Obviously, several pre-existing non-network problems namely the Windows/backup/storage/updates/printer server related issues need to be addressed for any solution to prove helpful. These findings were explained and discussed with Brian Johnson.

Backup, Data and Printer Administration

- Installed Rapid Recovery backup systems as needed for new computers.
- Recovered O folders from backup for Network Storage Server.
- Restored O workstations data from backup.
- Maintained and Updated Windows Servers as needed.
- Maintained Microsoft and 3rd party updates for all Windows Workstations.
- Configured tag printing and licensing setups for Aynor office.

Storage, Blade and Virtual Environment Management

- No information submitted - position is vacant due to employee retirement.

Web Development

Website statistics

- The April web statistics from Google Analytics.
 - o Total for requested tracked viewed pages for the agency website 311,105.
 - o The most viewed files on the website were the home web page <http://www.dnr.sc.gov/index.html> with 64,104 page views. The second most viewed file on the website was the licensing web page <https://www.dnr.sc.gov/licensing.html> with 48,140 page views.

- o Top devices accessing the website are: 55.3% mobile device; 42.2% desktop and 2.5% tablet devices.

Website maintenance and support

- Created a sub-theme of the Bartik core theme for testing purposes.
- Created an automatic daily backup script for the sub-theme as well as a manual reversion script.
- Used Composer to update Drupal Core to version 9.1.7.
- Continued research and education on Drupal management.
- Created first view within Drupal and added a draft of the employee personnel block.
- Attended meeting concerning upgrade of Perceptive/ Hyland software for the document management system and created first project status report.

April 2021 Monthly Report Activities for David Lucas -- Public Information Coordinator

General Media Relations & Public Information:

Proofed & edited news releases/messages for distribution on Gov Delivery as requested by Mitigation Section, Shooting Sports program, Wildlife & Freshwater Fisheries, LE, OMO staff or other internal requestors.

Wrote and/or edited & distributed news releases on: Horry Co. Office Opening (pre & post ceremony); IOP Seasonal Wake Zone (LE); SCDNR/USACE/Mt Pleasant - Joint Announcement on Crab Bank; Highway named for Office Ulysess Fleming; Baltimore Oriole Winter Survey; Rabbit Disease; Black River Public Parks plan; Dive Team Recovery Horry (LE); Dive Team Recovery Hampton (LE); Blue Ridge Elec/Tall Pines WMA.

Answered non-LE Media or Constituent inquiries on the above and other topics - app. 75 calls/emails, texts, etc.

Backed up Kaley on answering Social Media and Webmaster Comments/messages on her out-of-office days.

LE & W&FF & Other -- Statewide Media Relations:

On call for media/constituent inquiries every day-- 24-7 for LE-related incidents. App. SO-plus LE-related media calls/texts/emails fielded/responded to during month of April. With warmer weather and more people getting out on the water, the amount of time spent on this job duty has increased for sure and will likely continue so into the summer months. Alligator related calls/incidents will also soon be on the increase as they begin moving.

Other OMO Projects:

Continued uploading photo files to Merlin system.

Social Media:

Continued downloading and cataloguing FB posts for Archives. Assisted Kaley/Kristen with regular posting as requested by Divisions or other requestors, or for promo campaigns. Created posts for Blog stories or news releases.

SC Natural Resources Blog:

No feature stories posted this month. Worked on stories for May - GIS program/NatureServe visit & Cat 1 Waterfowl Area Data feature stories.

SEW magazine:

Worked on litter-related feature for Spring 2022 (microplastic pollution), including attending litter commission meeting at Ft. Johnson.

Travel:

4/2 - Lewis Ocean Bay for NatureServe visit

4/5 -Aynor for Horry Co. Licensing Office Opening

4/8 - Ladys Island for LE Volunteer event coverage

4/16 - Ft. Johnson for Litter Commission meeting

April 2021 Region One Outreach

- * Working on text to go with four photo panels of topographic features (surrounding mountains, lakes, etc.) that will be placed atop Sassafras Mountain Overlook.
- * Worked with biologist Tammy Waldrop and Blue Ridge Electric on story about installation of fake power lines over dove fields at Tall Pines WMA in northern Greenville County.
- * Instructed four classes with Jocassee Gorges class as part of Clemson Oshier Lifelong Learning Institute (OLLI) at Clemson University. Two were on SCDNR mountain properties within Jocassee Gorges.
- * Road closure press release sent to Upstate media for Horsepasture Road closing for road work, team also posted story on web and social media.
- * Helped David Lucas coordinate NatureServe Natural Heritage Van Tour stop at Lewis Ocean Bay Heritage Preserve.
- * Helped Kristin Coulter and Taylor Main with photo day at Clemson SCDNR office.
- * Met with coordinators for Upstate Master Naturalist program to plan fall class.
- * Coordinated press release on results of Baltimore Oriole Winter Survey.
- * Conducted herpetology program at Paris Mountain State Park in Greenville County.
- * Working on stories for Spring/Summer 2021 Jocassee Journal.
- * Posting a daily news digest to select SCDNR staff and board members from Meltwater consisting of SCDNR press, broadcast and social postings.
- * Attended meeting of Pickens County Extension Advisory Council.
- * Answered calls, e-mails and text messages on a variety of topics, especially Sassafras Mountain overlook, from media and South Carolina residents.
- * Coordinated with Angler's Headquarters in Columbia to post monthly freshwater, saltwater fishing reports.
- * Assisted with numerous snake IDs on inquiries from SCDNR "Upstate Snakes of S.C." website.
- * Fielded inquiries on SCDNR properties such as Tall Pines WMA and recreation (roads open/closed, hunting, hiking, backpacking, paddling, etc.) in Jocassee Gorges/Horsepasture and mountain region, and added Jocassee newsletter subscribers received from SCDNR Jocassee Gorges site.
- * Fielded calls about hunter and boater education, nuisance wildlife, boat navigability on Lakes Keowee, Hartwell and Jocassee, and other general phone questions.

ALIX A. PEDRAZA - MONTHLY REPORT

Date: 05/04/2021

Accomplishments this Period:

- Translated and updated in the Spanish website five news articles for the month of April: Ribbon-cutting celebrates opening of SCDNR Office in Horry County; Tips for dealing with black bears in South Carolina; Seasonal no-wake zone on \CW in Charleston County extended this year; Rabbit disease concerns South Carolina wildlife officials; Public input sought on planned state park, water trail project for Black River
- Continued creating and adding content to both Facebook Pages (Diversity Outreach and Spanish Facebook). With SCDNR Marketing and Social Media staff, it was decided that the Diversity Outreach page will be changed to a Facebook group
- Translated SCDNR Law Enforcement Summons Book (back page regarding bonds)
- Made corrections and approved Spanish translations for Sea Turtle program
- Met with Law Enforcement Education Coordinator, Denetta Dawson, Marketing Coordinator, Kristin Coulter, and Social Media Coordinator, Kaley Nevin, to discuss social media content for Safe Boating Campaign
- Translated SCDNR Law Enforcement scripts (6) related to Boating safety
- Met with Marketing Coordinator, Kristin Coulter and Freshwater Aquatic Education Coordinator, Sarah Chabaane, to discuss next steps of the SCHSL campaign
- Registered as an Association for Conservation judge for the 2020 Communications category. All entries are expected to be judged by May 21st
- With Video Producer, Danielle Kent, continued editing Spanish captions and text for the "Rehabilitator-Raptors" video
- Met with SCDNR Social Media Coordinator, Kaley Nevin, to discuss upcoming campaigns. She also provided access and a refresher training to the Hootsuite app
- Participated (Alix Pedraza) in the following virtual events and webinars: EEASC Marketing Discussion Forum; WVNT Webinar- Streaming Wildlife Cams; and REI Family Camping Basics

Special Events attended by the Diversity Outreach staff:

- Participated and assisted (Juan Aristizabal) with Sea Turtle program (live animal demonstration) in Summerville, SC on April 6th
- Assisted (Juan Aristizabal) with Family Fishing Clinic taking place at Palmetto Island County Park on April 8th
- Visited (Alix Pedraza) the Janet Harrison Highpond Heritage Preserve on April 9th
- Attended and assisted (Juan Aristizabal) with Horseshoe Crab tagging taking place at Coffin Point, SC on April 12th and 26th
- Practice (Juan Aristizabal) trailering for outreach events at Bear Island, SC on April 20th
- Assisted (Juan Aristizabal) with fire breaks at South Fenwick Island on April 20th
- Traveled (Alix Pedraza) to Devil's Fork State Park, Salem SC from April 19-20 to record multiple Safe Boating videos with our Law Enforcement section

- Assisted and help as instructor (Juan Aristizabal) with Family Fishing Clinic at Bennet's Point, SC on April 22nd
- Attended (Alix Pedraza) the Women's Turkey Clinic in Edgefield, SC on April 23rd

Ongoing Activities:

- Adding content to the Spanish and Diversity Outreach Facebook pages
- Customer service via phone, mail, e-mail, and Facebook messenger. During the month of April, we received inquiries regarding Boat Registration and Titling, upcoming public fishing events, places where to fish in the midlands, and requirements for Non-resident Saltwater fishing license

Next Period Planned Activities:

- Participate in multiple internal and external virtual meetings, trainings, and webinars
- Kayak clean-up (as more in-person events are resuming on the coast^{***})

Issues for this Reporting Period:

- *Issues:N/A*

Litter

April 2021

- Launched agency-wide Earth Month Campaign to encourage eco-friendly activities for the month of April
- Hosted Litter Commission off-site meeting at MRD
 - Submitted state-wide Litter Reduction Plan
- Webex facilitator for Board meetings
 - Conducts training sessions for presenters
 - On-going development of Webex Training Manual
- Meetings with State Lakes Coordinator & staff to mitigate litter problems at several state lakes
 - Coordinated with other law enforcement agencies in the surrounding areas (Kershaw, Lee, Chester, Union and Sumter County Sheriff's and Chester County Litter Control Officers) to attend meetings to form a partnership to work the litter problem as a team.
 - Fisheries will set up trail cams at select lakes to pre-determine "hot times" to report to law enforcement and / or provide evidence
 - Kiosks scheduled for updates should include litter laws
 - Property signage *e.g.*, SCDNR NO LONGER WILL PROVIDE GARBAGE RECEPTACLES AT THIS LOCATION. ANY TRASH THAT YOU PRODUCE MUST BY LAW, BE REMOVED FROM THESE PREMISES. VIOLATORS WILL BE PROSECUTED TO THE FULLEST OF THE LAW. (This signage currently is located at Lake Long)
 - Law enforcement will follow up with the appropriate actions by way of surveillance to include random drive-by occurrences and put-up surveillance cameras when necessary
- Submitted concerns from various law enforcement officers to Court Administration:
 - Littering cases are thrown out irrespective of evidence and admission of wrongdoing
 - Fines not being collected or drastically reduced
 - Refusing to issue community service because they cannot be supervised
- Distributed Best Practices Guide to Law Enforcement who attended the state lakes meeting to help mitigate litter problem

SCDNR Video | April 2021 Report

Set up and Filmed for Horry County office ribbon cutting

Completed two week professional development class: Hunting in America

Filmed/Photographed Clays for Conservation event in Edgefield

Filmed/Photographed/edited multiple Boating Safety videos at Lake Jocassee

Photographed/edited staff headshots at several locations

Interviewed videographer job applicants

Photographed litter commission meeting for Up2U

Photographed/filmed barging at Santee Coastal

Graphics Monthly Report - April 2021

The Graphic's jobs for the month of April consisted of materials for each of the divisions and miscellaneous jobs. Listed below are a few of the jobs that took place in detail:

- o WFF jobs included Angler Certificates, Youth Bass Tournament items, Turkey Survey cards, Deer Harvest Report cover and survey.
- o DA jobs included video translation; licensing forms, envelopes and signage; and materials for the Litter Commission meeting
- o LED jobs included TOMO brochures, Letterhead, Hunter Education programs and fillable certificate.
- o MRD jobs included the ACE Basin Activity Book.
- o The agency continues to help foster the partnerships and promotions of the agency through ads, specialty items, and outreach.
- o There were 23 completed jobs in the month.
- o The agency spent approximately \$16,033.16 on printing, signs and publications. This cost is not all state funding but includes grants, nonprofit charitable donations and federal monies as well.

Completion Report For Graphics

Job #	DIV	Title	Contractor	Buyer	Complete	Print Bid
21-12890	DA	Bird Feeder Video Translation	Henderson	Kaley Nevin	4/1/2021	
21-12864	DA	7.5" X 10.5" Kraft Columbia Licensing Envelope	Elmore	Julie Jarrett	4/28/2021	\$1,431.00
21-12891	DA	Litter <i>Commission</i> Packets	Elmore	Valerie Shannon	4/14/2021	
21-12856	DA	Drink Responsibly Cards	Elmore	Valerie Shannon	4/9/2021	
20-12769	DA	Lifetime License Mailer FM-0 12	Henderson	Julie Jarrett	4/12/2021	\$10,575.00
21-12814	DA	SCDNR License Offices Delayed Start Signs	Conrardy	Amanda Stroud	4/1/2021	
21-12844	DA	Request to Pay Dues Memberships Form	Henderson	Donna Maples	4/26/2021	
21-12880	DA	Comprehensive Permanent Improvement Project Powerpoint	Slack	Scott Speares	4/26/2021	
21-12863	EXE	SCDNR Board Note Cards	Elmore	Rose Marie Scheibier	4/26/2021	\$270.70
21-12841	LED	Take One Make One Student Application Brochure	Elmore	Mary Anna Mayson	4/12/2021	\$479.00
21-12824	LED	Hunter Education Report	Elmore	Denetta Dawson	4/1/2021	\$335.68
21-12840	LED	Law Enforcement Letterhead	Elmore	BethAnn Reeves	4/16/2021	\$189.00
21-12867	LED	Hunter Education Volunteer Instructor Banquet Program	Slack	Mary Anna Mayson	4/26/2021	
21-12854	LED	Receipt for Seized Property Form	Henderson	Brian Corbett	4/21/2021	\$254.78
21-12855	LED	Hunter Education Volunteer Instructor Fillable Certificate	Henderson	Mary Anna Mayson	4/5/2021	
21-12865	LED	Fillable Boat Destruction Letter	Henderson	Patricia Rivers	4/19/2021	
21-12843	MRD	ACE Basin Smaller <i>Activity</i> Book	Elmore	Olivia Bueno	4/21/2021	\$2,498.00
21-12853	WFF	2021 Turkey Hunter Survey Card	Henderson	Jay Cantrell	4/26/2021	
21-12821	WFF	Angler Recognition Certificate	Conrardy	Dell Martin	4/30/2021	
20-12699	WFF	Donnelley Driving Tour Guide	Slack	Marylou Frazier	4/26/2021	
19-12380	WFF	Middle Saluda Kiosk Sign	Slack	Sarah Chabaane	4/26/2021	
21-12861	WFF	Youth Bass Fishing Tournament Checks, Posters, Flight Board	Conrardy	Sarah Chabaane	4/26/2021	
21-12881	WFF	2020 Deer Harvest Report Cover & Survey	Elmore	Charles Ruth	4/26/2021	

Engineering and Boating Access Monthly Report FY 2021

April 2021

Active Projects

<i>County</i>	<i>Project</i>	<i>Project Status</i>	<i>***</i>	<i>Permits</i>	<i>Vendor</i>
Abbeville	Abbeville County Landings Maintenance	In Process	L		Windell Cleveland
Aiken	Riverview Park Transient Dock (N Augusta)	Under Design by County	W		County Project
Anderson	Green Pond Tournament Dock & Electric	In process	W	ACOE	County Project
Barnwell	Steel Creek Landing Renovation	In Process	W	(WREC \$\$ only)	County Project
Charleston	Fort Johnson Roof Replacements (Phase II)	OSE reviewing design to advertise soon	L		Various
Charleston	Fort Johnson Boat Slip Renovation - Phase 2	In Process	W		Javis & Floyd
Charleston	Sol Lagare Boat Landing (a/k/a Battery Island) Improvements	In Process	W	ACOE	County Project
Charleston	Caper's Island Middle & South Dock	In Process	W		In-house survey and design
Chesterfield	McBee WMA Metal Shed	Under Construction	L	WFF Processing	Benton's Construction
Clarendon	Wvboo (Fire Station) Public Access	Under Construction	W		County Project
Colleton	Old Chehaw Boat Landing Renovations	In process	W		County Project
Colleton	Bennett's Point ADA Ramp	Waiting on proposal in June	W		Nonlinear Architecture
Florence	Alexander Landing (Wicklow) Boat Ramp	In process	W		Staniec Consulting Services
Georgetown	South Island Ferry Parking Lot Rehab	Under Construction	L		County Project
Georgetown	Georgetown - Samworth Upper Middleton Diike Renovations	To Commence	W		J-Inc
Greenville	Poinsett Bridge (Poinsett Bridge HP) Renovation	Phase I in design	W		
Greenville	Lake Greenwood Hwy 72 Ramp	Working on Federal App	W		County Project
Hampton	Palachuola WMA House Renovation	Phase I in design	L		
Horry	Lewis Ocean Bay Metal Shed	Under Construction	L	WFF Processing	Javis Builders/JC
Lancaster	40-Acre Rock Steam Restoration	In Process	L		Jennings Environmental
Lexington	Lexington - Enclosure of existing pole shed (classroom)	Under Construction	L	LE Processing	Nika Contracting
Lexington	Congaree River Canoe/Kayak Access (Thomas Newman Landing)	In Design by County	W		City of Cayce
Marlboro	Lake Paul Wallace Dam Repair	DIIEC App for Dam Repair	W	DHEC	
Richland	Richland Regional Skeet/Trap Event Range	In Process	L	LE Processing	The Lancaster Plan Group South
Spartanburg	Lake Edwin Johnson	In Process	W		Heritage Engineering
Statewide	DHEC Dam Safety Program	In process	W		
Union	Lockhart Boating Access	Grant Application Process	W		County Project

Pending Projects

<i>County</i>	<i>Project</i>	<i>Project Status</i>	<i>***</i>	<i>Permits</i>	<i>Vendor</i>
Anderson	Belton Kayak Trail	Pending	W		County Project
Beaufort	Waddell Center Pump House	Increase budget of P24-9942-PG (renovations) from FEMA \$\$	L		4/27/21: Project Pending
Charleston	Fort Johnson - Central Energy Plant	Waiting on guidance from Flood Mitigation	L		4/27/21: Project Pending
Charleston	Botany Bay Storage Shed	Pending	L		
Chesterfield	Cheraw Fish Hatchery Residence Bathroom Addition	On Hold	L		No quotes accepted- will RFQ again at a later date
Horry	Bucksville Landing rehab ramp and floating dock	Pending	W		County Project
Lexington	MTI Office at Farmer's Market	Quotes rejected due to budgetary issues. Waiting on direction from Senate approval	L		4/30/21: Project Pending
Lexington	Heelsplitter Building	On Hold	L		No Award due to budgetary issues

Pending Projects

<i>County</i>	<i>Project</i>	<i>Project Status</i>	<i>***</i>	<i>Permits</i>	<i>Vendor</i>
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L - Land Based Project

W - Water Based Project

Engineering and Boating Access Monthly Report FY 2021

April 2021

Oconee	Indian Branch Camp Sediment Removal	On Hold to pursue as internal project	L		<i>On Hold</i>
Pickens	Clemson DNR Office Public Fishing Pier	On Hold	W		
Pickens	Pickens County Shooting Range construction	Pending	L		<i>Cost estimate complete. awaiting Management direction</i>
Spartanburg	Enoree River Hwy 49 New Ramp	Pending	W		County Project
York	Rock Hill LE Office possible move	On hold	L		

New Project Requests

County	Project	Project Status	***	Permits	Vendor
Charleston	Rancher's Pond Boat Launching	New Request			<i>County Project</i>
Durham	Canoe Ramp	New Request			<i>County Project</i>
Georgetown	South Island Boat Launching Ramp Concrete Light Pole Postholes & Raise Electrical Postholes Cleared	New Request 4/20/21	L	352K (WREC)	<i>County Project</i>
Greenville	Callahan Creek Stream Restoration	New Request	W		
Lee	Lake Ashwood Boat Launch Repair	New Request	W		
Lorain	Swamp OMC Stream Rehabilitation	Preparing for Bid	L		
Pickens	Easton Creek Stream Rehabilitation	Project through Lorain	W		
Pickens	Clemson DNR Office Stream Building	Pending	L		

COVID-19

All Engineering employees are currently working in-office

L Land Based Project
W Water Based Project

LAND, WATER & CONSERVATION

GEOGRAPHIC INFORMATION SYSTEMS

General

Continued work on the FEMA Flood Mitigation LiDAR Review, the SC Watershed Structures Application, and the Hydrogeologic Framework Application. New projects began with the Geological Survey related to Earth MRI and the NGMDB (National Geologic Map Database). Updated the SC Hurricane Database with all 2020 storm events.

After almost a year, the Statewide Satellite Collection Quality Control Project (SSQCP) was completed. All 46 counties were reviewed with final edits being made by Kucera, the contractor. Once final edits are completed the new imagery will be hosted by ESRI and available for use. The new imagery will consist of a statewide mosaic with 6-inch resolution and 4-Band Depth (RGB, Near-Infrared). Data also will be available at the county level for individual research.

Attended two webinars this month. One was a continuation of ArcHydro's Modeling applications consisting of presentations related to hydrologic and hydraulic applications both in research and practice. A second webinar, by FEMA, was a roundtable discussion with Emergency Management and Utility Management personnel from the cities of Arlington and Helotes, Texas. They spoke about how geospatial and emergency management technologies were used during 2021 Texas Winter Storm.

Flood Mitigation Program

The Lancaster LiDAR review was completed. The review resulted in several edits to the point cloud data and the derivative DEMs. These items will be sent back to ESP Associates for correction. Fairfield County will be reviewed next. Work is expected to continue indefinitely.

State Climate Office

Work on updating the SC Hurricane Database. NOAA released most of the final storm tracks and details for 2020. This storm data is being put into the climatology database and included on the SC Hurricanes website. Eight storms were added, of which five reached hurricane status.

Geological Survey

Several meetings this month. First was a meeting with Avenza Systems, the creator of Map Publisher software, which is used in the production of our geologic maps. Discussed workflows and issues that had become problematic in production of geologic maps. We identified new ways to process and transfer our data that improved turnaround time from days to hours. While this meeting improved our workflow, expectations are to continue refining this process.

A meeting with SCGS personnel discussed upgrading the current GeMS Level 1 compliance to Level 3. As part of the GeMS (Geologic Map Schema) and NGMDB (National Geologic Map Database) program we are looking to improve our geologic map databases. There is much work and complexity inherent in this move, but it needs to be done to continue STATEMAP work and funding. Tasks will include migrating older databases to Level 3. While this meeting showed the complexity of this migration, it was still met with enthusiasm by geologists and GIS analysts.

Work on Earth MRI project included compiling previous geologic mapping, borehole data, and other datasets to assist in field studies in Orangeburg and Calhoun Counties. Area-wide hillshade and thorium-level grids were developed to be hosted on AGOL for use by geologist in the field.

Hydrology

Continued work on the SC Hydrogeologic Framework Application. Data was finalized by the hydrology group, and those changes were then pushed to IT, who has now hosted them online. From here we will get this data

incorporated in the application and ready for launch. Only minor edits are still left to be made in the application's development.

South Carolina Conservation Bank

No work this month.

Scenic Rivers

No work this month.

Archaeology

No work this month.

Cultural Heritage Preserves

No work this month.

RIVER CONSERVATION PROGRAM

River Conservation / Scenic Rivers:

- Black River: Staff continued public distribution of the Black Scenic River Management Plan. Continued participation with steering committee for the Black River state park and water trail planning project; produced and distributed a related news release to encourage public input to the park-trail plan.
- Saluda River: Staff provided (on Apr 15) review and evaluation of contractor proposals to provide water quality monitoring services for the Midlands Rivers Coalition.
- Edisto River: Assisted Friends of the Edisto with planning and promotion of a public outreach event held on April 17.
- Public Information Requests: Staff provided explanation and information to citizen asking about the Scenic River Tax Credit for Donations of Land.

FERC Hydroelectric Projects:

- Cherokee Hydroelectric Project: FERC relicensing proceedings continue for this Project. Staff began reviewing the FERC Environmental Assessment of the Cherokee Falls license application.
- Saluda Hydroelectric Project: Participated in DESC teleconference of April 22 to address their Annual Report on Water Quality and Aeration Operations at Saluda Hydro Project; discussions also addressed a set of DNR staff questions previously provided to DESC asking about proposed turbine upgrades and lake level management procedures related to dissolved oxygen issues in the lake and Saluda River.

Heritage Trust: Staff participated in DNR's hosting of Nature Serve staff at Lewis Ocean Bay on April 2; also, Habitat Protection Committee site visit on April 8 and a committee meeting on April 28 to consider potential properties for acquisition. Provided input to property evaluations for sites at Horse Creek, Pee Dee/Lynches, Waccamaw, Reedy, and Salkehatchie rivers.

S.C. Environmental Awareness Award: Staff continued to lead and coordinate this year's award process; distributed the nominations (19 received) to the selection committee for review and evaluation; convened the committee for teleconference discussion and decision to select the award winner for 2020; and drafted letter from DNR Director to notify and congratulate the winner.

BOTANY AND PLANT CONSERVATION PROGRAM

Tracked Plant List Revision:

Major efforts to revise the Track Species List have continued although at a slower pace than anticipated in April because of the start of field season and other priorities. The new Assistant Botanist, Samantha Tessel, will focus on the tracked list in May and June.

- Continued re-ranking of species already on tracked species list.
- Worked with Joe Lemeris to update existing Element Occurrence records
- Supervised technicians (Csilla Czako, Celeste Gross) in georeferencing and digitizing herbarium specimens of tracked plant species, and species under evaluation for tracking, at the University of South Carolina. This effort is now leading to a major improvement in the DNR tracked species database as a result of DNR's long-term history of the development of the SERNEC herbarium portal.

Field Surveys and Monitoring:

- Conducted surveys of rare plants, invasive plants, and assessed management needs at Bear Branch HP, Chestnut Ridge HP, Eva Russel Chandler HP, Glassy Mountain HP, Gopher Branch HP, Jocassee Gorges WMA, Lewis Ocean Bay HP, Peachtree Rock HP, Poinsett Weapons Range
- Documented a rare plant report of Wateree Trillium on private land on the Wateree River.
- Processed data from 2021 field surveys and entered rare plant data into Heritage Trust database.

Conservation Actions:

- Conducted Sweet Mountain Pitcher Plant (*Sarracenia jonesii*, Federally Endangered) habitat restoration (bog daylighting) with Pat Cloninger and Kollby Taylor in Pickens County. This restoration will improve habitat quality and reproductive success of this imperiled species, and provide a future seed source for out planting at Bald Rock HP.

Habitat Protection Committee:

- Surveyed potential acquisitions in Jasper County (Slater additions), and Florence County (Weyerhauser)
- Collaborated on property evaluation forms (Beach Branch addition, Carter Stilley II, Slater addition, Spence Pond, Waccamaw HP addition, Weyerhauser)
- Participated in planning meeting for Allendale/Barnwell/Bamberg county WMA acquisition opportunities.

Other:

- Prepared for the start of the new Assistant Botanist.
- Participated in NatureServe national tour at Lewis Ocean Bay HP
- Conducted presentation for "Waccamaw Conference."
- Met with director of the Clemson University Herbarium over a DNR/herbarium collaboration.
- Participated in steering committee conference calls with University of South Carolina A.C. Moore Herbarium
- Processed herbarium specimens collected in 2020/2021 for deposit at the University of South Carolina A.C. Moore Herbarium

CULTURAL PRESERVES PROGRAM

This month Meg Gaillard and her team have been very busy, below is a list of all the things that Cultural Preserves have been up to:

Meg Gaillard

- Worked with various Parker Annex maintenance vendors (e.g., electrical, HVAC).
- North American Heritage at Risk (NAHAR) meetings each Friday.
- Taught Adobe software (e.g., Photoshop and InDesign) to a few team members.
- Continued to work on logistics and contracts for the May/June Pockoy Island excavation.
- 4/5 – Attended the Climate Change and Maritime Heritage: Interdisciplinary Perspectives virtual conference (United States and Australia).

- 4/6, 4/13, and 4/27 – Attended the NEDCC’s Regional (virtual) Course on Emergency Preparedness in South Carolina.
- 4/12 – Met virtually with SC SHPO and NPS representatives about the Hurricane Irma funding for Pockoy Island.
- 4/16 – Attended the annual Society for Historical Archaeology Heritage at Risk Committee meeting virtually.
- 4/19 – Had mobile lab trailer wrapped.
- 4/22 – Attended the SCEMD Recovery Tabletop Statewide Exercise virtually (represented Annex 6 for Cultural Resources).
- 4/26 – Repacked the Nipper Creek Heritage Preserve collection excavated in 1985 and 1986 at UofSC. Collection has been held by SCIAA since excavation. Will acquire and move to Parker Annex in May.
- 4/26 – Attended the Southeastern NAGPRA Community of Practice meeting virtually.
- 4/26 – Met with Jacob and Ella about archaeology public outreach updates.
- 4/27 – Met virtually with the other members of the SC Environmental Awareness Award Committee to make a decision on the 2020 award winner. Contacted Keith Bradley to ask he take my seat on the committee starting next year as one of the representatives from the SCDNR LWC division.
- 4/27 – Applied to the University of Leicester (England) Museum Studies PhD program.
- 4/28 – Collaborative shoreline erosion monitoring meeting with multiple SCDNR representatives who work along the coast. Meeting was spurred on by the work the archaeology and geology teams are doing. We are working towards more collaborative research objectives that will benefit all of SCDNR.

Jacob Hamill

- Researched and wrote two lesson plans for the Bonneau Ferry Grant. One about historical maps and plats, the other about colonoware.
- Archived and scanned documents at Parker Annex
- Reviewed and provided comments for Jaime’s Rice StoryMap

Ella Goulding

- Worked on transcribing several historical documents.
- Continued research and planning for the Kolb exhibit.
- Began reading materials on the South Carolina State Hospital in preparation for upcoming projects.

CONSERVATION DISTRICTS

Statewide Projects

Staff attended/participated in:

- National Conservation Foundation – Envirothon Operating Committee Meeting
- SC Association of Conservation Districts Quarterly meeting in Chester
- Newberry Conservation District’s *Governors Proclamation* presentation ceremony
- Hosted SE National Association of State Conservation Agencies Regional (virtual) meeting
- Conducted Farm Bill Coordinator interviews

Staff also:

- Continues virtual training sessions from *Amplos* (leadership training/coaching business in Greenville, SC) as part of PLEAF
- Continues work on 2021 SC Envirothon to take place first week of May.

Technical

- Assisted Marlboro, Calhoun, and Lee districts with Farm Bill programs
- Staff has continued to visit sites and provide the NRCS with the proper documentation for easements on the 2021 easement monitoring list.

- On-site monitoring events have been conducted in the Greenville, Kershaw, Richland, Oconee, Sumter, and Clarendon districts.
- Landowners have been contacted in other districts to setup future on-site visits.
- Staff has continued to train on Easement and CRP related programs.

Watershed Districts

- Completed working with staff on mapping of Dam structures.
- Attended Drivers recertification training.
- Met with Watershed Directors and staff from various agencies to assess work completed on projects in Chester County.
- Collaborated with partners regarding multiple watershed endeavors in their areas.
- Continued working on easement issues with multiple stakeholders to resolve concerns.
- Attended SC Forage and Grazing Lands meeting
- Assisted in interviewing for new position.
- Attended Watershed meeting in Laurens County.
- Disseminated information to watershed districts on training opportunities and upcoming webinars.

Conservation Districts

Aiken District had a Mobile irrigation demonstration at Walther Farms in Windsor, SC. We had many stakeholders in attendance and one legislator. Duvall (NRCS) and I attended Earth Day in North Augusta, SC on April 23. It was well attended. We have currently received 5 scholarship applications and will soon give \$2500 to a deserving Senior in Aiken County. Grain drill rentals have been busy this month also.

Beaufort District staff conducted a *SC Fur Bearers* Program with our Clemson 4-H Agent via Zoom for several elementary school classes and again with one of the DOD elementary schools. We also attended the Parris Island USMC Recruit Depot for Earth Day where we set up a Tree Program Display and kicked off our Healthy Forests = Healthy Communities Poster Contest. Staff attended the NACD Webinar which was about the awesome Soil Trailer from West Virginia. We also helped Beaufort County Stormwater by contacting partners for distributing the “That’s My Truck” Coloring Contest. Also passed out several ACE Basin Activity Books & some DNR Fish Tattoos.

Chester District Chairman Allen Beer, NRCS Soil Technician Robbie Newman, Rocky Creek Watershed Chairman Billy Wishert, and SCDNR Watershed Districts Program Director Chris Workman accompanied DHEC Engineering Associate Ryan Sullivan on an inspection of repairs and maintenance at two watershed dams on April 6. Two applicants were chosen to receive Allen L. Beer Scholarships. The scholarships will hopefully be awarded by Chairman Beer at their respective high school awards programs. Chester County Supervisor Dr. Wylie Frederick signed the Stewardship Proclamation. Poster and photo contests were advertised. No-till drills were utilized on 44 acres.

Colleton District – we are busy preparing the 2020-2021 Annual Report. The 46th Colleton County Rice Festival is scheduled for June 4 & 5, 2021. The Board is planning on having a booth at the Rice Festival this year. Commissioner/Chaplain Rev. Gerald Mabry is making the necessary arrangements for securing a location for the CSWCD Festival Booth. Educational materials will be handed out and there will be something for all ages. Commissioners Gary Herndon, Josh Jones, Cleveland Hiott, and I.M. Benton will also participate in the event. Commissioners Cleveland Hiott and I.M. Benton attended the local Farm Bureau Meeting in April.

Dillon District performed EQIP field visit work which included the following: checking conservation planning; approval of payments (cost share); approved 11 EQIP Conservation Contract Practices. Our focus this month has been working on Equip Applications for planning; assessing; ranking and cost estimates to meet the deadline of April 23rd. Also accepting 2022 EQIP applications and accepting 2021 CSP applications.

Dorchester District did not hold a board meeting the month of April. The districts scholarship application deadline has passed, and we had a total of four applicants. The board will meet in May to choose the winners. The annual affiliate drive is coming to a close. The district was incredibly pleased with the response and support from past members considering we are all navigating unknown times.

Fairfield District Youth Commissioner Program participants are going strong. They have been installing bird houses across the county. One bird house was installed on the grounds of a local nursing home. The Youth Commissioners have additional plans for the upcoming months. Participants are excited anticipating this year's *Camp WildWood* Adventures. We held our regular monthly Board Meeting; staff also continues to provide assistance to NRCS on the Farm Bill Program.

Greenville District celebrated Earth Day again this year by publishing an article in the Greenville Journal for Earth Day with easy conservation tips; hosting a booth at the Travelers Rest Farmers Market Pre-Season Plant Sale; presenting three 90-minute classes on water quality, air quality, and soil health at the Greenville Zoo for the South Carolina Garden Club; and surprising over 600 employees in county offices with Earth Day goodie bags and literature. We continue restocking the Seed Library in partnership with the Greenville County Library. In our ongoing efforts to engage farmers we sent out our second edition of Greenville Growers newsletter to 53 subscribers. We continue to advise the Greenville County Planning department on upcoming ordinances that could negatively affect farmers, and support other departments including the Land Development Division, the Floodplain Management Division and the Engineering Division in their social media efforts. We also continue to give technical support on erosion, flooding and drainage problems to landowners.

Hampton District received 89 posters in Kindergarten-6th grade categories for the 2021 poster contest. Winners have been announced and district staff presented students with certificates and gift cards for those who placed 1st or 2nd in the competition. Teachers who submitted the most entries in a category received a \$50 gift card. The Conservation District celebrated Earth Day by hosting a tree planting at Lake Warren State Park with local Girl Scout Troop #30089 along with *PalmettoPride* staff. Girl Scouts assisted in planting an Eastern Redbud tree and participated in a lesson on recycling. District staff made a presentation on programs and activities offered by the conservation district and Keep Hampton County Beautiful (KHCB) during a county council budget workshop meeting. KHCB is currently hosting a "Clean Where You Live and Work" litter pickup campaign in conjunction with the Great American Cleanup. This event will run March 20-June 20. Presently, 14 individuals/groups have committed to cleaning up their street, community, or area where they work. In the past six weeks, 52 volunteers have removed 156 bags of litter! KHCB has also been involved in assisting with the removal of several dump sites throughout the county resulting in over 28,000 pounds of debris being taken away.

Jasper District/Keep Jasper County Beautiful coordinated and participated in 5 community litter drives; confirmed Farm Bill Hog Trapping Program with local contact and met with 6 possible landowners to confirm hog trapping on their property. Also met with numerous agencies and schools to plan 2022 field trips to the Blue Heron Nature Center and environmental presentations to schools. We celebrated Governor's Proclamation of Soil & Water Stewardship Week with a video posted on our Facebook (Blue Heron Nature Center/Keep Jasper County Beautiful). Also presented to Jasper County Council for ATAX funding for the Blue Heron Nature Center; participated in Hardeeville's Earth Day Event; participated in Ivy Garden Club replanting at Blue Heron Nature Trail Butterfly Garden for Earth Day; presented Arbor day program to Legacy Christian Academy *THE MAGIC & MYSTERY OF TREES*; and planted a tree on their campus. We are working with Jasper County to update litter ordinances.

Laurens District - our Virtual Team Ecology was released to about 1400 students. Feedback from the teachers was all positive. Our District Coordinator attended the spring break camp at our local YMCA and shared some *Reduce, Reuse, Recycle* information. A grant is supplying materials for the vegetable garden at the Adair Outdoor Education Center. Junior High students will be planting this week.

Marion District has distributed the Conservation Essay Contest to 5th – 8th grades to all local schools, along with the James F. Huggins Scholarship applications. Our annual Affiliate Membership Drive is also underway. Our

Monthly board meeting was held on April 20, 2021. Also, there were only (2) on the list for the 2022 CSP renewal sign-up. EQIP applications for 2021, will be finished up by April 23rd.

McCormick District continues to retain social distancing by handling all request via email, voice mail and/or by appointment. The district held its monthly board meeting April 21, 2021.

NRCS partner Matt Brown updated the District on the progress of EQIP with a written report on the status of the EQIP contracts for our area. NRCS partner Brown informed the Board that 26 Tunnel Fans, 58 ac Tree site Prep, 58 ac tree planting and 1 Livestock water system has been completed among many other practices are in process of being checked out. We are in the process of planning the celebration of Arbor Day which is the first Friday of December. McCormick has a news article which will be in the McCormick Messenger edition on April 29th in celebration of Arbor Day. We are also in the process of setting up a committee with the Board and staff from John de la Howe school of Agriculture for the planning of future scholarships for students.

Richland District continued mailing seeds to Richland County residents through the Seed Sanctuary program, which was featured in a [National Association of Conservation Districts' blog post](#) by Mary Hannah Lindsay. The District partnered with Richland County's Public Information Office to celebrate Stewardship Week with a [press release](#) and a social media series about the Richland District's programs. Staff created an infographic explaining more about the District's work. The District's April board meeting was held at Camp Discovery in Blythewood, SC and included a tour and presentation by the Camp's Executive Director Amy Ellisor about their virtual education programs and GLOBE citizen science initiative. District staff mentored conservation projects at one Green Step School. Staff and Commissioners also provided support for meetings of the Southeastern Environmental Education Alliance, SC Forage and Grazing Lands Coalition, and SC Project Learning Tree steering committee. Commissioners prepared responses to Richland County's FY22 proposed budget, which includes cuts totaling \$370,918 to General Fund support for conservation work in Richland County.

Spartanburg District staff will be attending an Earth Day related Sustainability Day event at a local nursery on the 24th. We also attended a meeting about and will support a Lake Sweep for Lake Lyman. The sweep is scheduled for next month. The district also provided the April edition of the Conservation Corner for the Spartanburg Herald Journal; a wildlife-based article about springtime babies.

Sumter District's no-till drill continues to be in high demand. We have invited the Wildlife Services Director to the May board meeting to speak about the feral hog issues in the state, and possible solutions the district may be able to provide to the county. One of our commissioners is working on developing a teacher workshop to be held later this summer, and the district is supporting the commissioner with educational funding and any other needs that may arise with the workshop. Staff completed the AgLearn Conservation Planning I and continue supporting NRCS with EQIP and CSP contracts.

York District - Chasity and the Fishing Creek Watershed Board have started the process of repairing the 2 affected toe drains. Bids were also sent out for shoreline tree/brush removal at Shiloh dam. Staff has also completed lesson 3 out of the 4 in the Garden Series. The students are excited about interacting and learning. The is a reopening of Ebenezer Park this Saturday, May 1, which we will attend for York Soil and Water and as part of the Stormwater Outreach Agreement.

EARTH SCIENCE GROUP

Earthquake Activity: No activity this month

Special Mentions: Bill Clendenin, Volunteer, reviewed, edited, and commented on several documents providing useful feedback to improve content and clarity.

South Carolina Geological Survey

Geological Information

STATEMAP: Robby Morrow completed four (4) traverses in the southern portion of the Edgefield Quadrangle, Edgefield County. Mapping focused on delineating relations between Piedmont and Coastal Plain Units and identified new exposures of Coastal Plain sediments not previously mapped. Will Doar researched older publications concerning the stratigraphy and terrace terminology for the Pliocene section of the Middle Coastal Plain; with mapping continuing into the Middle Coastal Plain, and verifying work completed along the Savannah and Santee Rivers, reintroducing appropriate terms may be necessary to update the USGS Stratigraphic Lexicon, which is now a STATEMAP deliverable requirement. Andy Wykel made final map edits to FY9 maps. FY19 STATEMAP deliverables were submitted to USGS (Duford, Gallivants Ferry, and Nichols quadrangles). FY21 STATEMAP award was announced; we will receive \$282,318, approximately 80 percent of our request; staff are working on a revised budget and work plan.

Other Mapping including Outsource Mapping: SCGS staff (Doar, Luciano, Wykel, Gawinski, Covell, Zelaya) assisted USC Geology class in collecting two vibracores from the marsh between Pockoy Island and Botany Bay Plantation, Charleston County. USC geology will split the core and start analysis to provide information regarding sea level and climate history of the late Holocene in the area. Scott Howard, Katie Luciano, Andy Wykel, Kyle Gawinski, Megan James, Taylor Turbyfill, and Will Doar met with Josh Long (USGS, Reston) and Ashley Long (BOEM) to discuss mapping the base of the Quaternary in the lower Coastal Plain and possibly extending the map offshore. Dr. Howard, Dr. Doar, and Katie Luciano met with Sean Taylor and Karen Smith (DNR Heritage Trust) and Dr. Till Hanebuth (CCU) to discuss a project to measure historic sea-levels, extrapolate those results with cultural heritage sites, and lay a foundation for understanding paleogeography of the coast in the last 10,000 years. Group assignments were made dividing the coast into two compartments; budgets are being developed and this is envisioned to be a four-year project. Scott Howard spoke with Dr. Ron Counts about acquiring GPR data collected in Horry County when Dr. Counts worked for USGS. Acquisition of this data would be useful in several ongoing projects (STATEMAP, BOEM offshore studies, pre-Quaternary structure contour map).

Earth Mapping Resources Initiative: FY19 Earth MRI field work and sample processing began. Andy Wykel, Eli Covell, Zach Zelaya and Kyle Gawinski located drill sites and outcrops in Orangeburg and Calhoun Counties. Mr. Gawinski called in drill sites to utility locators. Mr. Wykel, Mr. Gawinski, Zach Zelaya, and Robby Morrow assembled an ultrasonic separator to process Earth MRI samples for geochemistry and developed standard operating procedures for processing the samples for geochemical, geochronological, and mineralogical analysis by USGS, SGS Canada, and USC. Kyle Gawinski and Mr. Morrow collected 30 samples for geochemistry studies from St. Matthews, Staley Crossroads, and Fort Motte Quadrangles, Calhoun, Lexington, and Orangeburg Counties. Mr. Morrow, Dr. Doar, Dr. Scott Harris (CofC), and Anji Shaw, USGS, presented their work on geophysics and geology in the Charleston area at Southeast meeting of Geological Society of America. No-cost extension for FY19 Earth MRI was granted; new end date is 3/15/2022.

General: Robby Morrow co-chaired a session on Appalachian Geology at the Geological Society of America Southeastern Section Meeting, held virtually and presented preliminary results of a study on megascopic quartz veins found proximal to lithologic contacts in the Carolina terrane. Ralph Willoughby (Retired SCGS Geologist) led a workshop and a field trip covering the Eocene stratigraphy of the Upper Coastal Plain. The purpose of his assistance was to share his extensive knowledge and experience with younger geologists. Staff that attended were Will Doar, Katie Luciano, Megan James, Taylor Turbyfill, Andy Wykel, Kyle Gawinski, Zach Zelaya, Eli Covell, and Robby Morrow.

Staffing

Staff attended Mapping Forum webinar and DNR's Lunch 'n' learn webinar. Kyle Gawinski started his Geologist II position. Zach Zelaya was interviewed and hired for Geologist I STATEMAP position; started his position mid-April. Katie Luciano, Will Doar, Andy Wykel, and Robby Morrow composed Mr. Zelaya's interview committee. Staff met with Blake Stubbins (USC-Geology graduate student); he was hired as a summer drilling assistant. Megan James completed the online driving certification course.

Drilling Services and Core Repository

Jacky Steen worked with Eli Covell returned the drilling support truck (river truck) and drill rig from Mullins to Columbia. Found a location around Orangeburg to park the drill during Earth MRI work. Jacky Steen and drill crew repaired two hydraulic leaks on the drill rig mast and hoist and repaired a pressure carburetor issue. The drill crew cleaned the interior and toolboxes of drill rig, pressure washed the drill rig, and made other drilling preparations. The F-250 was sent to Pope-Davis for tire balance Field trucks were restocked with supplies for MRI drilling. Field repair to the hydraulic system was made; a more comprehensive repair was made when the rig returned to Columbia. Three trucks had oil changes. The Jeep's check engine light was on, code was oxygen sensors; removed oxy sensors, tested continuity, cleaned, and replaced sensors; reset check engine light, so far, no issues; work on Jeep exterior to repair loose body molding and flaking paint. Repairs to repo roll-up door.

Digital Products and the Digital Information Program (DIP).

STATEMAP: Taylor Turbyfill completed the final cartography review edits for the Duford, Galivants Ferry, and Nichols STATEMAP quadrangles. Maps were submitted to USGS and entered the National Geologic Map Database. Updates to the SCGS Publication webpage are in progress. Ms. Turbyfill worked with Kyle Gawinski and Andy Wykel to improve mapping and cartography efficiency, and she assembled a tutorial presentation explaining common drafting errors and how they can be avoided. Ms. Turbyfill collaborated with GIS Manager Robert Clark to increase the efficiency of the cartography work process. Working with the software support team for MaPublisher Avenza, we discussed exporting issues between ArcGIS and Adobe Illustrator. Through discussions with the support team and researching different exporting methods the efficiency of both the geologic mapping and cartographic processes have been revised and improved significantly.

Other Mapping including Outsource Mapping:

Data Preservation: Megan James updated legends for cross section illustrations. LWC GIS Manager finished the hydro-geo app, and once the Hydrology Section updates their webpage the Geological Survey can link to it from its website.

Geologic Map Schema (GeMS): Survey staff met to discuss map digitization procedures and developing a plan to produce all new maps at GeMS Level-3 compliance. Robby Morrow continued work with Megan James developing symbology for Piedmont map products. Megan James presented work on GeMS creating symbols and styles and specialty help web pages. Ms. James continued to work on creating symbols but discovered many issues that need to be discussed with USGS. Quinn Nisbet continued developing a python script tool for converting records from Survey123 into two different outputs: a table to be included in a GeMS database and a spreadsheet formatted for Strater. The script pulls data directly from ArcGIS Online via the ArcGIS Python API and writes the output tables.

General: Taylor Turbyfill gave a presentation on proper GIS techniques to geologists over a Microsoft Teams meeting, and geologists were given the opportunity to ask questions on common drafting and topology errors they have encountered. The drafting presentation along with the opportunity to address common mapping issues will result in a more accurate and efficient drafting and map creation process.

Coastal Program (Ft. Johnson Satellite Office)

Coastal Vulnerability

Murrells Inlet to Capers Island Coastal Vulnerability Project: Katie Luciano continued shoreline change analysis work for Pockoy Island's recent (2015 – 2021) shorelines (Botany Bay WMA – Charleston County) and Cat, South, and North Islands (Yawkey Nature Center – Georgetown County). With assistance from Adam DeMars (SC State GIS Coordinator), Ms. Luciano uploaded SCDNR 2020 imagery for digitizing in this area.

Surface Elevation Tables-SET

Katie Luciano and Dr. Will Doar completed plans for Ft. Johnson SET construction and repaired Fig Island SET station.

USACE-South Atlantic Coastal Study (SACS)

Ms. Luciano met with USACE and SCDNR Regional Sediment Management (RSM) Working Group steering committee members twice to discuss SCDNR involvement with RSM and beneficial use and participated in a meeting of the full SC RSM Working Group on 3/31.

Botany Bay and Pockoy Island Projects

Katie Luciano met with SCDNR Archaeology team (Jodi Barnes, Meg Gaillard, Karen Smith) and Evan Cook to discuss approaches to mapping shorelines using aerial photography as well as field-based GPS approaches. Archaeology is specifically interested in understanding where to measure shoreline locations at the Yawkey Nature Center property.

BOEM

Katie Luciano met twice with Clark Alexander (University of Georgia-Skidaway Institute of Oceanography) and Ashley Long (BOEM) to discuss possible BOEM regional work in southern SC and GA. Ms. Luciano, Will Doar, and Scott Howard met with BOEM Regional Project team members to discuss organizing and writing several different research papers based on work from the project. Five potential paper topics were identified, and collaborative efforts started toward this writing. Ms. Luciano and Dr. Doar discussed what a future project south of Edisto Beach, SC into southern Georgia would involve; and they compiled ideas for new research projects including: 1) Collect data south of Charleston for late Holocene and Modern relative sea-level data points to generate a relative sea-level curve for the recent Holocene; 2) Collect data south of Charleston to generate a refined late Pleistocene sea-level highstand data set for preserved post-MIS 5c (Marine Isotope Stage) highstand deposits (Princess Anne and Silver Bluff); and 3) Littoral and inshore (estuarine) sediment transport dynamics studies.

General and Outreach

General: General information was provided to 22 customers; 2 meteorite ID; 0 gold RFI; 0 sinkhole inquiries; 2 requests for blue granite. Two (2) Rock and Mineral kit was ordered, and Seven (7) map and publication orders.

Robby Morrow assisted Lorrie Skiffington and Arthur Merschat, USGS, with an inquiry about LiDAR data availability in SC; USGS is developing figures for the new USGS-NCGMP Implementation Plan. Dr. Doar continued discussions with a soils scientist in Beaufort County over possible ages of soils. Dr. Doar responded to an RFI, via USC Geology, from Georgetown County about the age of piece of wood recovered from an old well. The sample is from 660 ft below land surface near the US 701 crossing of the Black River. Using nearby USGS and SCDNR Hydrology borehole logs, Dr. Doar estimates the age of the wood to be late Cretaceous.

Partnering:

Furman University	USC-School of Earth, Ocean and Environment	ECU - UNC Coastal Studies Institute
USGS – Earth Surface Processes Team, NCGMP, Energy and Minerals	SCDHEC-OCRM	UGA-Skidaway Oceanographic Institute
College of Charleston	BOEM SCDOT	MRD-NERR, MRRI USC-Civil and Mechanical Engineering
Coastal Carolina University	SGS Canada	Clemson U. Civil Engineering

HYDROLOGY

Water Planning

Edisto River Basin Planning: Scott Harder, Joe Gellici and Alex Pellett attended an Edisto River Basin Council (RBC) field trip to an agricultural facility and a groundwater monitoring site in Aiken County on April 28th. Mr. Gellici prepared and distributed handouts to the RBC and gave an overview of the groundwater resource in the area.

Mr. Harder, Mr. Gellici and Mr. Wachob participated in a Planning Team meeting to coordinate future RBC activities. Mr. Harder coordinated with the various Planning Team members on several occasions to plan for the RBC field trip and set agendas for the May RBC meeting. The Planning Team includes representatives from Clemson University, CDM Smith, Inc, SCDNR, and the South Carolina Department of Health and Environmental Control (SCDHEC).

Mr. Harder, Mr. Gellici, Mr. Pellett, Priyanka More, and Andy Wachob attended a Planning Process Advisory Committee (PPAC) meeting on April 1st. Mr. Harder gave a presentation to the PPAC which highlighted several issues regarding the methods for evaluating water availability outlined in the South Carolina State Water Planning Framework (Planning Framework). Based on feedback from the PPAC, Mr. Harder, with assistance from Mr. Gellici and Mr. Wachob, prepared draft revisions to the Planning Framework and distributed the proposed changes to the group. Mr. Harder also received feedback from the PPAC on a new RBC applicant for the Industry and Economic Development Interest category. The PPAC recommended the applicant, and SCDNR formally appointed the applicant to the RBC.

Water-Demand Projections: Mr. Pellet continued his research on, and writing of, a manuscript entitled “Agricultural Water Use in South Carolina: A Review”.

Other: Mr. Harder participated in a Savannah-Upper Ogeechee (Georgia) Council Meeting and gave a presentation to the group on South Carolina’s water planning activities. Mr. Harder also participated in a Yadkin-Pee Dee Water Management Stakeholder Advisory Committee Meeting, which is part of an effort to develop a water supply plan for the Yadkin-Pee Dee river in North Carolina.

Groundwater Program

Groundwater Modeling

Jess McDaniel continued working with the Soil-Water-Balance (SWB) model, which generates aquifer-recharge data for input into the Coastal Plain groundwater flow model. Mr. McDaniel extended the model’s range to provide recharge data for the years 2017–2020. Mr. Harder, Mr. McDaniel, and Mr. Wachob met with Mark Nardi and Alex Soroka with the United States Geologic Survey (USGS) and Alex Butler and Andrea Hughes with SCDHEC on April 2nd to discuss transitioning to a newer version of the of the SWB model. Mr. McDaniel began working with the newer version to produce recharge data for the years 2017–2020. Ms. More began learning the theory and operation of the SWB model.

Mr. Harder, Mr. Wachob, and Mr. Gellici reviewed the near-final proposal for the USGS to do the groundwater modeling work required for the Edisto basin water planning project. Mr. Harder, Mr. Gellici and Mr. Wachob met with the USGS to discuss the proposal’s scope of work and work schedule.

Groundwater Monitoring Network

Josh Williams downloaded water-level data and recorded manual measurements from 13 wells in Aiken, Kershaw, and Orangeburg Counties (Regions 2 and 3) and processed all the recorded water-level from those wells in Aiken and Kershaw Counties. Jess McDaniel downloaded water-level data and recorded manual measurements from 5 wells in Beaufort and Colleton Counties (Region 4). Brooke Czwartacki downloaded water-level and conductivity data and recorded manual measurements from network wells in Charleston and Georgetown Counties (Region 4). Ms. Czwartacki and Will Doar installed bollards around the two monitoring wells at 8 Oaks Park (Georgetown County, Region 4) to protect the wells against damage from vehicles. Ms. Czwartacki finished processing all the recorded water-level and conductivity data collected from the coastal network wells during the spring. Mr. Williams and Mr. Gellici spent a day clearing overgrown vegetation and performing site maintenance at the C-3 monitoring well cluster site (Aiken County, Region 3).

Geophysical Logging

Mr. Williams logged a new 244-foot-deep supply well being drilled for US Silica in Lexington County (Region 3). Mr. Williams was able to repair the logger’s water sampling probe without having to return the tool to the manufacturer.

Potentiometric Mapping

Ms. Czwartacki completed all quality-control checks on water-level measurements and water-level elevation calculations for the 2020 Crouch Branch aquifer potentiometric map. The data are now ready for contouring.

Saltwater Intrusion

Publication of Ms. Czwartacki's report describing chloride concentrations in the Charleston aquifer of Berkeley, Charleston, and Dorchester Counties (Region 4) was delayed while the report undergoes further editing after discussions with Mount Pleasant Waterworks concerning some interpretations presented in the draft report.

Ms. Czwartacki prepared a report for the Daufuskie Island Conservancy describing the results of the specific conductance profiling work she did in three wells on Daufuskie Island in Beaufort County (Region 4).

Outreach and Other Work

Mr. Wachob provided hydrologic and water-well information and other technical assistance to 7 groundwater customers. Mr. Wachob assisted Tom Daniel of the SCDNR Office of Environmental Programs by reviewing and commenting on a Supplemental Environmental Impact Statement report prepared for a proposed expansion of the Haile Gold Mine in Lancaster County (Region 2).

Ms. Czwartacki attended (virtually) the Santee Experimental Forest Research Symposium on April 1st. Ms. Czwartacki attended (virtually) the regular IRT (Interagency Review Team) meeting on April 7th and later met with the US Army Corps of Engineers (USACE) and the consultants for the Big Run Mitigation Bank in Berkeley County (Region 4) to discuss whether water-level trends seen in monitoring wells are consistent with wetland hydrology.

Mr. Harder, Mr. Wachob, Mr. Williams, Mr. McDaniel, Ms. Czwartacki, and Mr. Gellici participated in one virtual meeting to discuss ongoing work and upcoming projects within the Groundwater Program. Mr. Harder, Mr. Wachob, Ms. Czwartacki, Mr. Gellici, and Mr. Williams spent two days cleaning up and organizing the Hydrology Section's warehouse at the Styx Fish Hatchery.

Surface Water Program

Surface Water Modeling: Mr. Harder with assistance from Priyanka More reviewed lake evaporation rates developed and currently used in the Simplified Water Allocation Model (SWAM). Ms. More summarized evaporation data by computing monthly average evaporation for each lake simulated in SWAM. Based on the review, Mr. Harder identified the need to improve the methodology used to develop the evaporation rates. Mr. Harder and Ms. More met with CDM Smith, Inc. to discuss changes to the methodology and the potential to include results from a SCDNR funded potential evaporation study completed in 2019 (final report is in preparation). The discussion for potential changes to the methods for estimating lake evaporation are ongoing.

Drought Monitoring: Ms. More continued to prepare weekly drought status updates for streamflow, lake levels and groundwater levels for publication on the State drought website. Ms. More also removed groundwater level data no longer needed from wells in the Telemetry database.

Ms. More began preparing monthly hydrologic drought maps and tables for Elliot Wickham with the South Carolina State Climate Office. These maps will be included in a new monthly water summary product developed by the Climate Office. Ms. More and Mr. Harder met with Mr. Wickham on April 22nd to discuss the contents of the monthly water summary reports. Ms. More participated in a SC US Drought Monitoring Team meeting on April 28th. The team provides recommendations on drought status to the US Drought Monitor.

Ms. More attended a Savannah River basin weather outlook workshop hosted by the USACE on April 15th. Mr. Pellet began developing a new product called the Groundwater Conditions Map which will be used to help assess drought conditions in the state. The map will combine groundwater level data with stream baseflow estimates. Specific work included the development of R-functions to download and update USGS well data and the creation of a list of wells in South Carolina, North Carolina, and Georgia for use in the map. He also began working to implement the Lyne and Hollick baseflow separation algorithm, which is used by the NC Department of Water Resources used in the development of one of their drought products.

Streamflow Monitoring: Mr. Harder met with staff from the USGS to develop new stream gage agreements for the next fiscal year.

SC Bio Flow Standards: The purpose of this study was to develop relationships between the health of aquatic species and various hydrologic metrics for wadable streams in the state. Mr. Harder participated in an ad hoc committee meeting with staff from the SCDNR Freshwater Fisheries Division, Clemson University, the Research Triangle Institute, and The Nature Conservancy to finalize recommendations for flow standards that could be considered in the Edisto basin planning process. These recommendations will be developed from the results of the study.

R-Program Training: Mr. Pellet continued a series of R-training workshops with Ms. More for the purpose of expanding the surface water program's R-programming capacity. Specifically, Mr. Pellet is working with Ms. More to develop validation procedures for each table in the SCDHEC Water Use Database.

Outreach and Other Work:

Ms. More, Mr. Harder, and Mr. Gellici visited Ditch Pond Bay Heritage Preserve to remove monitoring equipment and secure monitoring wells that was part of a previous hydrologic study. Mr. Gellici and Mr. Harder visited the site a second time to complete the work.

Mr. Pellett and Ms. More attended a GIS webinar on April 13th hosted by Tanner Arrington, the agency's GIS manager. Mr. Pellet also attended a Lake Hartwell Partners for Clean Water online meeting on April 13th.

Mr. Harder attended a Washington DC Roundtable virtual meeting on April 15th and 16th to learn more about various federal programs regarding the nation's water resources.

FLOOD MITIGATION

All the Flood Mitigation Program staff continue to assist communities with post disaster requirements pertaining to the October 2015 flood event, Hurricane Matthew, Hurricane Irma, Hurricane Florence, Hurricane Dorian, February 2020 flood event, April 2020 tornado outbreak, May 2020 riot damage, May 2020 flooding, Hurricane Isaias, Hurricane Sally and the February 2021 flooding. The staff responded to 45 technical assistance requests. Zac sat for the Certified Floodplain Managers exam and continues to learn about the mapping program. Jessica Artz conducted 7 CAV field visits and followed up on 4 CAC calls. She also reviewed 8 ordinances. Jessica continues to manage the 2017 and 2018 Flood Mitigation Assistance Grants. Jessica provided assistance regarding the FMA grant program in regard to scope of work changes, quarterly reports, questions from sub-applicants and fielded questions from potential new applicants. Jessica attended the SCAHM Board call (4/9), EHP meeting with FEMA grading FMA grants (4/7) and the SC Safe Home Commission meeting (4/15). Jessica taught Administrative requirements of a Floodplain Management Program (4/27); Standards for Development in the SFHA (4/28). Jessica and Maria taught a CFM preparation course (4/19) Jessica and Maria attended the monthly Mitigation Coordination call with EMD and DRO (4/7) and held a call with the City of Aiken regarding a project on the Sand River (4/7). Maria and Jessica met with FEMA regarding a scope of work change for an Isle of Palms FMA grant (4/20). Maria is also working on the HMGP grant that is building the SC Flood IMPACT website. Maria met with FEMA Region IV on the new CAP funding tool (4/14), attended Risk Rating 2.0 training (4/15) and the Silver Jackets funding proposal meeting (4/7). Maria attended the FEMA Region IV the monthly mapping status call (3/16). Maria is the Co-Chair of the Association of State Floodplain Managers Mapping and Engineering Policy Committee. As part of this committee Maria has been providing comments on FEMAs updates to the mapping guidance. Laura continues to manage our extensive filing system, administrative processes and scanning invoices. She has processed our mapping invoices and uploads the programs, entered the General Technical Assistance information into the FEMA database. She also handled all the registrations and certificates of attendance for the following training classes held this month and sent out bulletins on Gov Delivery for upcoming trainings and Silver Jackets monthly webinar series.

LAND, WATER & CONSERVATION

STATE CLIMATE OFFICE

The SCO answered 23 data requests, including four certified requests, on various topics from the general public, engineering firms, and various state agencies.

To stay connected during COVID-19 work from home order the SC State Climate Office staff and Flood Mitigation Center staff are holding weekly conference calls to share work activities, training opportunities, and provide encouragement.

Melissa is the primary point of contact for the State Climate Office service program answering 14 data requests. She drafted and posted five weekly weather summaries online on the SC State Climate Office website. She worked with Elliot to coordinate drought impacts from across the state. She continued to work with members of NWS Offices to quality control station data. She secured a proclamation from the Governor's Office to recognize our state's citizen weather observers during the week of March 14 – 20, 2021. Melissa was selected as the SCDNR Land, Water and Conservation Division Employee of the Year.

Hope and Melissa helped with the installation of the WeatherSTEM station at the Botany Bay Heritage Preserve on March 17.

Elliot led the efforts of USDM input for SC for 5 weeks and wrote 5 drought narratives. He created 5 infographics to help explain and communicate weekly changes in USDM conditions that were released on social media and to the SCDNR Drought Listserv on GovDelivery. He participated in weekly NC Drought Management Advisory calls and communicated with partners in Georgia to discuss if any drought issues span across State lines. He coordinated the efforts for updating and archiving drought data on the SC Drought page, worked on updating the Flood Climatology Database, and creating a local drought planning guide. He spent time building a team for weekly drought communication for USDM input. This effort is to increase the involvement of SC agencies / Entities and sectoral expertise to provide more robust input to the USDM for SC. The team expanded from 4 members to 11 members (Elliot, NWS, NRCS, USGS, Clemson Extension, and SCDNR Hydrology. The first meeting was held on March 24. He worked on creating a new product, Monthly Water Summary Update. This will be a product that is released each month that discusses the status of water resources across the state for the prior month. He crafted a draft document along with a presentation and survey that was shown at the PPAC meeting (4/1) to get end user feedback.

Finn produced weekly Crop Moisture and Palmer Drought Severity Maps. He documented and reviewed the accuracy of MetPortal Alerts across SC reviewing the accuracy of newer alert types. He continued to work on the Winter Weather Database. He began building a flood climatology database entering over 400 events into a database separated by flood type (Coastal, Flood or Flash Flood).

During the first week of March Hope responding to numerous calls and emails concerning the Severe Weather Liaison vacancy. Hope continued to review product development and alerts issued from HydroMetPortal. She provided a presentation on the HydroMetPortal at the SC Association of Hazard Mitigation Annual Conference (March 18). She worked with SCEMD and SCDNR Flood Mitigation to identify participants for the inaugural HydroMetPortal Trainings. She worked with DTN to develop the material for the HydroMetPortal Trainings that were held on March 24 and March 30. She worked with Finn on the development of the Flood Climatology database project. She coordinated a meeting with Wes Tyler to discuss his article on the 1925 Drought for the SC Wildlife Magazine. She answered numerous calls about the potential March 19th severe weather event. She answered calls from SCDNR Executive Office, SCDNR Board, SCDNR Law Enforcement, SC Senate and House, SCEMD and concerned citizens. She provided proposed revisions for Elliot's PPAC presentation and survey. She conducted two meetings with Noor Hassen from USC to discuss State Climate Office research and development (March 22 and 31). She coordinated a planning call with the AASC Executive Director to discuss the grant the State Climate Office will receive from AASC to provide a NCEI Impact study. She held multiple calls with AASC President to discuss the Executive Director Review and membership issues. She has routine calls with staff on the different projects and office activities.

Meetings/Workshops/Webinar/Etc.

- Melissa participated in the AMS Climate Services Call (March 1, March 29)

- Hope participated in the Carolinas Climate Resilience Conference Steering Committee Call (March 2)
- Hope participated in the SCDNR Lunch and Learn Series (March 3)
- Elliot participated in a Local Drought Management Planning Guide Call with Kirsten Lackstrom at CISA (March 4)
- Elliot participated in the Ecological Drought Webinars (March 3 and March 17)
- Elliot participated in the Southeast Regional Climate Center Monthly Webinar (March 9)
- Elliot participated in the National Workshop: Soil Moisture Network (March 8 and 10)
- Hope and Melissa participated in the NWS Wilmington Partners Meeting (March 8)
- Elliot and Hope participated in the Edisto River Basin Council Meeting (March 17)
- Elliot was an Invited Speaker for East Carolina University Colloquium (March 19), Presentation on Effective Drought Management
- Melissa and Elliot participated in the SCDNR Webinar for conducting Substantial Damage Estimates for flooding (March 23)
- Elliot conducted the First South Carolina USDM team meeting (March 24)
- Elliot attended the Catawba-Wateree Water Management Group Summit (March 25 and March 26)
- All staff participated in the SC-HMGP HydroMetPortal Trainings (March 24 and March 30)
- Elliot and Hope coordinated a call with SCDNR Hydrology to discuss the Monthly Water Summary Update Presentation (March 29)

Additional Information on Staff Activities

- Melissa serves on the agency's COVID Task Force.
- Melissa serves as a co-host with Valerie Shannon to help facilitate SCDNR and Harry Hampton virtual board meetings.
- Hope nominated Melissa for SCDNR Land, Water and Conservation Division Employee of the Year.

GEOGRAPHIC INFORMATION SYSTEMS

General

Continued work on the Statewide Satellite Collection Quality Control Project (SSQCP) included this month Laurens, Lancaster, Cherokee, Chester, Union, and York Counties; they were reviewed and completed. Other projects included FEMA Flood Mitigation LiDAR Review, SC Watershed Structures Application, South Carolina Conservation Property Exhibits (Spring 2021), and the Hydrogeologic Framework Application. Voxel development also continued with new software demonstrations.

Continuing education this month included two webinars, one by ESRI showing case studies of ArcHydro's Hydrology and Hillslope modelling applications, and another from the Geologic Mapping Forum hosted by University of Minnesota on an assortment of topics. Online training was continued as well on the UDEMY Python programming course.

One map request from, Eric Williams, Charleston, for USGS Topo Maps of several quads along the coast. Hard copies were plotted and sent to Mr. Williams.

Flood Mitigation Program

Significant work this month reviewing LiDAR data collected in Lancaster County. Point-cloud data was downloaded along with derivative products such as the DEMs (Digital Elevation Model), Contours, and Features (building footprints, road edges, bridges, etc.). Using historical, current imagery along, and some investigative work these products were reviewed for accuracy, errors, and overall completeness.

State Climate Office

Made minor changes in functionality and aesthetics to the Winter Weather Database Dashboard. Discussions were held regarding updates to the SC Hurricane database and the SC Drought Database. Briefly discussed the creation of a SC Summer Events database.

Earth Science Group (ESG)

Attended a meeting of the Southeastern GeMS Collaboration group with members from SC, NC, and Virginia. Discussed current obstacles in the creation of GeMS compliant data, specifically issues between mapping the Piedmont and inland US compared to coastal areas, which is in part related to significant differences in coastal and inland geology.

The Earth Science Group has installed ArcGIS Pro on many of its computers. This new software package is the future of the ArcGIS platform with many upgraded capabilities. All ESG GIS users now have access to the software. Training on using ArcPro is being coordinated among the Department GIS Managers.

Voxel Development continued with a demo by Seequent of their Target for ArcGIS software. This software is made specifically for subterranean 3d geologic modelling in ArcGIS. It is a useful tool that could potentially be used. Further consideration and more demos are needed before any decision is made.

Hydrology

Worked on the SC Hydrogeologic Framework Application. Most of the data is finalized as is the Dashboard that was created for this application. After discussion it was decided to create a new application that simplifies functionality. Much of that work has been done, and when completed the Hydrology group will review.

South Carolina Conservation Bank

Worked on the South Carolina Conservation Bank and their Spring 2021 property applications. Two exhibits, priority class and protected lands, were created for each property showing the extent of the tract and other information to supplement the applications and decision processes. Also created a statewide exhibit showing all properties and applications for the Spring 2021 cycle.

Scenic Rivers

No work this month.

Archaeology

No work this month.

Cultural Heritage Preserves

No work this month.

Office of Environmental Programs

No work this month.

RIVER CONSERVATION PROGRAM

River Conservation / Scenic Rivers:

- Black River: Staff met with the advisory council on March 15 to address public distribution and presentation of the Black Scenic River Management Plan; a news release was distributed to announce completion and availability of the plan to the public; copies of the plan were made available at pickup locations around the Black River region; and the related DNR websites were updated. Staff met with the steering committee for the Black River state park and trail project on March 18.
- Saluda River: Staff provided input to the RFP for water quality monitoring with the Midlands Rivers Coalition.
- Edisto River: Assisted Friends of the Edisto with planning of public outreach events for 2021.
- Aquatic Connectivity Team: Staff met with this team on March 30 to address new information and projects underway to remove man-made barriers to aquatic habitat connectivity.
- Public Information Requests: Staff provided Little Pee Dee public lands information and contacts; suggested contacts for dendrochronology and climate expertise; shoreline stabilization technical information; contacts for recreational access sites to upper Saluda River; advice for Congaree River cleanup; and information about scenic river designation for Black Mingo Creek.

FERC Hydroelectric Projects:

- Cherokee Hydroelectric Project: FERC relicensing proceedings continue for this Project. Staff provided review and comments to SCDHEC regarding their issuance of the 401 Water Quality Certification of the Cherokee Falls license application.
- Lower Pelzer Hydroelectric Project: Staff provided review and comments on the Lower Pelzer Draft Recreation Management Plan.
- Catawba-Wateree Hydroelectric Project: Staff reviewed another, revised Duke Energy request for temporary use of DNR property at Great Falls. Staff participated in the annual Recreational Planning Meeting conducted by Duke Energy to address rec flows and facility development.
- Neal Shoals Hydroelectric Project: Staff met with Dominion Energy to begin addressing their proposed plans to dewater the project reservoir for project maintenance, which will cause the release of sediment to the

downstream river reach.

Heritage Trust: Staff conducted four candidate interviews for the Assistant Botanist position, completed the related evaluations, and recommended a person for hire. Staff participated in Habitat Protection Committee meeting on March 23 and related property evaluations. Completed EPMS evaluation for Keith Bradley.

Aquatic Plant Management Council: Staff participated in the March 10 Council meeting to approve the 2021 Aquatic Plant Management Plan.

S.C. Environmental Awareness Award: Staff produced and distributed a news release and updated websites to announce the call for award nominations; confirmed the awards committee participants from respective agencies; and received nominations for the award through the deadline of March 31.

BOTANY AND PLANT CONSERVATION PROGRAM

Staff:

- We have hired Dr. Samantha Tessel, an outstanding botanist and ecologist with extensive experience in the Carolinas, to be Assistant Botanist, and look forward to having her on the team and advancing the program. She will begin employment the beginning of May.
- We have also hired Csilla Czako as an Herbarium Technician. This is done with partial funding under a contract with the University of South Carolina under a new grant agreement.

Tracked Plant List Revision:

Major efforts to revise the Track Species List began again in November and have continued through March, although at a slower pace than anticipated in March. This collaborative effort with multiple institutions is resulting in changes in ranks of about 25%-30% of currently tracked species, as well as additions to the list, and deletions from the list. These changes are based on analysis of data compiled since the beginning for the HT program, from newly imaged collections from herbaria around the world, from literature, and communications with the South Carolina botanical community. The new rankings will also be featured in an upcoming book, *Wildflowers of South Carolina*, by Patrick McMillan, Richard Porcher, and Doug Rayner which will include SCDNRs conservation status for each species in the book.

- Continued re-ranking of species already on tracked species list
- Worked with Joe Lemeris to update existing Element Occurrence records
- Supervised technicians (Csilla Czako, Celeste Gross) in georeferencing and digitizing herbarium specimens of tracked plant species, and species under evaluation for tracking, at the University of South Carolina. This effort is now leading to a major improvement in the DNR tracked species database as a result of DNRs long-term history of the development of the SERNEC herbarium portal.

Field Surveys and Monitoring:

- The 2021 field season has started.
- Field surveys in March focused on a status survey of Relict trillium (*Trillium reliquum*), a Federally Endangered species. We are doing a status survey (never done in SC) in collaboration with the Atlanta Botanical Garden, to facilitate a Species Status Assessment underway by the U.S. Fish and Wildlife Service. Surveys in March greatly expanded our knowledge of the species in South Carolina.
- Conducted rare plant surveys at Glassy Mountain HP, Savannah River Bluffs HP, Nine Times Preserve (TNC), Oakland Club/Santee Canal, Littlefield Plantation, Sewee Shell Ring, Fort Moultrie, Old Santee Canal Park
- Documented a rare plant report on Daniel Island, discovered and mapped a new rare plant, and discovered three new plant species for South Carolina (2 exotic)
- Processed data from 2020 field surveys and entered rare plant data into Heritage Trust database.

Conservation Actions:

- Collaborated with Atlanta Botanical Garden, GADNR, USFWS on recovery of 5 rare species and survey of Relict Trillium
- Advised on rare plant protection associated with culvert replacement at Shealeys Pond HP
- Planned Sweet Mountain Pitcher Plant (*Sarracenia jonesii*, Federally Endangered) habitat restoration

Habitat Protection Committee:

- Participated in bi-monthly meeting
- Surveyed potential acquisition on Daniel Island

- Advised on acquisitions at Cartwheel Bay, Lewis Ocean Bay, Stevens Creek, Coosaw Island
- Advised on Lake Wateree conveyance

Other:

- Conducted interviews for Assistant Botanist job position
- Edited articles and Botany-focused issue for South Carolina Wildlife Magazine
- Initiated (grant writing) an implementation of a South Carolina Plant Atlas in collaboration with Furman University and University of South Carolina
- Helped with planning cultural and natural planting project at Parker Annex with Archaeology Program
- Participated in SC Invasive Species Council meeting (formerly Exotic Pest Plant Council)
- Participated in annual Catawba-Wateree FERC Species Protection conference call
- Participated in Injurious and Invasive Wildlife Meeting
- Participated in USFWS Piedmont Prairie Indicator Review call
- Participated in steering committee conference calls with University of South Carolina A.C. Moore Herbarium
- Processed herbarium specimens collected in 2020 for deposit at the University of South Carolina A.C. Moore Herbarium

CULTURAL PRESERVES PROGRAM

List below are a few things that Meg Gaillard and her group have been up to in March:

Jacob Hamill

- Helped prepare the Tabby Garden at Parker Annex.
- Archived and digitized documents at Parker.
- Assisted in the field at the Taylor Tract (Congaree Creek HP).
- Gave a thirty-minute presentation on archaeology to the 2nd-grade and 4th-grade students at Lonnie B. Nelson Elementary School.
- Developed materials for the Heritage Trust Program Strategic Playbook.
- Researched and worked on Lesson Plans for K-12th grade.

Ella Goulding

- shovel tested at Congaree Creek
- Researched the Johannes Kolb site and read the site report
- Attended grant writing workshop hosted by the SC State Library
- Researched the exhibit design process in preparation for an exhibit on the Johannes Kolb site

Meg Gaillard

- 3/1 – Distributed the March 2021 archaeology newsletter (11,313 recipients).
- 3/1 – Provided a virtual lecture about the SCDNR Heritage Trust Program for Midlands Technical College Physical Anthropology and Archaeology classes.
- 3/3 – Provided a virtual lecture about the SCDNR Heritage Trust Program and Heritage at Risk for the Engaged Anthropology (ANTH 475) class at the University of Louisville.
- 3/8 and 3/15 – Met virtually with Karen and Dr. John Kupfer, UofSC Geography to finalize the application for the SE CASC grant (\$400,000) to assist with sea level rise research.
- 3/9 - Attended Native American Graves Protection and Repatriation Act (NAGPRA) panel meeting (hosted by the University of Tennessee).
- 3/11 - Emergency Preparation and Recovery webinar, small institutions tabletop exercise (hosted by the Florida Museum of Natural History).
- 3/12 – S.C. Emergency Management Division (SCEMD) Natural and Cultural Resources Response Support Function (RSF) Annex Review Committee virtual meeting.
- 3/23 – Attended 4-Hour AAA Driver Safety course.
- 3/24 - Southeastern Native American Graves Protection and Repatriation Act (NAGPRA) Community of Practice meeting.
- 3/26 – Participated in the NEDCC’s Regional Course – on Emergency Preparedness in South Carolina – Midlands South Carolina, Orientation meeting.
- 3/31 – Provided virtual talks for Lonnie B. Nelson Elementary School 1st and 3rd grade classes for their annual Science Week.

- Managed maintenance vendors throughout the month at Parker Annex – HVAC, electrical, pest control.
- Continue to work on content for *A History of Fishing in South Carolina* virtual exhibit (SC Archaeology Month – October 2021).
- Communication/updates continuing with contractor Jamie Koelker about Combahee: The Last Rice River story map.
- Communicate with vendor Scott Jones about type collection for Parker Annex lab and replica work for outreach programs.
- Write contracts, coordinate with vendors, and assist with mobilization for projects on the Tom Yawkey Wildlife Center Heritage Preserve.
- Write contracts, coordinate with vendors, and assist with mobilization for Pockoy Island Shell Ring Complex projects in May/June and Sept/Oct 2021.
- Summer 2021 SCDNR Archaeology internship applications currently in – 22 applications.
 - Waiting to hear about the Southeastern Archaeological Conference Public Outreach grant (\$2,000) to assist with funding the internship program
- Continue to have virtual check-in meetings with Jacob and now Ella who I began supervising this month.
- Continue to meet virtually each Friday with the North American Heritage at Risk (NAHAR) project team to prepare for the 2021 National Science Foundation (NSF) Coastlines and People large scale hub grant application.
 - Began a series of talks within the NAHAR weekly meetings, inviting in guest speakers to speak with the NAHAR group and national visitors to the meetings.

AQUATIC NUISANCE SPECIES PROGRAM

Technical

- Staff continued to receive and compile public comments for the 2021 Aquatic Plant Management Plan.
- Comments were presented at the Aquatic Plant Management Council Meeting via Webex and the 2021 SC Aquatic Plant Management Plan was approved with some minor changes.
- Staff participated in online meetings concerning invasive species.
- Staff coordinated with Sandy Beach WMA staff to implement herbicide control efforts on 2 acres of parrotfeather in adjacent canals.

Outreach

- Fielded many calls about invasive plants and met with several homeowners at our office to positively ID plant species.
- Staff chaired and attended the SC Aquatic Plant Management Council Meeting.
- Staff attended the SC Aquatic Plant Management Society board meeting.
- Staff updated the programs web pages.

Training

- Staff attended driver's ed online classes
-

Other

- Maintenance was performed on the program's vehicles, boats, and trailers.

CONSERVATION DISTRICTS

Statewide Projects

- Envirothon 2021: Completed registration for competition; facilitated payment of 3 scholarships to past winners who are enrolled in college; preparing final details of online competition which will be held during the 1st week of May
- Governor's Proclamation of Soil and Water Stewardship Week was made official, shared with Conservation Districts and partners; scheduled for week of April 25-May 2, 2021

Technical

- Staff worked in Clarendon and Sumter counties doing WRP monitoring
- Work continues preparations for CRP enrollment
- Staff has also conducted on-site easement reviews in the Abbeville, Sumter, Marion, Clarendon and Horry districts

- Staff continues training on Easement and CRP related programs
- Attended and helped partners facilitate feral swine eradication demonstration of traps and surveys

Watershed Districts

- Attended GIS webinar
- Collaborated with DHEC, NRCS and Watershed Directors on information gathering
- Continued working with staff on mapping of Dam structures
- Reviewed and edited article for SC Wildlife
- Met with Watershed Directors and staff from various agencies to assess 2 dams in Pickens County
- Collaborated with partners regarding multiple watershed endeavors in their areas
- Continued working on easement issues with multiple stakeholders to resolve concerns
- Attended SC Forage and Grazing Lands meeting
- Reviewed applications for upcoming interviews

Conservation Districts

Anderson District has been busy stocking our Spring Seed Library. We have completed almost a month of offering free seeds, with 2000 packets being checkout already. We are stilling taking applications for our 2021 Mini-Grant as well as our annual education contests. We finished assisting Anderson and Oconee field offices with 2021 EQIP applications, to include planning designs in Conservation Desktop. Currently there are 82 applications being prepared for obligation.

Beaufort District's Education Committee met to discuss options for Eco Camp this summer. We attended the wonderful Pollinator Workshop organized by Richland SWCD, EEASC, & Champions of the Environment via Zoom. We will attend one small outside Earth Day Event at Parris Island.

Clarendon District - this month we had our monthly board meeting. District Manager, Samantha & NRCS District Conservationist, Litza teamed up and gave out over 500 plants and vegetables to the 6th grade students at East Clarendon Middle School; Walker Gamble Elementary Kindergarten; first grade students; and Laurence Manning Academy's 7th grade students. These plants and vegetables were put in several raised beds as well as the two greenhouses that the Clarendon Soil & Water Conservation District donated.

Colleton District's monthly board meeting was held March 23rd. The winners of the poster and essay contest have been selected. Chairman Herndon and Commissioner Rev. Mabry plan on presenting the awards to the winners. An article listing the winners of our contest will be sent to our local newspaper, *The Press & Standard*. The 46th Colleton County Rice Festival has been tentatively re-scheduled for June 4 & 5, 2021. Currently, we are working on our Annual Report for 2020-2021.

Dillon Conservation District work includes accepting EQIP applications (3 or 4/week). mailing EQIP applications (2 or 3 / week approx.); making several field visits for assessments under EQIP program; inspection, approval, and processing EQIP program payments. Additionally, processed 6 EQIP Contract Modifications due to weather conditions; also planning and assessing EQIP applications (25 have been soft pre-approved); and getting EQIP producers' signatures for contracting (5 total last 2 weeks). Also planning CSP (17 contracts obligated/ close to 1.34 million obligated in Dillon County - we are the FO with the most amount of money obligated under this program in South Carolina. We are working on 2 new WRE applications. We are setting up new tools to provide better technical assistance (new GPS system and 4wheeler). We have conducted 4 CRP inspections and continue to collaborate with FSA to collect required documents.

Dorchester District's annual board meeting was held on March 16, 2021. Chairman Fender presented the districts photo contest winners with their certificates and prizes this month. Photos were taken for an article for our local newspaper. Judging for the district poster contest was held during the board meeting on 3/16. Poster entries were slim this year due to COVID-19 and not being able to host presentations at the schools. There was one entry. Aahana Gaur from Fort Dorchester Elementary was the first-place winner of the 2nd-3rd grade category. Our annual affiliate drive is off to a great start. We are currently at 23 members and counting.

Fairfield District's second half of State Allocation was received and deposited. The District assisted a homeowner who requested help from the district regarding an erosion problem. The No-Till Drill has been completely overhauled and has been scheduled for use by several landowners. Information has been given to the two Fairfield County High Schools re: the Fairfield District's Scholarship which is awarded to two graduating seniors who will be majoring in a field of

agriculture at the college of their choice. The D.C. position for Fairfield/Chester Counties will be re-posted. Continue to assist NRCS with the Farm Bill Program participants.

Greenville District continued working with the County Planning division on agriculture and food security issues in the county. We also completed mentoring a high school senior video project for stormwater - *Pollution Solution* and submitted Greenville Journal infographic called 'Dirty Water Bugs Us' relating to pesticides/herbicides/fertilizers. Our outreach included a program on soils and soil testing at Sustaining Way, a Rain Barrel Workshop with Lake Conestee Nature Preserve, and we [completed the final weeks of Seed Library Pop-up events: 10 events, 684 attendees / 3448 packets distributed. The Poop Fairy campaign for dog waste education is still going strong and we continued distributing Poop Fairy signs and](#) licensed the Poop Fairy campaign to Charlotte, NC. We sent letters of support to Upstate Forever and Friends of the Reedy River for their 319 grant applications. We also responded to 23 citizen requests for flooding; drainage and erosion technical advice; and cycled the gates and cleared debris from the primary spillway inlets on our 9 PL566 dams.

Jasper District has held 3 major litter drives this month with much success; planned the DNR/Blue Heron Nature Center Youth Fishing Rodeo (which has since been cancelled); booked the Columbia Marionette Theater for a "Litter Trashes Everyone" puppet show for Earth Day; and participated in 3 school virtual presentations of "Who Made My Lunch, From Cocoa Beans to Chocolate". This is a book of the month AG in the Classroom lesson. I displayed cocoa beans and gave out chocolate bars. This was a huge success and treat for the 1st-3rd grades. Had a presentation on What Is Waste? To a preschool group. We demonstrated the difference in trash, garbage, and waste. We have been completing our list of participants for the Feral Hog Farm Bill program for Jasper County. We also have begun a Conservation Awareness study for Jasper County. Due to an increasing potential for population growth, the District believes that a significant effort must be made to keep the public informed of soil and water conservation issues. A significant effort must be made to educate all students and teachers on soil and water conservation.

Laurens District staff completed Virtual Team Ecology. Seven interactive videos were made for 70 third & fourth grade classrooms throughout Laurens County. Volunteers & the Sheriff's office helped us pack up and deliver supplies to each school. We also had a meeting with SCDHEC regarding the Watersheds Emergency Action Plans. We also sponsored a scholarship for the FFA Swine Showdown, hosted by our local high school.

McCormick District continues to retain social distancing by handling all request via email, voice mail and/or by appointment. The district held its monthly board meeting March 17, 2021. NRCS partner Matt Brown updated the District on the progress of EQIP with a written report on the status of the EQIP contracts for our area. McCormick is in the process of planning the celebration of Arbor Day which is the first Friday of December. McCormick is in the process of setting up a committee with the Board and staff from John de la Howe school of Agriculture for the planning of future scholarships for students.

Oconee District is investigating partnering with The Oconee County Library to create a seed library. Multiple individuals have expressed interest in a seed library and OSWCD is seeking ways to best facilitate such a project. Watershed dam maintenance mowing is continuing. Off and on plenteous rain and mechanical problems have hindered the process and put it slightly behind schedule. Bid packages for herbicide spraying of the dams were formulated and will be sent out for responses. Inquiries about our rain barrel program have picked up and have provided two sales. Not only do rain barrels provide a collection space for rainwater they can also be used to direct apply the water to desired areas. Work with the NRCS ACEP-ALE program continues, finalizing a 58-acre parcel in our farmland area of concern in Oconee County.

Orangeburg District's Keep Orangeburg County Beautiful has a "Clean Where You Live/Work Challenge" planned for the month of April. We have been busy preparing for it, registering groups, and giving out supplies. We have adopted Lyon's Road in Orangeburg which has a lot of litter and debris. We hope to keep it maintained once we get it cleaned up. Our board is continuing to meet virtually for now. Most of the office staff have completed the vaccine series or at least received their first vaccine for COVID 19.

Richland District assisted with the coordination and hosting of the 2021 **Grower/Buyer Mashup** in partnership with the SC Department of Agriculture, Midlands Local Food Collaborative, and eleven sponsors, including the SC Association of Conservation Districts. The event featured 46 exhibits from farmers, chefs, and resource providers and was attended by a total of 126 people. The District also co-coordinated and co-hosted a **Pollinator Conservation Webinar** for educators in partnership with SC Champions of the Environment, the Environmental Education Association of SC (EEASC), and others. Three District staff members shared presentations with the 107 webinar participants, and copies of the District's Pinewood Lake Park Pollinator Garden Plant Guide and the District's Educators' Guide to Pollinator Conservation were provided in toolkits which were mailed to participants after the event. Some support for the event was provided by an

Urban Agriculture Conservation Grant from the National Association of Conservation Districts. Staff are preparing to distribute seeds to approximately 1,000 Richland County residents through the Seed Sanctuary program. The District co-hosted the EEASC March Midlands Meetup for environmental educators; 27 educators participated. The SC Governor's School for Agriculture at John de la Howe Coordinator of Outreach and Student Services, Cadie Giba, presented at the District's March board meeting. The District welcomed Robert Reese as the new Pinewood Lake Park Demonstration Garden Volunteer Coordinator. The District rebranded its Affiliate Membership Program with the name "Friends of RSWCD." Staff provided two pollinator conservation education kits and one vermicomposting education kit to the Cutler Jewish Day School. The District's March e-newsletter was distributed to >3,000 subscribers. Staff provided support for the development of new promotional materials for SC Project Learning Tree; planning for the 2021 EEASC Conference; the launch of the SC Environmental Education Landscape Analysis Survey (in partnership with the Southeast Environmental Education Alliance); EEASC committee meetings to improve member benefits; Palmetto Environmental Education Certification Program advisory board meeting; and SC Forage and Grazing Lands Coalition board meeting.

Spartanburg District This month we were finally able to plant the Survivor Tree at Spartanburg High School in honor of their winning Envirothon Teams. The tree was dedicated on SC Arbor Day, but due to COVID concerns we are unable to plant until this month. The ceremony was attended by several of our commissioners and associate commissioners, the past and present district coordinator as well as the current Envirothon Teams, their faculty sponsor, the principal and other school faculty, and staff. The district also attended two great webinars, the NRCS's Beneficial Invertebrates in our Soil and the EEASC & Champions of the Environment's Pollinator Conservation. I learned a lot in each! We are officially registered with CoCoRaHS and are entering data. We are site SC-SP-110!

Williamsburg District completed and mailed the 2020 Annual Report. The Affiliate Membership Drive is currently underway. The Poster, Essay, and Photo Contests are ongoing and the deadline for entries will be in April. The District has a new Associate Commissioner, Sean Bowers who is the Forestry and Wildlife Extension Agent with the Clemson Extension Office. The board looks forward to his input at meetings.

York District staff and the Fishing Creek Watershed Board have received contracts to start toe drain repairs on the 2 affected dams and have also started working on brush/tree removal at Shiloh dam that could impact the spillway. The conservation district has been busy connecting with the community and projects that would be great for us to be affiliated with. We also will be starting a 4 lesson garden series this week at a local school. We are ready to roll up our sleeves and get dirty.

EARTH SCIENCE GROUP

Special Mentions: The drilling team is commended for their efforts in completing the drilling work for FY20 STATEMAP. The team is Jacky Steen (Drilling Director), Eli Covell (Assistant), Zach Zelaya (Assistant), and Kyle Gawinski (Geologist).

South Carolina Geological Survey **Geological Information**

STATEMAP: Drilling in Fork and Mullins quadrangle, Dillon, and Marion Counties, twenty-three (23) holes, 980 feet (42.6 ft/hole avg); FY20 STATEMAP drilling completed. Robby Morrow completed seven (7) traverses in the southern and central portion of the Edgefield Quadrangle, Edgefield County. Mapping focused on delineating relations within the Modoc shear zone. Mapping identified several NW-striking fracture zones that appear to control the orientations of creeks in the quadrangle. Will Doar and Andy Wykel completed a stratigraphic spreadsheet detailing the geologic units on maps for FY19, part of the deliverables for FY19. FY19 maps, lexicon spreadsheet, and technical report in preparation. Mr. Wykel completed cross sections for Galivants Ferry and Bayboro quadrangles and finalized four more in Illustrator. Mr. Gawinski continued to update lithologic logs in Strater from Survey 123 to be current with drilling. Mr. Gawinski and Will Doar discussed the geology of the area new mapping area and results from recent drilling and development of lithologic logs. Zach Zelaya researched Coastal Plain geology. No-cost extension for FY20 STATEMAP was requested.

Other Mapping including Outsource Mapping: Will Doar obtained permission to collect vibracores in Pockoy Island marsh for a USC Geology class. The project was set up by Andy Wykel. The results from this project may enlighten us with information regarding the sea-level and climate history of the late Holocene in the area. Scott Howard, Katie Luciano, and Josh Long (USGS, Reston) are collaborating on a paper correlating offshore seismic mapping with results from offshore mineralogy studies. Dr. Howard and Dr. Till Hanebuth collaborated on a proposal to study historical sea levels along the coast and provide the results to Archaeology-Heritage Trust and land-resource managers to aid their efforts in coastal resiliency.

Earth Mapping Resources Initiative: Will Doar, Robby Morrow, and Scott Howard held a virtual conference with USGS to discuss our submitted proposal, USGS is inclined to accept our proposal with a few minor revisions. Revisions were made and proposal resubmitted (request \$100,000, match \$39,341). Andy Wykel and Robby Morrow are assembling an ultrasonic separator to process Earth MRI samples for geochemistry. A successful test on a sample was completed. Mr. Morrow, Dr. Doar, and Dr. Scott Harris (CofC), met with Anji Shaw, USGS, to review new data and how it affected the manuscript they are writing. No-cost extension for FY19 Earth MRI was requested.

General: Will Doar and Robby Morrow wrote a geologic site summary for Sean Taylor and Keith Bradley, Heritage Trust, on the geology of a prospective DNR property in Cayce, Lexington County. The report details the fluvial terrace deposits of the Congaree River and older Cretaceous sediments not previously mapped appear to be present. Dr. Doar and Ms. Luciano also provided a geologic summary of Coosaw Island, (Beaufort Quadrangle, Beaufort County). Megan James went with the drill crew to Marion County to view drilling operations and take pictures and videos to work on a presentation. Ms. James and Scott Howard wrote a short document on hungry water and in-stream sand mining for Lorianne Riggins (Office Environmental Programs). Scott Howard gave feedback on a paper by Josh Long (USGS, formerly CCU PhD student) on offshore river channels, their delineation, distribution, and origin.

Staffing

Andy Wykel and Robby Morrow completed online Driver's Training courses. Interview for Geologist II position was held. Mr. Kyle Gawinski applicant was interviewed and was recommended to be hired. Interview Team consisted of Dr. Doar, Mr. Morrow, Ms. Luciano, and Mr. Wykel. The vacant STATEMAP Geologist I position was advertised. Mr. Morrow, Ms. Luciano, and Mr. Gawinski met to discuss planning and studying for Professional Geologist Licensure. Staff attended Mapping Forum webinar, UNESCO webinars, and DNR's Lunch 'n' learn webinar. Former SCSGS employee, Mr. Gary Taylor, was hired on a temporary basis to help with collect specimens for rock and mineral kits. Scott Howard prepared Robert Clark's first year EPMS. Dr. Howard attended a data security meeting organized by outside consultants on LWC data holdings.

Drilling Services and Core Repository

Jacky Steen worked with Eli Covell on driving the CME-75. The Ford F-250 was diagnosed with misfiring ignition coils; the truck was repaired at a dealership. A safety meeting for the drill crew discussed proper use on masks on the drill site. Field repairs to the drive coupler on the drill rig (broken and stripped bolts) re-tapped all bolt holes; repairs to the drive gear box on the drill head; and replaced broken grease fittings. Field repair to the hydraulic system was made; a more comprehensive repair will be made when the rig returns to Columbia. Field repairs saved an estimated \$1,200 and took ½-day to perform. Drill Crew (Steen, Covell, and Zelaya) returned the River Truck and CME-75 to Columbia from Mullins Quadrangle.

Digital Products and the Digital Information Program (DIP)

STATEMAP: Taylor Turbyfill completed the final cartography edits for the Duford, Galivants Ferry, and Nichols STATEMAP quadrangles. Maps require one final review before release. Ms. Turbyfill worked with Kyle Gawinski and Andy Wykel to improve mapping and cartography efficiency, and she continued to make and refine a detailed document of the STATEMAP cartography workflow developing a step-by-step instruction guide for the process. Ms. Turbyfill solved the issue of geologic features not properly aligning with the topographic base map on final map products by changing the way some data is exported.

Other Mapping including Outsource Mapping: Taylor Turbyfill made final corrections made to Middendorf quadrangle map. Map was returned to Chris Swezey, USGS, for final internal review. When the map is approved by USGS, it will be released and published by SCSGS.

Data Preservation: Robert Clark and Megan James created a new web application to show well logs, cross sections, core descriptions, and hydrographs. Ms. James completed contour and isopach maps and finished cross sections that show all formations. She also updated how-to documents. Final Technical Report submitted, and all project products delivered, metadata records and weblink to Hydrostratigraphic Dashboard.

Geologic Map Schema (GeMS): SCSGS personnel met with geologists and GIS personnel from the North Carolina Geological Survey and the Virginia Department of Mines and Mineral Resources and discussed projects that will implement the GeMS schema, and efforts to produce 3D geologic map products. Scott Howard and Robby Morrow met with Kelvin Ramsay, Delaware Geological Survey, and discussed the MidAtlantic collaboration to refine stratigraphic correlations across state boundaries, and how the SE Group might implement a similar partnership with NC and VA. The Coastal Plain section of the Southeastern GeMS collaboration group (NC, VA, and SC) also discussed how this cross-

border stratigraphic correlations can be done. Next month agreed to meet for a presentation on lithofacies mapping in the Coastal Plain. Megan James finished a preliminary 3-D model of Centenary quad; created a presentation on creating 3-D bore logs, fence diagrams, and solids in ArcGIS; analyzed Alaska's effort to implement the FGDC cartographic standard into an ArcGIS Pro style file and determined what was missing or needing corrections; and created a document of all GeMS tools and what they do. Ms. James met with Tanner Arrington (DNR GIS Manager), Kyle Gawinski, Robby Morrow, and Quinn Nisbet to discuss writing a python script to simplify Survey 123 data for input into Strater. No-cost extension for FY19 GeMS was requested.

General: Ms. James continued developing a webpage on the geology of Carolina bays. Ms. James also began work on developing a webpage to distribute BOEM offshore data and project results. Staff (Morrow, Doar, Howard, Luciano, Turbyfill, Wykel, Zelaya, and James) attended an online session about the imminent implementation of ArcPro given by the Department GIS Manager. Zach Zelaya scanned and showed Kyle Gawinski how to scan the cross sections into PDFs,

Outreach

General: General information was provided to 12 customers; 3 meteorite ID; 0 gold RFI; 1 sinkhole inquiries; no requests for blue granite. Two (2) Rock and Mineral kit was ordered, and one (1) map and publication order.

Coastal Program (Ft. Johnson Satellite Office)

Coastal Vulnerability

Murrells Inlet to Capers Island Coastal Vulnerability Project: Katie Luciano continued organizing Charleston County data for analysis by digitizing and clipping shorelines for the Capers Inlet, Sewee Bay, Bull Island, and Awendaw quadrangles. Focused shoreline-change analysis work for Pockoy Island's recent (2015 – 2021) shorelines (Botany Bay WMA – Charleston County) and Cat, South, and North Islands (Yawkey Nature Center – Georgetown County) continued.

Surface Elevation Tables-SET

Katie Luciano and Dr. Will Doar measured three (3) SET stations in Beaufort County and purchased materials for Ft. Johnson SET construction.

USACE-South Atlantic Coastal Study (SACS)

Ms. Luciano met with USACE and SCDNR Regional Sediment Management (RSM) Working Group steering committee members twice to discuss SCDNR involvement with RSM and beneficial use and participated in a meeting of the full SC RSM Working Group on 3/31.

Botany Bay and Pockoy Island Projects

Katie Luciano met with Meg Gaillard to discuss erosion-transect work at Botany Bay WMA. Katie Luciano, Will Doar, Evan Cook (SCDNR MRD-GIS), and Bess Kellett (SCDNR, Botany Bay), installed five transects to quantify erosion rates on Pockoy Island. The purpose is to quantify short-term erosion rates on Pockoy Island through measurements collected at five transects throughout the year. High-resolution RTK-GPS data were collected using Trimble GPS units operated by SCGS and MRD (Evan Cook). This data should provide information about the role of king tides in the high erosion rate at this location.

The proposal and budget for a project collaborating with the College of Charleston (Dr. Scott Harris) to do geophysical mapping offshore of Botany Bay WMA has been approved and is moving through the business office. Work may begin by end of April.

BOEM

Katie Luciano, Scott Howard, Megan James, and Josh Long (USGS – Reston) met to discuss organizing BOEM project data and deliverables with the intention of making these available via the SCGS website.

General and Outreach

Ms. Luciano met with SCDNR biologist Christy Hand to discuss possible use of beneficially dredged materials in impoundments for creating and improving bird habitat. Ms. Luciano, Will Doar, and Scott Howard discussed ongoing and future projects and focus areas for the coastal SCGS office. Invited by Meg Gaillard (LWC – Archaeology), Ms. Luciano gave an outreach presentation about shoreline erosion work and coastal geology at Botany Bay Plantation Wildlife Management Area (WMA) to the North American Heritage at Risk (NAHAR) collaborative working group (Archaeology professionals and students). Ms. Luciano was elected to serve on the Southeastern Geological Society of America (SEGSA) Management Board as Chair-Elect, Chair, and Past-Chair for 2021 – 2024 in early March, and she participated in the SE Management Board meeting. Ms. Luciano met with Lucas Hernandez, Resilience Specialist with the Kiawah Island Community Association (KICA) to discuss KICA's resilience plan for Kiawah Island. Specifically, he

asked about salt marsh migration and thresholds for saltwater inundation for tree species that inhabit hammock island habitat; referred to Will Doar for information about geological indicators of sea-level rise. Dr. Doar spoke with a soils scientist in Beaufort County about ages of soils; they planned field work to verify sites on Palmetto Bluff. Dr. Doar responded to questions from Dr. Till Hanebuth, CCU, about the Williamsburg Formation in Georgetown County and the Pleistocene formations near Myrtle Beach, Horry County.

Partnering:

Furman University	USC-School of Earth, Ocean, and Environment	ECU - UNC Coastal Studies Institute
USGS – Earth Surface Processes Team, NCGMP, Energy and Minerals	SCDHEC-OCRM	UGA-Skidaway Oceanographic Institute
	BOEM	MRD-NERR, MRRI
College of Charleston	SCDOT	USC-Civil and Mechanical Engineering
Coastal Carolina University	SGS Canada	Clemson U. Civil Engineering

HYDROLOGY

Water Planning

Edisto River Basin Planning: Scott Harder, Joe Gellici and Andy Wachob participated in a Planning Team debrief meeting on March 5th to plan the Edisto River Basin Council (RBC) Spring meeting schedule. The Planning Team decided to cancel the March RBC meeting and plan for field trips in April. Regular RBC meetings are planned to resume in May with a goal of meeting face-to-face. The Planning Team includes representatives from Clemson University, CDM Smith, Inc, SCDNR, and the South Carolina Department of Health and Environmental Control (SCDHEC).

Mr. Harder reached out to several stakeholders in the Edisto basin who may be good candidates for filling a vacancy in the Industrial and Economic Development Interest category. Mr. Harder received an RBC application from one of these stakeholders, and the application was distributed to the South Carolina State Water Planning Process Advisory Committee (PPAC) for review.

Mr. Harder, Mr. Gellici, and Mr. Wachob collaborated to prepare a technical memorandum describing several issues with the South Carolina State Water Planning Framework that have come to light during the Edisto river basin planning process. The memorandum presented several important revisions to the Planning Framework for PPAC consideration that SCDNR argues will improve the basin planning process. As part of the development of the memorandum, Mr. Harder compared current water use, permitted, and registered water use, and projected water use estimates to inform the recommended revisions. Alex Pellett and Priyanka More provided technical assistance to Scott Harder in these water use comparisons. Mr. Harder prepared a presentation for the April PPAC meeting describing the proposed revisions.

Water-Demand Projections: Mr. Pellet prepared several additional drafts of the report “Water Demand Projections for the Edisto River Basin 2020-2070”. Mr. Wachob and Mr. Harder provided an editorial review of the drafts. A final draft has been submitted and is being prepared for publication on the Hydrology website.

Mr. Pellet continued his research on, and writing of, a manuscript entitled “Agricultural Water Use in South Carolina: A Review”.

Groundwater Program

Groundwater Modeling

Jess McDaniel continued working with the Soil-Water-Balance (SWB) model, which generates aquifer-recharge data for input into the Coastal Plain groundwater flow model. Mr. McDaniel resolved issues relating to the conversion of gridMET meteorological data into file formats compatible with the SWB model grid and began working on a similar process for land-use data. Scott Harder, Mr. McDaniel, and Andrew Wachob met with Mark Nardi from the U.S. Geological Survey (USGS) and Alex Butler (SCDHEC) to discuss use of the SWB model and possibly transitioning to a newer version of the model before new recharge calculations are made.

Groundwater Monitoring Network

Josh Williams downloaded water-level data and recorded manual measurements from 6 wells in Richland and Lexington Counties (Region 3). Brooke Czwartacki downloaded water-level and conductivity data and recorded manual measurements from network wells in Charleston, Beaufort, Georgetown, and Dorchester Counties (Region 4).

Mr. Harder, Mr. Wachob, Mr. Williams, Mr. McDaniel, Ms. Czwartacki, and Joe Gellici participated in a virtual meeting to discuss options for having the USGS install real-time water-level monitoring equipment in several SCDNR

network wells.

Mr. Gellici and Mr. Wachob met with staff from the USGS and the Savannah River Site (SRS) to discuss abandoning the water-level monitoring well AIK-0430 at SRS (Aiken County, Region 3) that has been monitored since the 1950s. The well, which is monitored by the USGS, will be abandoned because of concerns that it may allow contaminated groundwater to move from a shallower aquifer into a deeper aquifer. After the well is abandoned, the USGS's real-time monitoring equipment may be moved to a SCDNR network well.

Data Preservation Project

Mr. Gellici, Mr. Harder, and Mr. Wachob met with Megan James and Scott Howard (of the South Carolina Geologic Survey) and Tanner Arrington and Robert Clark (of the IT Department) to review and discuss the web application being developed to present well data and hydrogeologic framework information and cross sections. Making data related to the Hydrogeologic Framework of the South Carolina Coastal Plain more accessible and usable to the public is one of the goals of the Data Preservation Project. Mr. Gellici reviewed and edited 14 cross sections containing hydro-stratigraphic data, geophysical logs, screen settings, and lithology data for inclusion on the website, and completed descriptions of the wells and cores used in the construction of those cross sections.

Geophysical Logging

Josh Williams attempted to log a new 475-foot-deep public-supply well being drilled for the Town of Hilda (Barnwell County, Region 3), but could not get the logging probes below a depth of about 320 feet, most likely because of a constriction in the borehole caused by a swelling clay layer at that depth (12 March).

Mr. Williams successfully logged an 811-foot-deep borehole for a new well being drilled for the Carolina Forest community of Myrtle Beach (Horry County, Region 4) (23 March).

Saltwater Intrusion

Ms. Czwartacki, with the help of Mr. Wachob and Mr. Gellici, completed her report describing chloride concentrations in the Charleston aquifer of Berkeley, Charleston, and Dorchester Counties (Region 4). The final report will be publicly released in early April.

Ms. Czwartacki collected vertical profiles of specific conductance in three wells on Daufuskie Island in Beaufort County (Region 4). The profiles were plotted for a presentation to be distributed to the Daufuskie Island Conservancy.

Outreach and Other Work

Mr. Wachob provided hydrologic and water-well information and other technical assistance to 5 groundwater customers. Mr. Harder, Mr. Wachob, Mr. Williams, Mr. McDaniel, Ms. Czwartacki, and Mr. Gellici participated in two virtual meetings to discuss ongoing work and upcoming projects within the Groundwater Program. Ms. Czwartacki met with SCDHEC about its upcoming Lowcountry Capacity Use Area evaluation to discuss available data (past potentiometric contours) and saltwater intrusion issues. Ms. Czwartacki attended an Interagency Review Team (IRT) meeting on March 3rd and visited the Big Run Mitigation Bank in Berkeley County (Region 4) on March 11th and submitted comments to the IRT regarding wetland hydrology.

Surface Water Program

Drought Monitoring: Ms. More continued to prepare weekly drought status updates for streamflow, lake levels and groundwater levels for publication on the State drought website. Ms. More also prepared monthly hydrologic drought maps and tables for Elliot Wickham with the South Carolina State Climate Office. These maps will be included in a new monthly water summary product developed by the Climate Office. Ms. More and Mr. Harder met with the Climate Office to discuss the contents of the monthly water summary reports.

Mr. Harder and Ms. More participated in the first South Carolina U.S. Drought Monitoring Team meeting with the Climate Office and various State and Federal agencies on March 24th. The purpose of this group is to develop recommendations and information to U.S. Drought Monitor staff for drought status determinations for South Carolina.

Ms. More removed erroneous data from wells in the Telemetry database, which are used for drought assessment.

Streamflow Monitoring: Mr. Harder met with staff from the USGS to discuss progress on the installation of new streamflow gages across the state. Mr. Harder also coordinated with the USGS to develop new stream gage agreements.

SC Bio Flow Standards: The purpose of this study was to develop relationships between the health of aquatic species and various hydrologic metrics for wadable streams in the state. Mr. Harder participated in two ad hoc committee meetings with staff from the SCDNR Freshwater Fisheries Division, Clemson University, the Research Triangle Institute, and The Nature Conservancy to develop recommendations for flow standards that could be considered in the Edisto basin planning process. These recommendations will be developed from the results of the study. Mr. Harder continued to

review these results to assist the group in developing appropriate performance measures regarding biological flow standards in the Edisto basin.

R-Program Training: Ms. More and Mr. Pellett worked on using the R-programming language to compare reported withdrawal volumes, permitted and registered volumes, and projected withdrawal volumes. Ms. More had already successfully completed the task using Excel. The comparisons were also completed using developed R-programming scripts, and future analyses can now be done more efficiently whenever DHEC sends updated data using the new R scripts. Ms. More demonstrated specific skills, joining and pivoting tables, that will be useful moving forward in the development of future R-programming scripts.

Outreach and Other Work:

Mr. Harder and Ms. More attended four workshops associated with the Catawba-Wateree Water Management Group's (CWWMG) Citizens Water Academy (March 2nd, 4th, 9th, and 11th). Mr. Harder, Mr. Pellett, and Ms. More attended the Catawba-Wateree Water Management Group's Water for All Summit on March 25th and 26th.

Mr. Harder and Ms. More participated in a Caw Caw Swamp Watershed Plan stakeholder meeting on March 23rd. Mr. Harder, Mr. Pellett, and Ms. More attended a GIS webinar on March 9th hosted by Tanner Arrington, the agency's GIS manager.

Mr. Pellett provided comments to SCDHEC on the Draft PFAS Strategy for Ambient Surface Water report. He also attended Lake Hartwell Partners for Clean Water meeting on March 9th and attended the Florence Agricultural Research Station (ARS) Research Symposium on March 11th. He also met with Ken Stone from the ARS to discuss collaboration opportunities.

Mr. Pellett attended a Southeast Climate Adaptation Science Center Seminar, Using Information from Global Climate Models to Inform Policymaking and Natural Resource Decision Making, on March 16th, and attended a Clemson Extension Webinar, Be Well Informed, about well maintenance and management on March 22nd.

Mr. Pellett attended several ESRI Water Resources Webinars – Arc Hydro in Arc GIS Pro and Arc Hydro: Flooding and Forecasting and completed a 4-hour driver safety class.

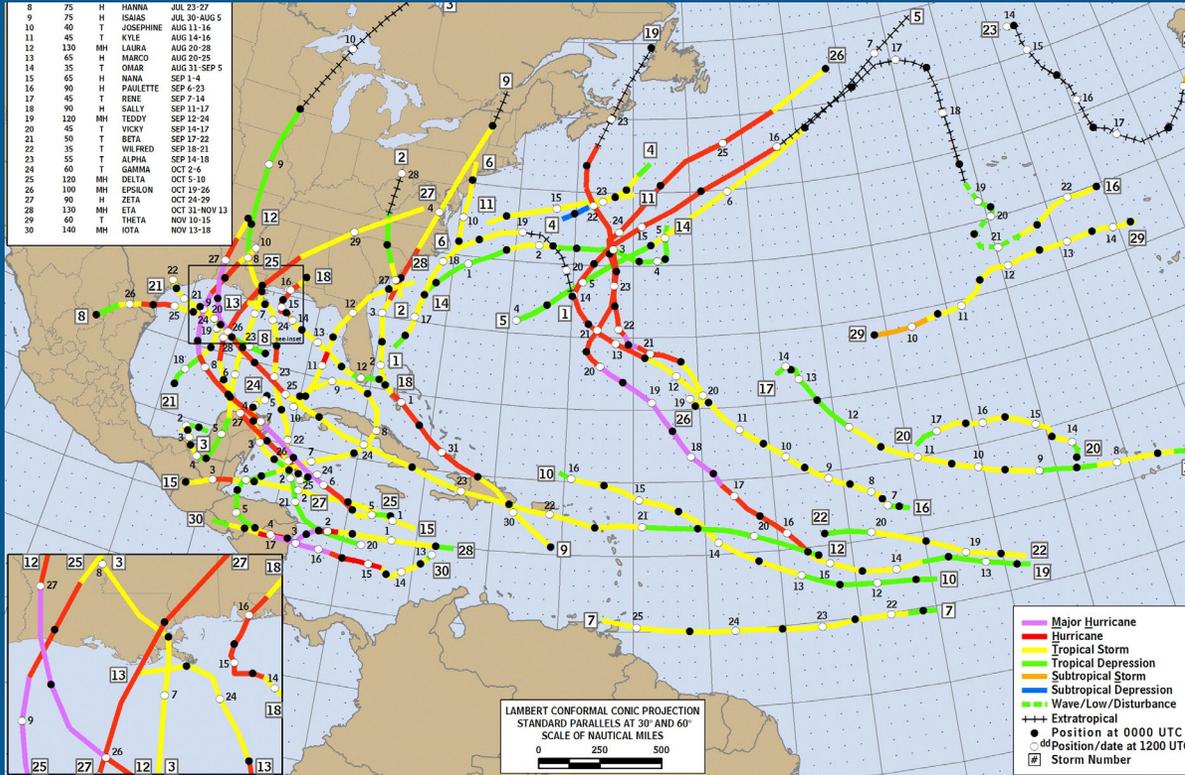
FLOOD MITIGATION

All the Flood Mitigation Program staff continue to assisting communities with post disaster requirements pertaining to the October 2015 flood event, Hurricane Matthew, Hurricane Irma, Hurricane Florence, Hurricane Dorian, February 2020 flood event, April 2020 tornado outbreak, May 2020 riot damage, May 2020 flooding, Hurricane Isaias, Hurricane Sally and the February 2021 flooding. The staff responded to 50 technical assistance requests. Zac has been studying for the Certified Floodplain Mangers exam and learning about the mapping program. Jessica Artz conducted 10 CAVs and 2 CAC calls. Jessica continues to manage the 2017 and 2018 Flood Mitigation Assistance Grants. Jessica provided assistance regarding the FMA grant program regarding scope of work changes, quarterly reports, questions form sub-applicants and fielded questions from potential new applicants. Jessica held a EHP call with FEMA Region IV (3/3). Maria, Jessica, and Zac attended the FEMA Region IV the monthly mapping status call (3/16). All staff attended the Silver Jackets training (3/17) and the SCAHM conference (3/18). Jessica taught How to do a Substantial Damage Assessment (3/23). Jessica and Maria attended the monthly Mitigation Coordination call with EMD and DRO (3/3). Maria and Jessica met with the City of Forest Acres regarding CAV issues (3/26). Maria taught Flood Recovery and the NFIP training (3/24). Maria is also working on the HMGP grant that is building the SC Flood IMPACT website. Maria attended the Quarterly CAP Regional meeting (3/25) and the FEMA Operations Partners call (3/25). Maria presented twice at the SCAHM conference (3/18). Maria is the Co-Chair of the Association of State Floodplain Managers Mapping and Engineering Policy Committee. As part of this committee Maria has been providing comments on FEMAs updates to the mapping guidance. Laura continues to manage our extensive filing system, administrative processes, and scanning invoices. She has processed our mapping invoices and uploads the programs, entered the General Technical Assistance information into the FEMA database. She also handled all the registrations and certificates of attendance for the following training classes held this month and sent out bulletins on Gov Delivery for upcoming trainings and Silver Jackets monthly webinar series.

Handouts and Presentations

MAY 2021 DNR BOARD MEETING

Hope Mizzell, Ph.D.
SC State Climatologist



12 Storms hit the U.S. coastline, (5 of which came ashore in Louisiana)
Previous record: 9 in 1916

13 Hurricanes
Average season has six

6 Major hurricanes
Average season has three

10 Named storms that formed in September
Most for any month on record

10 Rapidly intensifying storms sampled
by NOAA and the U.S. Air Force

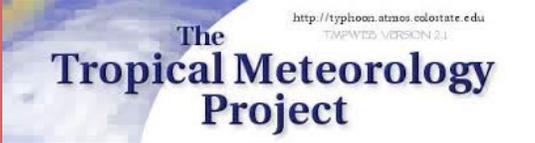
Arthur	Paulette
Bartha	Rene
Cristobal	Sally
Dolly	Teddy
Edouard	Vicky
Fay	Wilfred
Gonzalo	Alpha
Hanna	Beta
Isaias	Gamma
Josephine	Delta
Kyle	Epsilon
Laura	Zeta
Marco	Eta
Nana	Theta
Omar	Iota

Since 2010, seven Atlantic hurricane seasons have had at least one storm form before June 1 start date. Due to this trend of pre-season storms, NHC is considering moving the official start date to May 15 in future years. Starting this season, NHC will begin to issue regular Tropical Weather Outlooks on May 15.

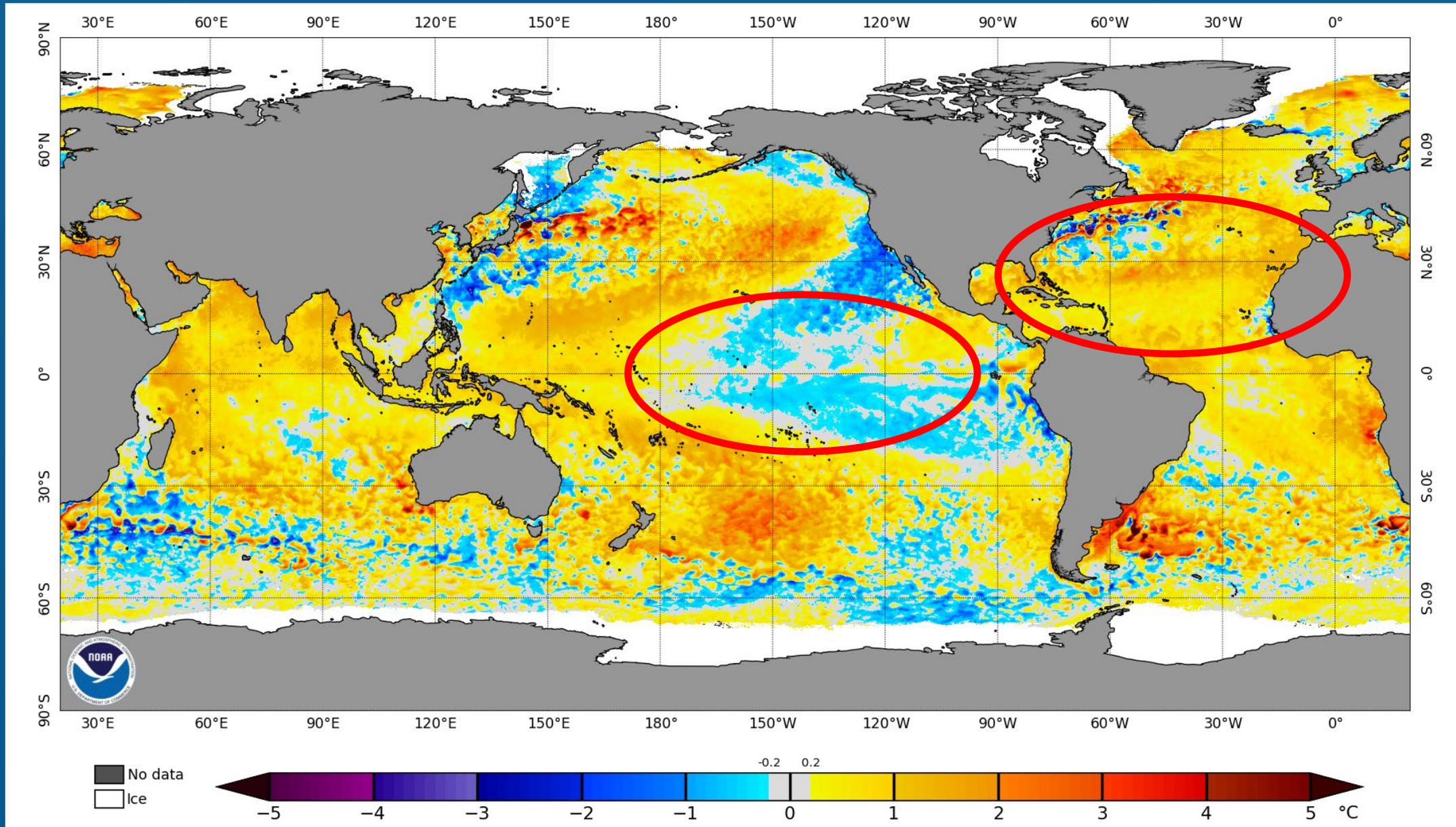


2021 Hurricane Season Forecast

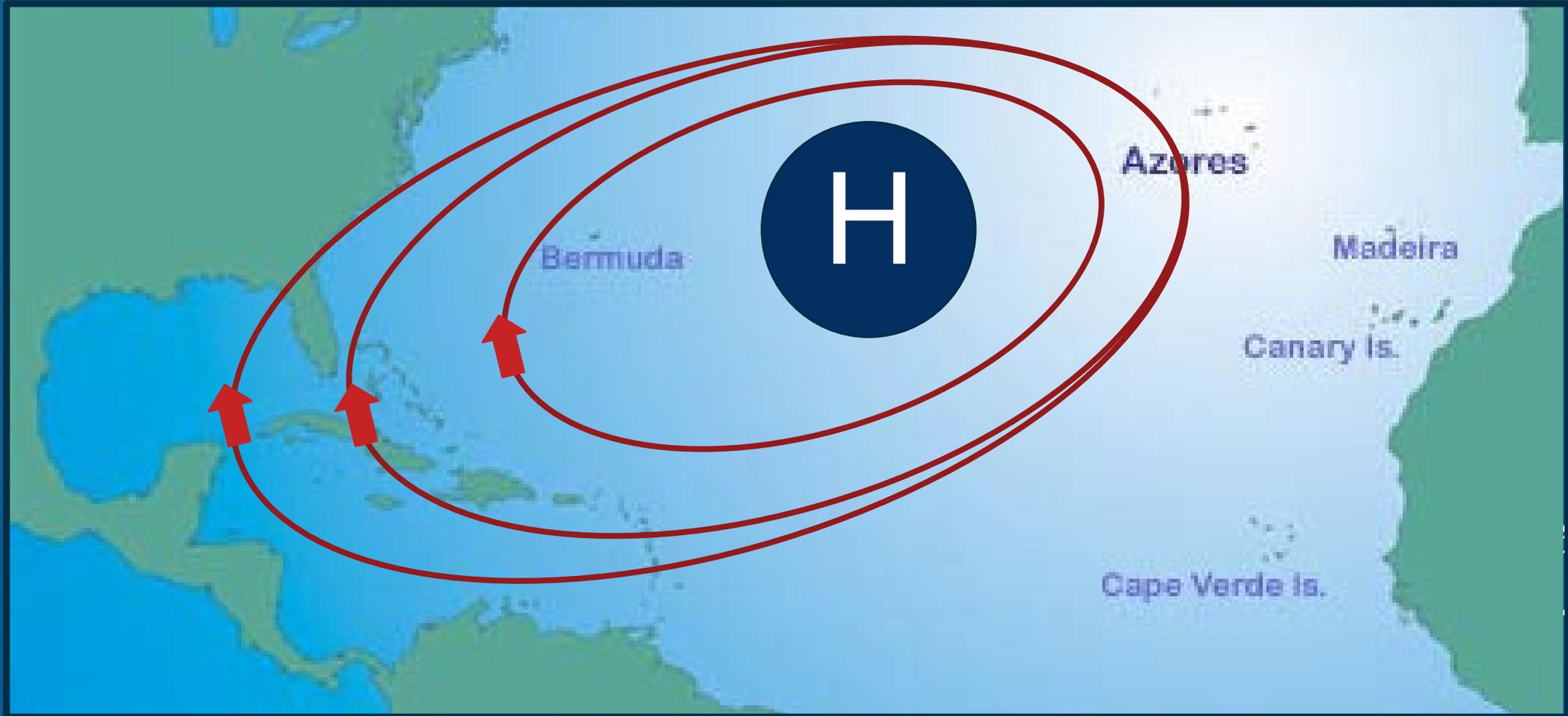


	1991- 2020 Avg	 <small>http://typhoon.atmos.colostate.edu</small> TWPAGES VERSION 2.1	
Total Named Storms	14	17	16-20
Hurricanes	7	8	7-10
Category 3 or Higher	3	4	3-5
Direct U.S. Impacts			3-5

ENSO WATCH: SEA SURFACE TEMPERATURE ANOMALY - MAY 18, 2021

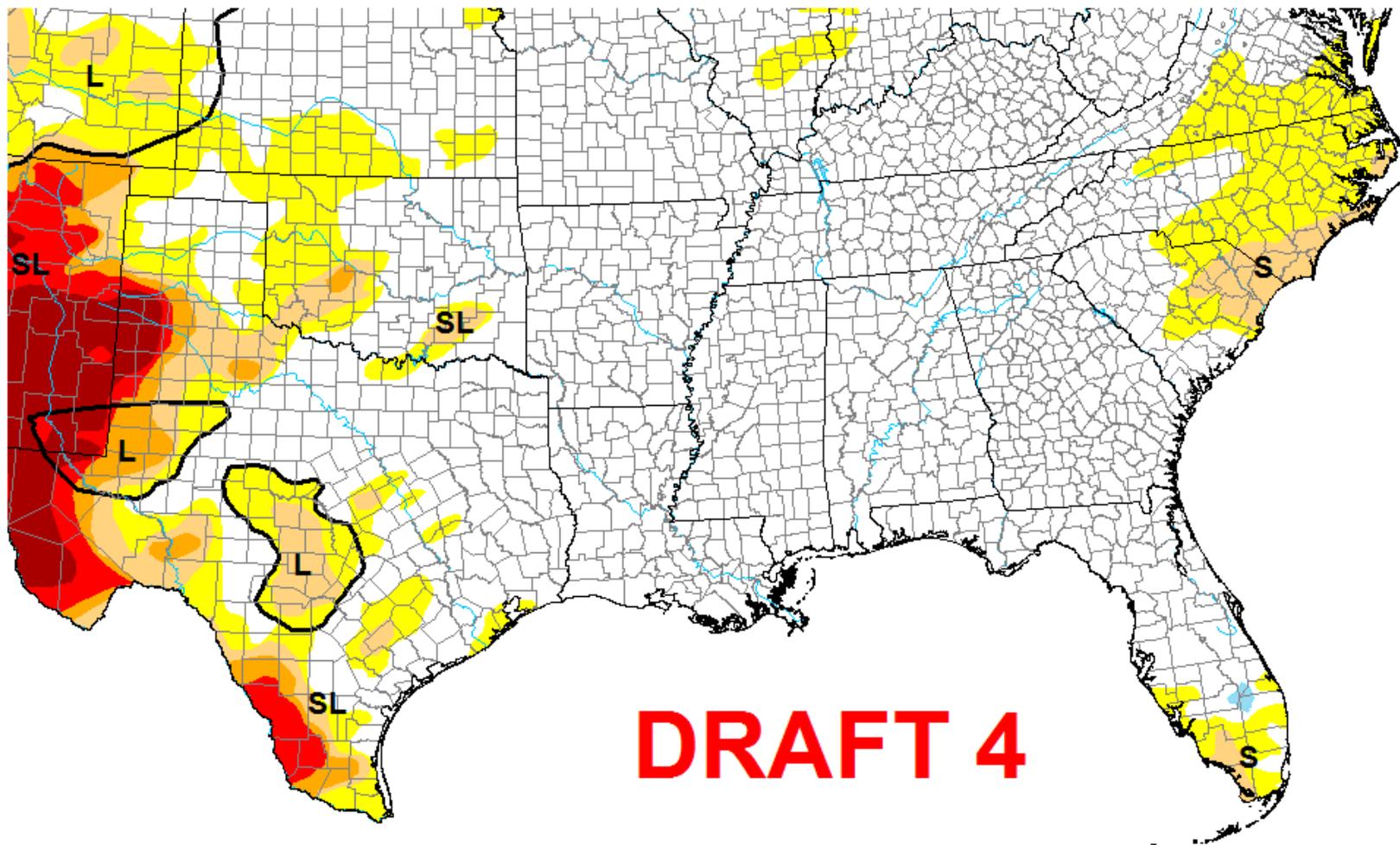


Bermuda High: How it Affects Tropical Systems



U.S. Drought Monitor

May 18, 2021
Valid 8 a.m. EDT



Intensity:

-  D0 Abnormally Dry
-  D1 Drought - Moderate
-  D2 Drought - Severe
-  D3 Drought - Extreme
-  D4 Drought - Exceptional

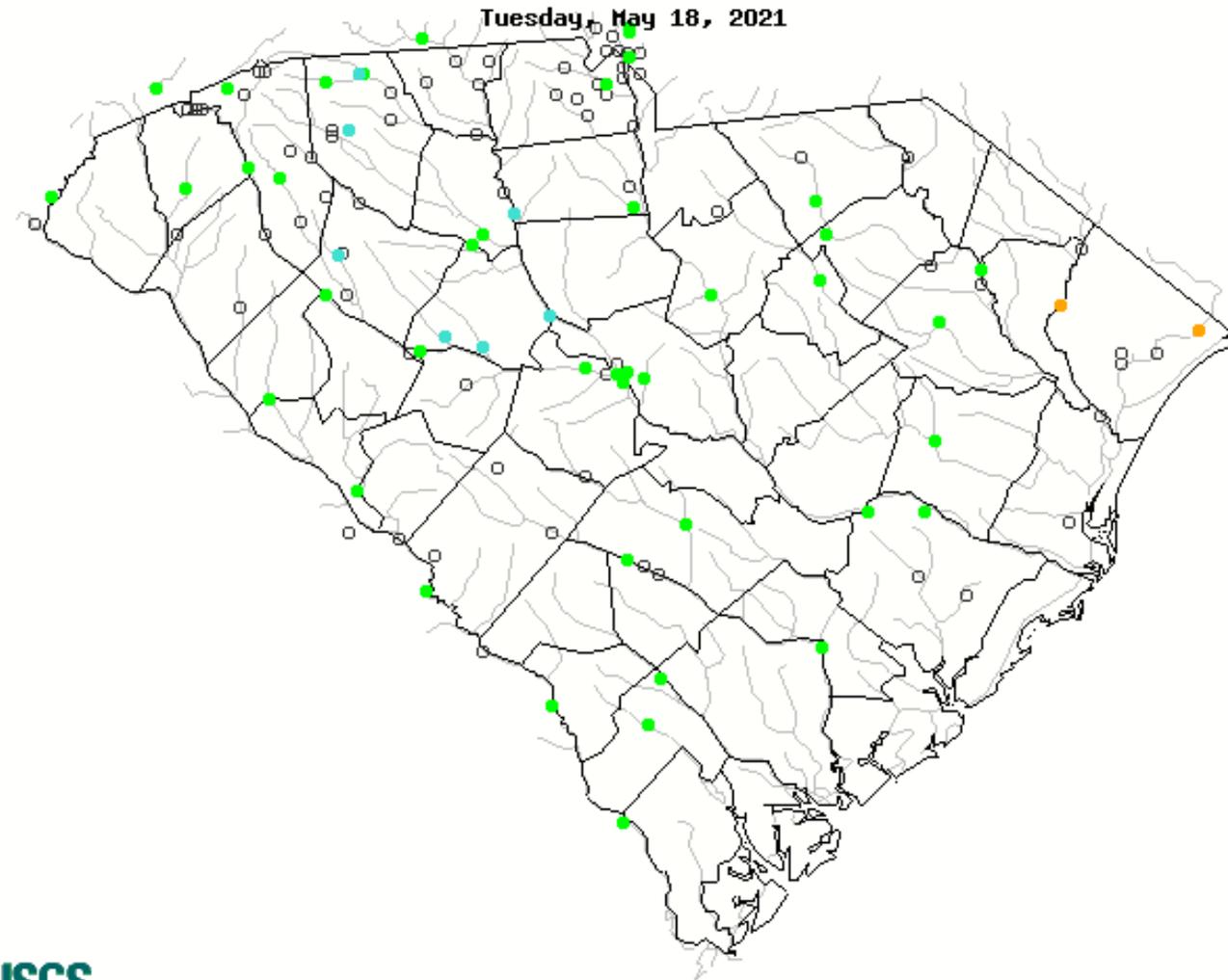
Drought Impact Types:

-  Delineates dominant impacts
- S = Short-Term, typically <6 months
(e.g. agriculture, grasslands)
- L = Long-Term, typically >6 months
(e.g. hydrology, ecology)

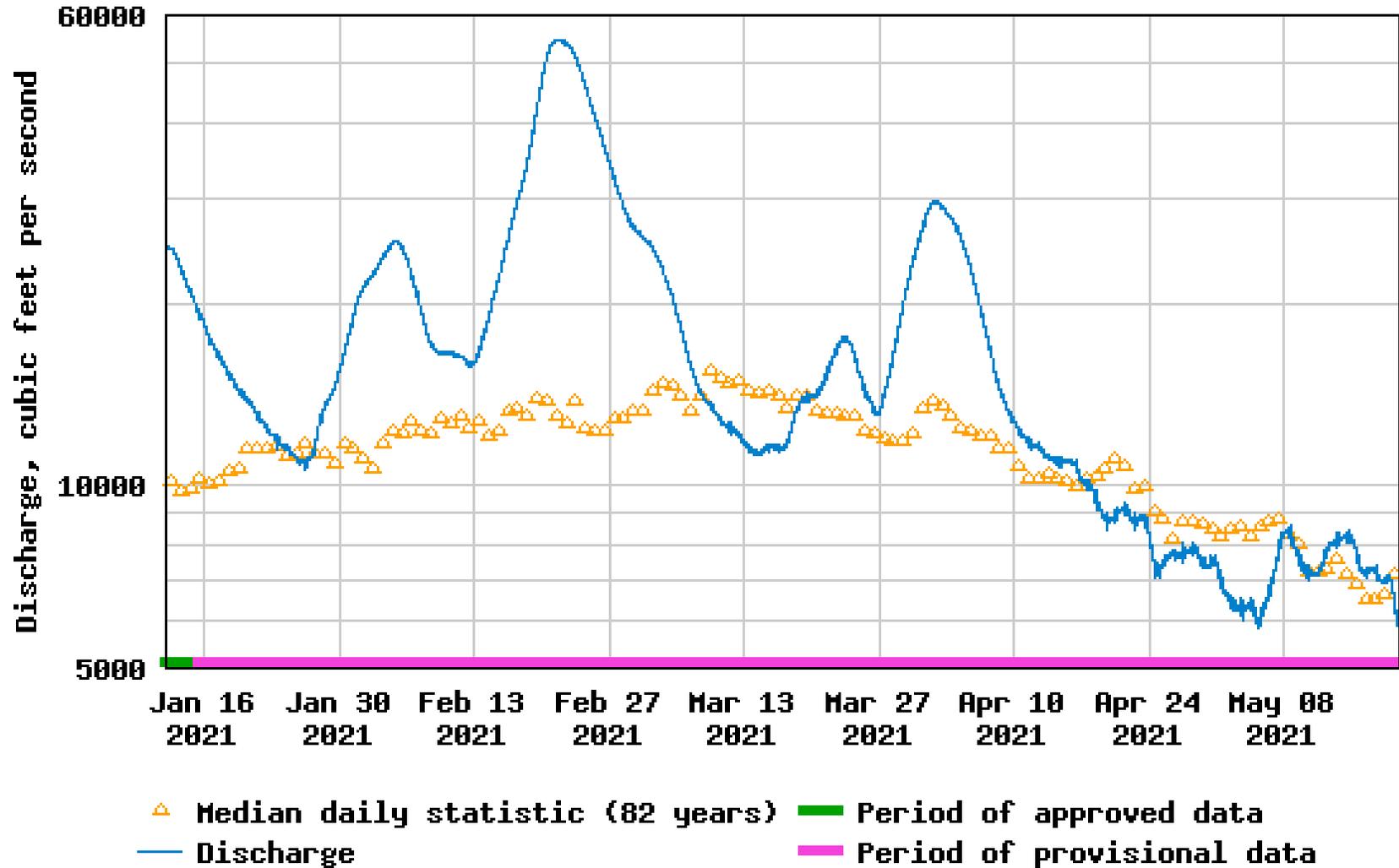


Map of 14-day average streamflow compared to historical streamflow for the day of the year (South Carolina)

South Carolina ▼ or Water-Resources Regions ▼

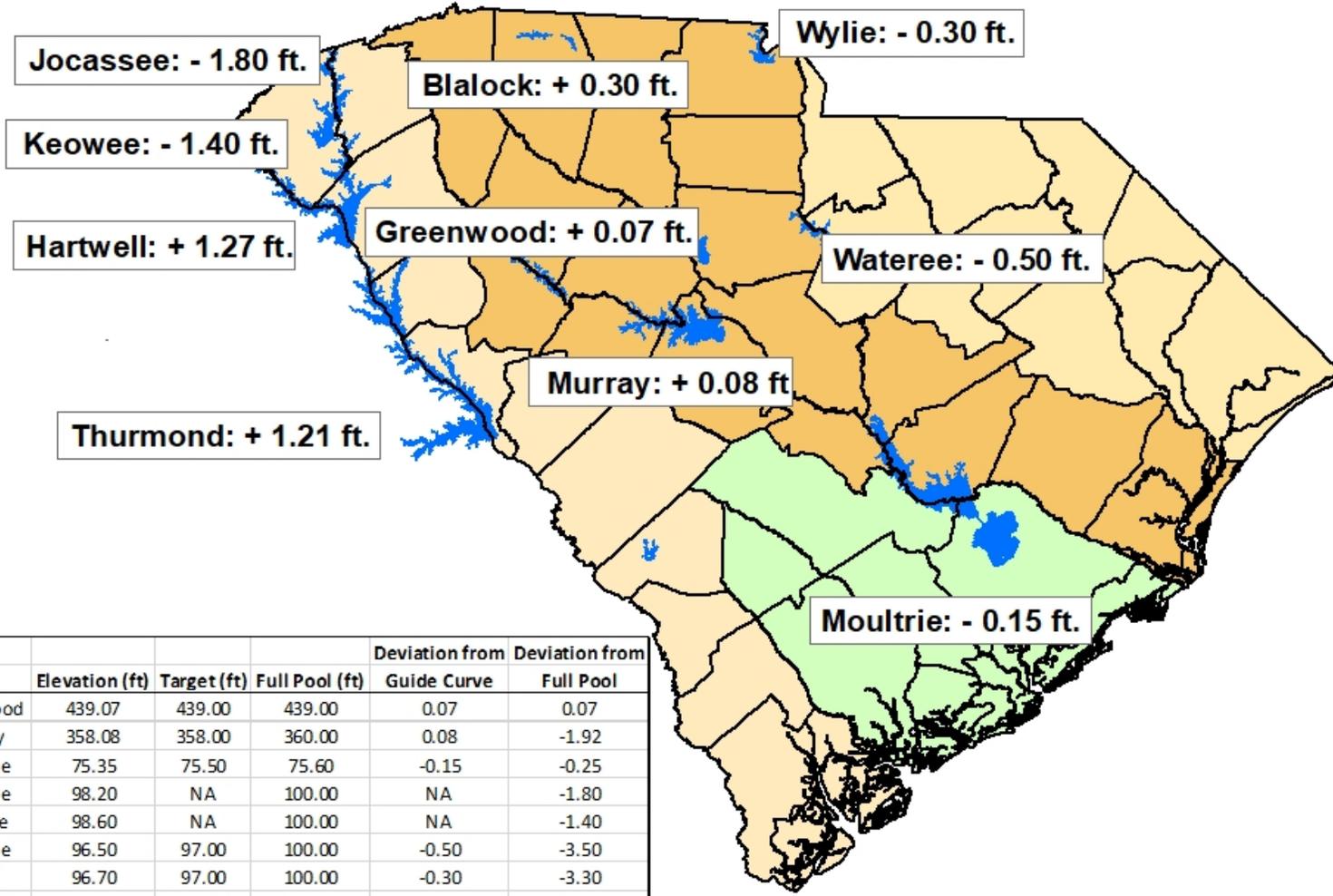


USGS 02131000 PEE DEE RIVER AT PEEDEE, SC



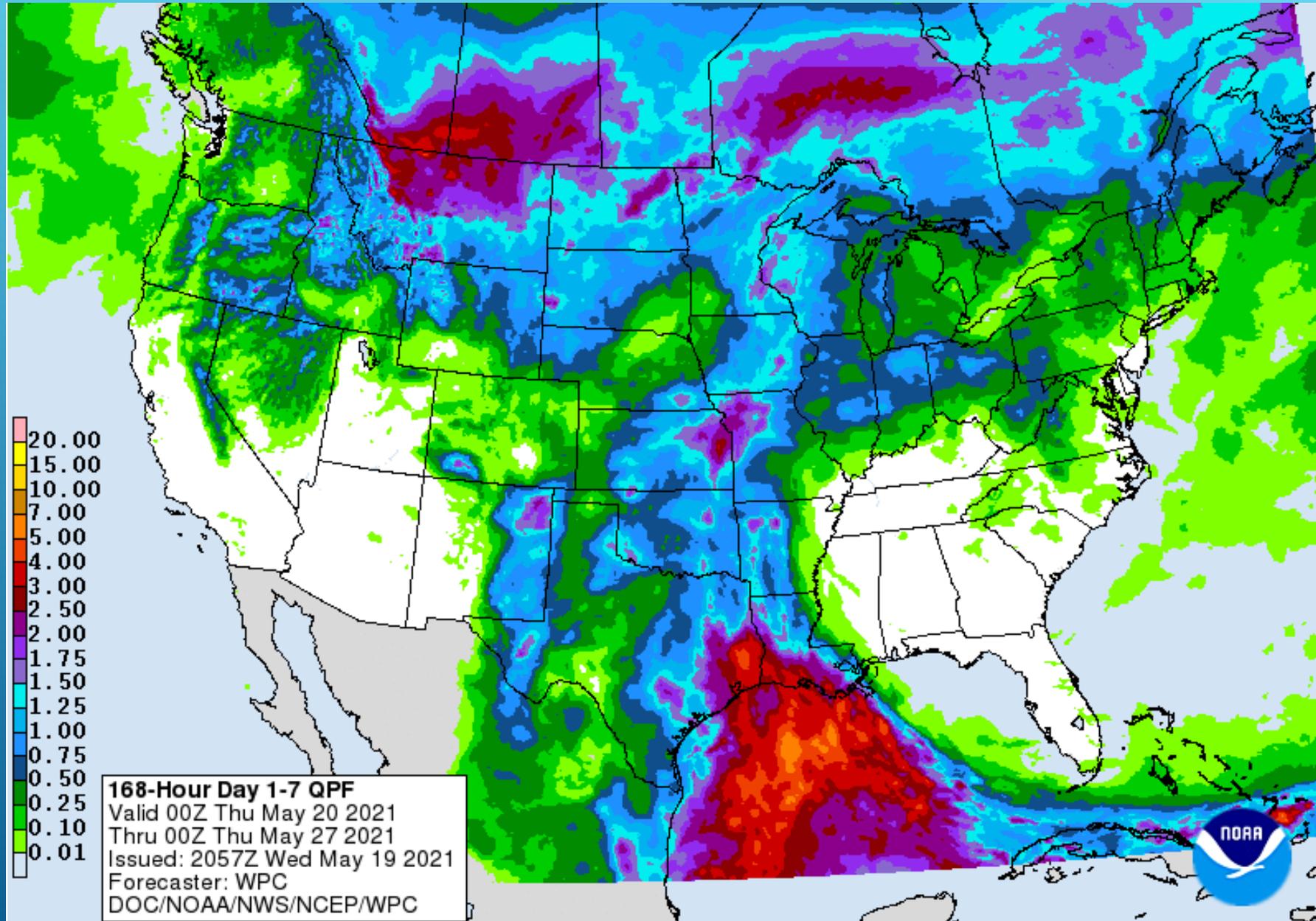
Lake Level Deficit/Surplus on May 10, 2021

(Deficit/surplus values are referenced to guide curves, except Jocassee and Keowee which are referenced to full pool)



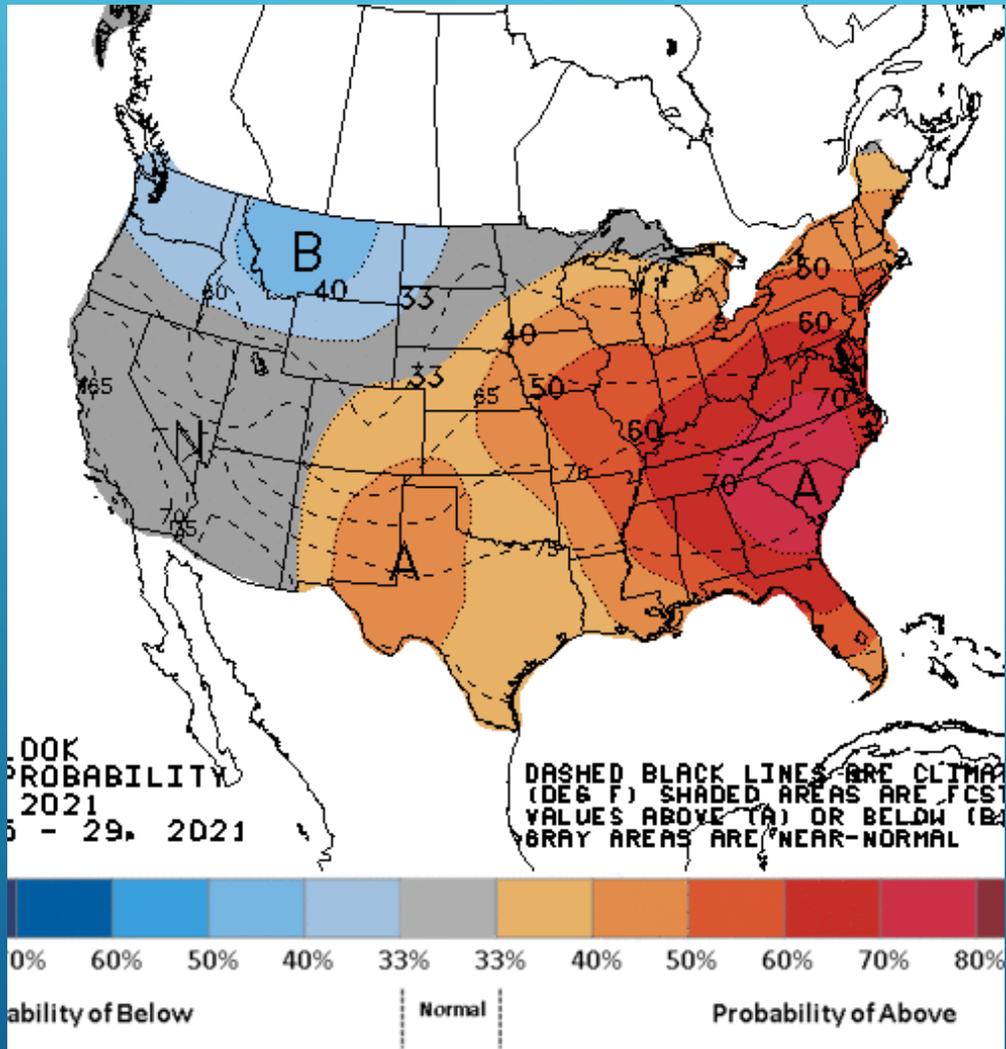
Lake	Elevation (ft)	Target (ft)	Full Pool (ft)	Deviation from	
				Guide Curve	Full Pool
Greenwood	439.07	439.00	439.00	0.07	0.07
Murray	358.08	358.00	360.00	0.08	-1.92
Moultrie	75.35	75.50	75.60	-0.15	-0.25
Jocassee	98.20	NA	100.00	NA	-1.80
Keowee	98.60	NA	100.00	NA	-1.40
Wateree	96.50	97.00	100.00	-0.50	-3.50
Wylie	96.70	97.00	100.00	-0.30	-3.30
Hartwell	661.27	660.00	660.00	1.27	1.27
Thurmond	331.21	330.00	330.00	1.21	1.21
Blalock	710.30	710.00	710.00	0.30	0.30

7- Day Precipitation Forecast

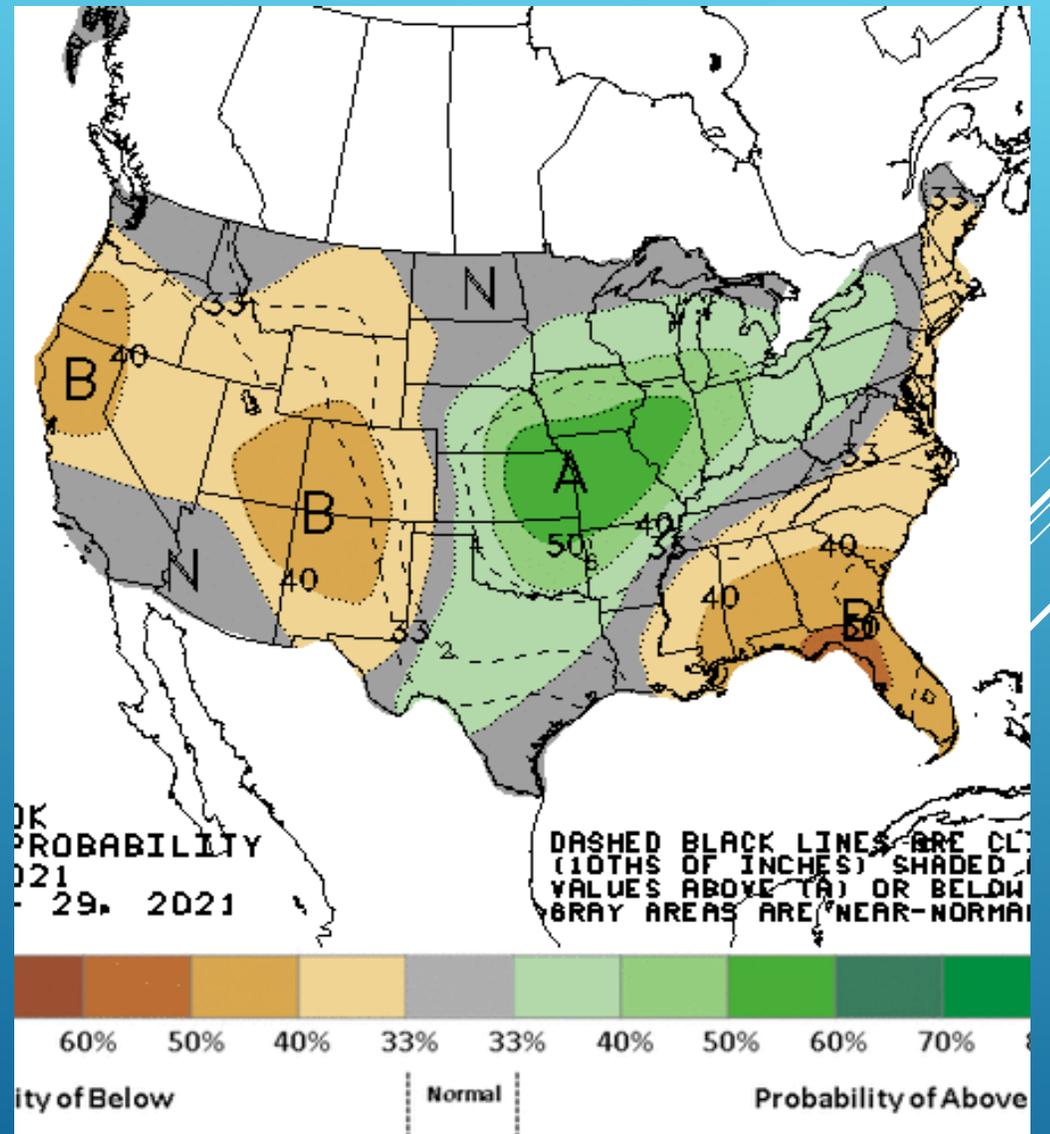


6-10 Day Outlook

Temperature



Precipitation



Tom Yawkey Wildlife Center

PROJECT REPORT 2019-2020



YAWKEY FOUNDATION TRUSTEES

Yawkey Foundation I

William B. Gutfarb

John L. Harrington, *Chairman*

Justin P. Morreale

Yawkey Foundation II

Maureen H. Bleday, *CEO*

Dr. Vanessa Calderon-Rosada

Charles I. Clough

William B. Gutfarb

Rev. Dr. Ray Hammond

John L. Harrington, *Chairman*

James P. Healey

Debra M. McNulty

Dr. Myechia Minter-Jordan

Justin P. Morreale

George P. Neble

Judy Walden Scarafile

SOUTH CAROLINA DEPARTMENT OF NATURAL RESOURCES

Department of Natural Resources Board

Norman F. Pulliam, *Chairman*

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Freshwater Fisheries*

Billy Dukes, *Chief of Wildlife*

Sam Chappellear, *Assistant Chief of Wildlife*

Alicia Farrell, *Region IV Coordinator*



OUR MISSION

Continue the legacy established by Tom and Jean Yawkey of conducting waterfowl, wetlands and wildlife management activities supported by natural resources research and providing unique educational opportunities by interpreting the property's diverse cultural and natural history.





INTRODUCTION

The last few years have certainly been challenging to say the least. Every year since 2016, the Tom Yawkey Wildlife Center has been impacted by a direct landfall or the associated flooding from at least one hurricane. Hurricane Dorian made a visit in 2019 and Hurricanes Isaias and Beta in 2020. The historic flooding and tidal events have made routine property management nearly impossible for weeks at a time. If that was not enough, the global Covid-19 pandemic started in March 2020 and has impacted every aspect of how we carry out our jobs. In person operations were suspended for a period of time. Educational efforts had to be suspended and are yet to fully return to normal. I am very proud to say the Tom Yawkey Wildlife Center staff and partners have risen to the occasion at every opportunity as we carry out the daily mission of managing this precious natural resource. You will see their dedication on every page of this report.

Jamie Dozier
Tom Yawkey Wildlife Center Project Leader

HISTORY

Considered one of the most outstanding gifts to wildlife conservation in North America, the Tom Yawkey Wildlife Center includes North, South, Sand and Cat Islands. These coastal islands located at the mouth of Winyah Bay in Georgetown County total approximately 24,000 acres of marsh, managed wetlands, longleaf pine forests, beaches and maritime forests. The property was willed to the South Carolina Department of Natural Resources in 1976 by the late Thomas A. Yawkey to be utilized as a wildlife preserve, waterfowl preserve and research area. Not only did Mr. Yawkey bequeath the land, but he also established a trust for the perpetual operation of the Tom Yawkey Wildlife Center by way of the The Yawkey Foundation. Mr. Yawkey was specific in his wishes regarding the overall utilization of the area and charged the The Yawkey Foundation Trustees to see the area was treated as a gift to wildlife and not for generalized public recreation. All expenses for the operation of the Tom Yawkey Wildlife Center are paid by The Yawkey Foundation. In 1977 the property was dedicated as a Heritage Preserve under the South Caroline Heritage Trust Program.

The property is managed for a wide variety of wildlife including game, non-game and endangered species. There are 30 managed wetlands providing over 3,000 acres of habitat for waterfowl, wading birds and shorebirds. The 14 miles of protected beach is home to the federally protected species of loggerhead sea turtles, red knots and sea beach amaranth. There are over 7,000 acres of longleaf pine habitat that is home to the federally endangered red-cockaded woodpecker.

The Tom Yawkey Wildlife Center also hosts an active natural resources research program with over 100 research projects conducted on the property since the 1980's. In 2013 a partnership was developed with the Clemson University Baruch Institute of Coastal Ecology and Forest Science to help coordinate the research programs. There are numerous active projects with participation from various universities and other partners including the Savannah River Ecology Laboratory, Belle Baruch Foundation, Nemours Wildlife Foundation and the James C. Kennedy Waterfowl and Wetlands Center.

Education is an important part of the mission of the Tom Yawkey Wildlife Center and the provides an opportunity to bring researchers, educators, land managers, students and the public together with in-depth educational visits. Our goal is to educate individuals on the legacy of Tom and Jean Yawkey, the cultural richness and diverse natural history of the lands that make up the Tom Yawkey Wildlife Center, and the current wildlife management and research activities taking place.

THOMAS AUSTIN YAWKEY and JEAN HOLLANDER YAWKEY

Thomas Austin Yawkey was born in 1903 in Detroit, Michigan to Thomas and Augusta Yawkey Austin. When Tom was just seven months old, his father died and Tom's mother moved with him and his sister to New York City to be near her brother, William Yawkey. Tom was raised and educated in the New York City area, but sadly by the age of 16, both his mother and his uncle William died of the Spanish Flu. Tom was left in the care of guardians and was heir to a considerable fortune that had been accumulated by the Yawkey family through lumber, mining, and oil industries throughout the Midwest over the prior century. Tom continued his education, attending Yale University where he graduated cum laude in 1925 with a degree in Engineering. The experiences and losses during Tom's early life shaped him into a man who deeply valued family, friendships and loyalty, and paved the way for a lifetime dedicated to sharing his vast resources with individuals, families and communities that he felt could use a helping hand. Jean Remington Hollander was born in 1909 in Brooklyn, New York and was raised and educated in Freeport, New York on Long Island. Always a hard worker, Jean moved to New York City after graduating from high school and started her career as a model and salesperson in a New York City fashion house and actively volunteered with the Red Cross during World War II. Tom and Jean married in 1944 in Georgetown, South Carolina.



In 1914, Tom's uncle, William Yawkey, purchased interest in land along the shoreline in Georgetown County, South Carolina. Tom visited Georgetown frequently as a child and developed a great love of the outdoors and wildlife. Upon his uncle's death, Tom inherited this land and in 1925, bought out most of the surrounding owners for the purposes of preserving the land as



a wildlife refuge. Though Tom lived in both New York City and Boston, he spent his winters in Georgetown and developed a great love for the community and its natural resources. Tom was an avid outdoorsman and self-taught ornithologist, and carefully managed this special place through his own conservation practices, producing an area reserved for waterfowl, sea turtles, alligators, and other wildlife. Upon his death in 1976, Tom donated this land to the South Carolina Department of Natural Resources and established a perpetual endowment fund to ensure the continued maintenance and upkeep of the vast property. Now encompassing more than 24,000 acres, the Tom Yawkey Wildlife Center is considered to be one of the most outstanding grants to wildlife conservation efforts in North America. The area provides world-renowned research and education programs through its marshes, marine wetlands, forests, and sandy beaches, which play host to hundreds of species of coastal wildlife and serve as undisturbed habitat for migratory waterfowl, bald eagles, alligators, and several endangered species.

In early 1933, Tom Yawkey purchased the Boston Red Sox. At that time, the Red Sox were among the worst teams in baseball, having losing records in each of the prior 14 seasons. The team's home, Fenway Park, was rundown and in disrepair due to lack of investment. Tom Yawkey loved the game of baseball and invested heavily in both rebuilding the team and Fenway Park. Tom hired hundreds of workers, laboring around the clock, in order to have Fenway Park ready for opening day in April 1934. Tom's commitment to the City of Boston, and to providing work opportunities for hundreds of people in the middle of the Great Depression, was widely praised. Fenway Park and the Boston Red Sox became one of Boston's most prized jewels during Tom Yawkey's four decades as Owner/President (1933 to 1976). He also served as Vice-President of the American League of Major League Baseball from 1956 to 1973. For his outstanding contributions to the game of baseball, Tom Yawkey was posthumously inducted into the National Baseball Hall of Fame in 1980.

Tom Yawkey's reputation was as a private and generous man who gave freely of his time and money to people and organizations in need. He often helped people directly with private gifts to support medical, college, and other expenses – typically with the stipulation that his gifts were to be anonymous. Whether through providing funding to establish a much-needed hospital in rural Georgetown, SC in 1945, or quietly supporting the early research of a local doctor focused on cancer research, Dr. Sidney Farber, and ultimately designating the Dana Farber Cancer Institute's "Jimmy Fund" (the official charity of the Boston Red Sox) in 1953, Tom is fondly remembered by those who knew him – former players, employees, and friends – as a man who lived by his personal motto, "Do What is Right. Do it Quietly. And Don't Expect Praise for being Kind."

After marrying Tom Yawkey in 1944, Jean dedicated her life to their ownership of the Boston Red Sox and to improving the communities in which she and Tom lived, ensuring a legacy that both employees and fans would be proud of. Following her husband's death in 1976, Jean Yawkey became the majority owner and general partner of the Boston Red Sox and followed Tom's wishes and objectives regarding the management of the team. Jean knew that Tom always strove to produce a team that Red Sox fans would be proud to call their own. Over the twenty-five years that Jean Yawkey ran the Boston Red Sox, the team won more games than any of the other teams in baseball, aside from the New York Yankees. Jean became a Director of the National Baseball Hall of Fame in Cooperstown and holds the distinction of being the first woman ever elected to serve on the Hall of Fame's board. In honor of her role in baseball, Jean has a place of pride at the Museum as a part of the permanent exhibit, "Diamond Dreams: Women in Baseball." She was also instrumental in guiding the early vision of the newly formed Tom Yawkey Wildlife Center

MANAGEMENT



MANAGEMENT HIGHLIGHTS

- Five rice trunk water control structures and a spillway were constructed and installed in managed wetlands around the property.
- Staff sprayed 810 acres of the invasive exotic plants common reed with approved aquatic herbicides.
- During 2019, prescribed fire was applied to 2,363 acres of longleaf pine. Covid 19 restrictions and a statewide burn ban only allowed prescribed fire on 450 acres during 2020.
- Ninety acres of wildlife openings were planted during the fall of 2019 and 2020.
- 171 red-cockaded woodpecker cavity trees in 17 clusters were monitored and prepared for prescribed burning by clearing surrounding fuels with hand tools.
- Considerable time and effort were spent on the maintenance of roads and dikes during this period of extremely wet conditions and hurricane impacts.
- 1,800 feet of managed wetland dikes were raised and repaired.
- The Lower Reserve Managed Wetland Restoration Project required the construction of 3,300 feet of new set-back dike.
- Two grants from the National Park Service and South Carolina Department of Archives and History totaling \$407,978.00 were awarded for archaeology projects.
- The United States Fish and Wildlife Service Coastal Programs awarded a grant for \$22,000.00 for the enhancement of water control capabilities for black rail habitat conservation.
- A grant from the South Carolina State Wildlife Grants for \$49,800.00 to investigate the Habitat Use and Breeding Ecology of Bachman's Sparrow in a Wiregrass-Free Longleaf Pine Ecosystem in South Carolina
- The South Carolina Native Plant Society awarded a \$1,000.00 grant for the control of exotic invasive species near the critically rare plant Carolina Hedge nettle.
- The new 4,800 square foot Mechanic Shop was completed on South Island.



LOGGERHEAD SEA TURTLE MANAGEMENT

Interest in loggerhead sea turtle nesting at the Tom Yawkey Wildlife Center began in the late 1960's when the islands were still owned by Tom Yawkey. Several years of nesting data was collected by close friend Thomas Samworth. The first systematic nesting surveys began on South Island in 1977. Since that time, the South Island beach has served as one of three index beaches for the State of South Carolina. In 2009 the Sand Island beach was added to the nesting survey. Seasonal staff conduct daily sea turtle patrols during nesting and hatching seasons on South and Sand Islands. Nests are located and screened to prevent predation. Any nest in danger of being inundated is relocated to a suitable position higher up the beach. A minimum of 25% of nests are inventoried after hatching to determine hatch success. Due to its remote location, North Island was not routinely surveyed on the ground for nesting activity until 2011. From 1980-2010, aerial surveys were flown in South Carolina to document statewide nest counts. In 2011 beach patrols by a group of dedicated volunteers started three days a week to document nesting activity.



LOGGERHEAD SEA TURTLE NESTING HIGHLIGHTS

- In 2019, 1,013 nests on South, Sand and North Islands combined that were laid by 374 individual females. This is the highest ever recorded nest totals for the Tom Yawkey Wildlife Center.
- 37,170 eggs were laid.
- 16,379 hatchlings emerged from the nests.
- In 2020, 859 nests on North and South Islands combined that were laid by 151 individual females. Sand Island was not surveyed due to staff shortages related to COVID-19
- 16,011 eggs were laid.
- 3,657 hatchlings emerged from the nests.
- Unfortunately the hatching success was very poor (<30%) due to flooding loss from early hurricanes.
- Increased predation by coyotes also impacted survival.



SURVEY



SURVEY AND MONITORING HIGHLIGHTS

Inventories of species or particular habitat types are essential data sets for effectively targeting conservation efforts, formulating management policies, prioritizing research, and designing appropriate monitoring protocols. Baseline surveys are necessary to document the presence and abundance of species on the Tom Yawkey Wildlife Center and subsequently identify conservation and research needs. There are currently 18 routine long-term surveys that take place on the Tom Yawkey Wildlife Center ranging from point counts to line transects. A few highlights are:

- 171 red-cockaded woodpecker cavity trees were “peeped” utilizing a wireless digital camera system. This method allows for safer monitoring for the birds and staff conducting the surveys.
- Monthly waterfowl and wading bird point counts were conducted within the managed wetlands.
- Weekly shorebird utilization censuses were conducted within the managed wetlands during peak spring and fall migration periods. High count days were over 14,000 individuals of 16 species.
- Two bobwhite quail calling cock count transects were conducted on Cat Island.
- Four alligator spotlight transects were conducted annually during the various seasons.
- The 13 mile white-tailed deer spotlight transect was conducted for the 37th consecutive year.
- Furbearer track plot counts were conducted around the managed wetlands, front beach and longleaf pine stands.
- Camera traps detected black rail nesting activity in several managed wetlands.

CAROLINA HEDGE NETTLE PROJECT

The Carolina hedge nettle (*Stachys caroliniana*) is one of the world’s rarest plants. It was identified in 1990 and has only two known populations. The largest population is located on the Tom Yawkey Wildlife Center in an area less than 0.2 acres in size on Cat Island. Initially it had less than 500 individual plants. In 2017 and 2019 hand clearing was utilized to remove competing vegetation immediately around the plants. The plants responded and a survey in May of 2019 found 1,464 plants. In addition to clearing around the existing plants, work is taking place in nearby unoccupied habitat with hope to establish additional populations in the future.

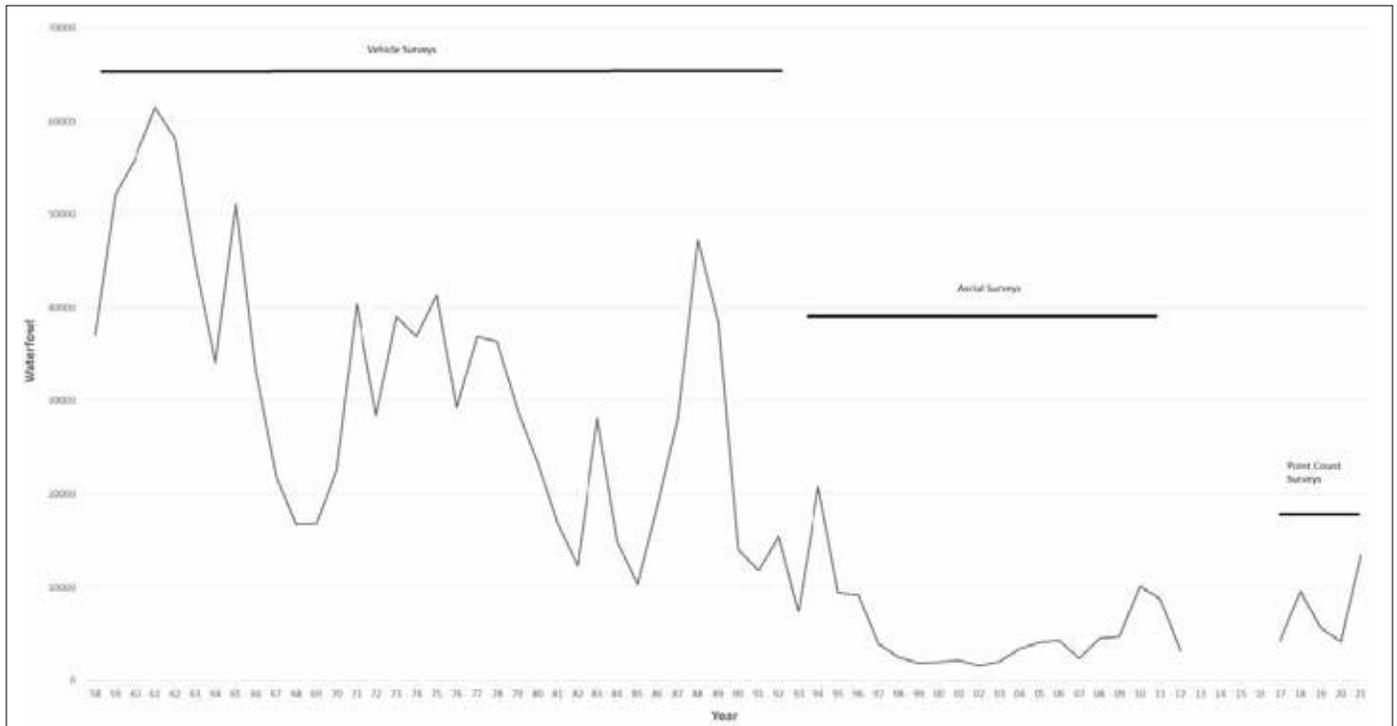
Tom Yawkey Wildlife Center staff also worked with horticulturists at Brookgreen Gardens in Georgetown County to establish a greenhouse population. Cuttings were planted at the botanical gardens and will be used for future research on the best techniques for propagating this plant.

WATERFOWL AND WADING BIRD SURVEYS

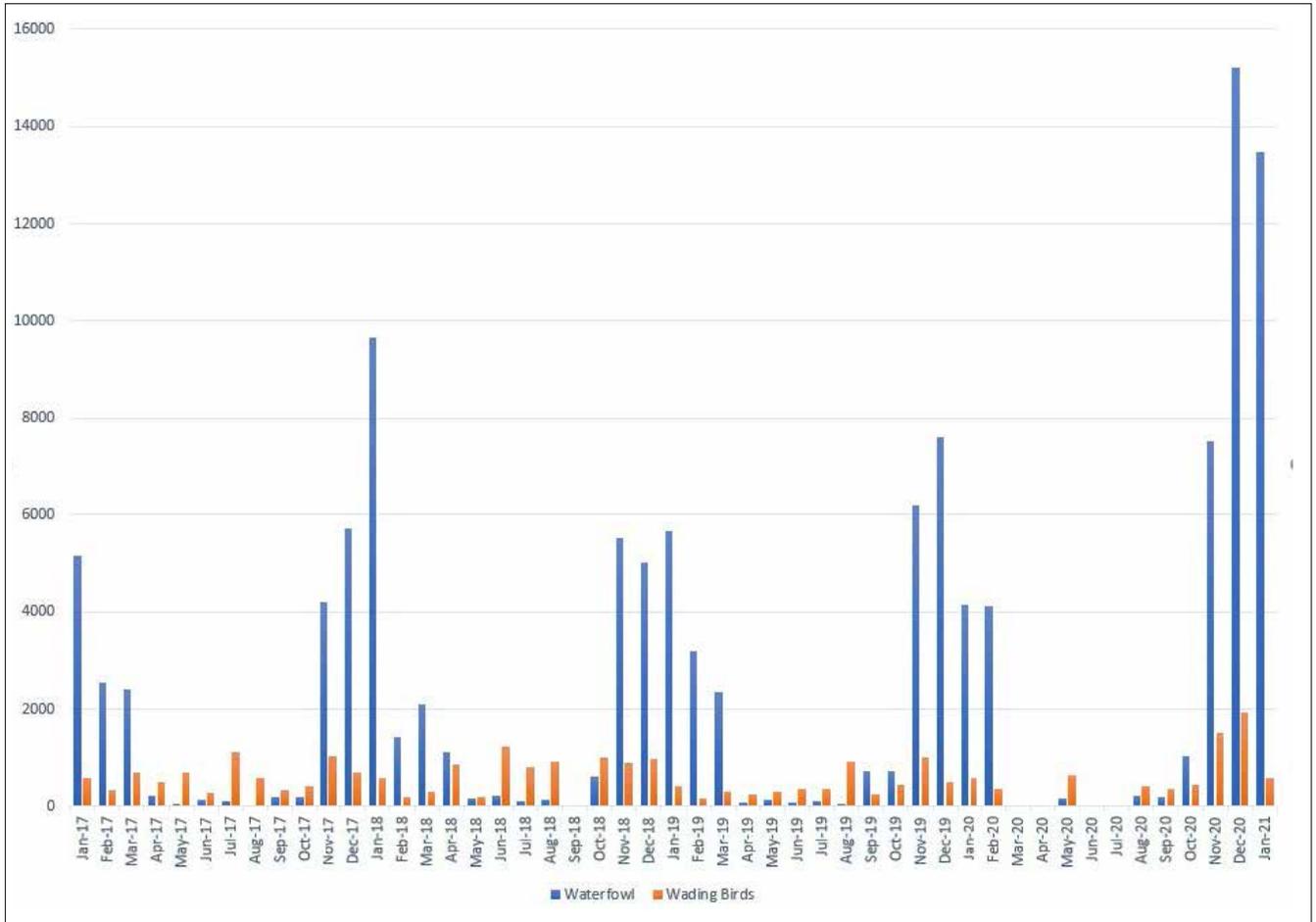
The number of waterfowl utilizing the managed wetlands at the Tom Yawkey Wildlife Center has always been of interest to wildlife managers and landowners. Waterfowl surveys have been conducted on the property since 1958. The initial surveys were driving surveys done in January each year. The count participants would attempt to count all birds located within the managed wetlands over a one or two day period. That method was replaced by the mid-winter aerial surveys in 1993. This technique used a pilot and observer to fly over locations and count individuals from the air. In 2012 the mid-winter surveys were discontinued. No formal surveys took place until 2017 when a point count survey was developed for the property. This technique establishes permanent points at each managed wetland where an observer counts all the waterfowl visible. While this is not a complete census of the ponds, it does provide a consistent and statistically valid technique for comparing survey numbers. In addition to waterfowl, a suite of other wading and water birds were added to the point count surveys.

Although it is difficult to make conclusive comparisons to the number of wintering waterfowl over the years due to the various techniques used, there is an obvious downward trend since 1958. The high count was 62,000 waterfowl in 1961 and the low was 2,100 in 2002. It is encouraging to note an upward trend in total numbers since 2007.

January Waterfowl Counts 1958-2021



WATERFOWL AND WADING BIRD POINT COUNTS 2017-2021



OUTREACH AND EDUCATION



OUTREACH AND EDUCATION HIGHLIGHTS

The mission of the Outreach and Education program at the Tom Yawkey Wildlife Center is to educate individuals on the legacy of Tom and Jean Yawkey, the cultural richness and diverse natural history of the property, and the current wildlife management and research activities through minimally impactful guided interpretive visits. The Tom Yawkey Wildlife Center provides an opportunity to bring researchers, educators, land managers, students and the public together for programs. This ability to control access and provide a knowledgeable guide allows more in-depth tours and a one-on-one experience with the natural resources. The Covid-19 pandemic severely impacted the educational opportunities in 2020. All visitation was suspended in March. We are hopeful that conditions will allow a resumption of these activities in the near future. Outreach and education highlights prior to the closure include:

- Conducted guided educational field trips for 265 groups.
- Conducted 42 public presentations to groups at locations other than the Tom Yawkey Wildlife Center.
- Hosted 39 class labs for students from various colleges including Horry-Georgetown Technical College, Clemson University, Wofford College, and North Carolina State University.
- Mentored 14 students from Horry-Georgetown Technical College as interns. These interns logged over 5,500 hours working with Tom Yawkey Wildlife Center staff.
- Staff produced 55 posts on Facebook and 31 posts on Instagram that had over 208,000 views. The Tom Yawkey Wildlife Center Facebook page currently has 3,573 followers.
- Guided various Eagle Scout projects including the establishment of a bluebird box trail and installation of purple martin nest houses.



RESEARCH



CLEMSON UNIVERSITY RESEARCH PARTNERSHIP

The last two years were an exciting and productive time for the Tom Yawkey Wildlife Center (YWC)-Clemson University Baruch Institute of Coastal Ecology and Forest Science (CU-BICEFS) Wildlife Research Program. Our primary goals since the inception of the program have been to remain highly productive with our ongoing wildlife research projects; disseminate the results of our work to a variety of audiences; provide educational opportunities for students, scientists, and the public; and maintain and create collaborative relationships with a diversity of partners. Despite many challenges associated with the COVID-19 pandemic in 2020, the collective effort of our team, collaborators, and partners during this time allowed us to adapt to these challenging conditions, keep our projects on track, and accomplish our goals. From a research perspective, we collaborated on over 20 different wildlife research projects, including 13 at YWC, four in other areas of the South Carolina coastal plain, and five abroad (Belize, Lao PDR, Myanmar, South Africa). These projects focused on the biology, ecology, and ecotoxicology of a variety of wildlife species including alligators, crocodiles, turtles, snakes, bobcats, and birds. Hand in hand with our research efforts, we continued to actively share our research findings with the public, publishing 29 peer-reviewed scientific papers, including eight associated with research conducted at YWC, and making numerous presentations on wildlife biology, conservation, and management to a variety of audiences (e.g., scientists, students, public).

During 2019-2020, we were also able to maintain momentum with our education and outreach endeavors. We and our colleagues continued to mentor several graduate students on their Ph.D. and M.S. research projects involving alligator ecology and ecotoxicology, many of which were or continue to be conducted on YWC. We also hosted and mentored undergraduate students from multiple universities who had the opportunity to work as summer interns on various wildlife projects at YWC. And, despite restrictions related to COVID-19, we continued to safely provide field trips and research opportunities at YWC to both local and visiting scientists and students.

Finally, we continued working with over 40 of our academic, private, and governmental partners to implement collaborative projects in wildlife research and conservation at YWC, across the South Carolina coastal plain, and beyond. Through all these activities, we were able to maintain long-term research, initiate novel research projects, mentor students, educate and provide unique experiences for the public, and create and strengthen collaborations with numerous partners, all of which continued setting the foundation for continued success in wildlife research at YWC/CU-BICEFS.

The following pages of this report highlight many of our recent and ongoing wildlife research projects at YWC. We are grateful to our staff, collaborators and partners for their continued expertise and support, particularly during a tumultuous 2020, and greatly look forward to new and continued collaborations, stimulating learning experiences, and exciting scientific discoveries in 2021.

Thomas Rainwater, PhD, Research Coordinator
Tom Yawkey Wildlife Center and Clemson University Baruch Institute of Coastal Ecology and Forest Science

PEER-REVIEWED PUBLICATIONS

Mating Dynamics and Multiple Paternity in a Long-Lived Vertebrate

Joshua Zajdel^{1,2}, Stacey L. Lance², Thomas R. Rainwater^{3,4}, Philip M. Wilkinson⁴, Matthew D. Hale^{1,2}, Benjamin B. Parrott^{1,2}. 2019. *Ecology and Evolution*, 9: 10109-10121.

¹ Odum School of Ecology, University of Georgia, Athens, GA

² Savannah River Ecology Laboratory, Aiken, SC

³ Tom Yawkey Wildlife Center Heritage Preserve, South Carolina Department of Natural Resources, Georgetown, SC

⁴ Belle W. Baruch Institute of Coastal Ecology and Forest Science, Clemson University, Georgetown, SC

Multiple paternity is relatively common across diverse taxa; however, the drivers and implications related to paternal and maternal fitness are not well understood. Several hypotheses have been offered to explain the occurrence and frequency of multiple paternity. One set of hypotheses seeks to explain multiple paternity through direct and indirect benefits including increased genetic diversity or enhanced offspring fitness, whereas another set of hypotheses explains multiple paternity as a by product of sexual conflict and population specific parameters such as density. Here, we investigate mating system dynamics in a historically studied population of the American alligator (*Alligator mississippiensis*) in coastal South Carolina. We examine parentage in 151 nests across 6 years and find that 43% of nests were sired by multiple males and that male reproductive success is strongly influenced by male size. Whereas clutch size and hatchling size did not differ between singly sired and multiply sired nests, fertility rates were observed to be lower in multiply sired clutches. Our findings suggest that multiple paternity may exert cost in regard to female fitness, and raise the possibility that sexual conflict might influence the frequency of multiple paternity in wild alligator populations.

Attack and Probable Predation on Ghost Crab by Red-Shouldered Hawk

Keith L. McCullough¹, Thomas R. Rainwater^{2,3}, Mark McAlister², Jamie Dozier², Steven Platt⁴. 2019. *The Wilson Journal of Ornithology*, 131(2): 399–402.

¹Charleston County Parks and Recreation Commission, Ravenel, SC

²Tom Yawkey Wildlife Center Heritage Preserve, South Carolina Department of Natural Resources, Georgetown, SC

³Belle W. Baruch Institute of Coastal Ecology and Forest Science, Clemson University, Georgetown, SC

⁴Wildlife Conservation Society, Myanmar Program, Yangon, Myanmar

Red-shouldered Hawks (*Buteo lineatus*) feed primarily on mammals, amphibians, and reptiles, but invertebrates also comprise a significant portion of the diet. The majority of invertebrates consumed are insects and crustaceans, with the latter represented to date only by crayfish. In 2016, we observed a Red-shouldered Hawk attack and dismember another crustacean, the ghost crab (*Ocypode quadrata*), on a coastal beach in South Carolina, USA. Actual consumption of the crab by the hawk was not observed but is probable. Consumption of ghost crabs by Red-shouldered Hawks is not unexpected, as these crustaceans are abundant within their range, active when hawks are foraging, and occur in open habitats (beaches and dunes) where they are more vulnerable to avian predators. To our knowledge, this is the first report of a Red-shouldered Hawk attacking and presumably consuming any species of crab and the first report of probable ghost crab predation by a raptor in North America.

Examining Toxic Trace Element Exposure in American Alligators

Frances M. Nilsen^{1,2}, John A. Bowden³, Thomas R. Rainwater^{4,5}, Arnold M. Brunell⁶, Brittany L. Kassim¹, Philip M. Wilkinson⁵, Louis J. Guillette Jr^{2, 1}, Stephen E. Long¹, Tracey B. Schock¹. 2019. *Environmental International*, 128: 324-334.

¹National Institute of Standards and Technology, Chemical Sciences Division, Hollings Marine Laboratory, Charleston, SC

²Medical University of South Carolina, Marine Bio-medicine and Environmental Science Program, Charleston, SC

³Center for Environmental and Human Toxicology, Department of Physiological Sciences, University of Florida, Gainesville, FL

⁴Baruch Institute of Coastal Ecology and Forest Science, Clemson University, Georgetown, SC

⁵Tom Yawkey Wildlife Center, South Carolina Department of Natural Resources, Georgetown, SC

Toxic trace element exposure occurs through release of the ubiquitous and naturally occurring elements arsenic (As), cadmium (Cd), lead (Pb), and mercury (Hg). The unique environmental conditions of the wetland ecosystems along the southeastern Atlantic coast of the United States lead to the accumulation of Hg which is greater than in most other ecosystems in the country. There are also point sources of As, Cd, and Pb in this region. To effectively monitor trace element concentrations, and consequently the potential human exposure, accessible local sentinel species are needed. In this study, concentrations of As, Cd, Pb, Hg and six other trace elements (Al, Ni, Cu, Zn, Se, Mo) were examined in American alligators (*Alligator mississippiensis*) from seven wetland sites in South Carolina and Florida and assessed for their utility as a sentinel species for human trace element exposure. Alligators were chosen as a potential sentinel as they share a common exposure with the local human population through their aquatic diet, and they are directly consumed commercially and through recreation hunting in this region. Sex was significantly related to the concentration of Zn, Mo, and Al, but not As, Pb, Hg, Cd, Se, or Cu. Site specific differences in element concentrations were observed for As, Pb, Hg, Cd, Se, Zn, and Mo. Size/age was significantly related to the element Hg and Pb concentrations observed. The observed concentration ranges for the four toxic elements, As (6–156 ng/g), Cd (0.3–1.3 ng/g), Pb (3–4872 ng/g), and Hg (39–2765 ng/g), were comparable to those previously reported in diverse human populations. In this region alligators are hunted recreationally and consumed by the local community, making them a vehicle of direct human toxic element exposure. We propose that the similarity in As, Cd, Pb, and Hg concentrations between alligators observed in this study and humans underscores how alligators can serve as a useful sentinel species for toxic element exposure.

A Reliable Bioindicator of Anthropogenic Impact on the Coast of South Carolina

Mustafa R. Gul¹ and Blaine D. Griffen². 2019. *Southeastern Naturalist*, 17(2): 357-364.

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Sandy beaches are frequently visited for recreational purposes. Although such recreational activities are economically beneficial, they cause disturbances to these habitats. Every ecosystem has unique properties; thus, ecosystem-specific species are often used as bioindicators of human disturbances. Here, we pioneer the use of an indirect burrow-counting technique on 20 sandy South Carolina beaches that experience different levels of human disturbance. Our results show that *Ocypode quadrata* (Atlantic Ghost Crab) is a reliable bioindicator of human disturbance on sandy beaches in South Carolina. The burrow density and width declined significantly as human disturbance increased. We also report that females outnumber males in highly disturbed sites. We conclude that the indirect burrow-counting technique employed in this study could minimize the cost and the effort of determining the human disturbances on coastal regions.

Impacts of Human Disturbance on Ghost Crab Burrow Morphology and Distribution on Sandy Shores

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Ghost crabs have been widely used as a bio-indicator species of human impacts on sandy beaches to obtain reliable biological data for management and conservation purposes. Ghost crab population densities and individual sizes decline dramatically under human pressure. However, distribution within a beach and the factors that determine this distribution of ghost crabs is still an open question. These factors may provide valuable information for understanding human impacts on sandy beaches. Here we examine ghost crab burrows on 20 sandy beaches of South Carolina, USA under various levels of human impacts to understand the response in terms of spatial distribution of this species to human impacts. We also examine the burrow characteristics and environmental properties of the burrows to determine whether these factors alter burrow characteristics. We show that crabs on heavily impacted beaches altered their spatial distribution to mostly occupy the edges of impacted beaches. Further, this change in spatial distribution was influenced by the size distribution of the population on a beach (i.e. larger individuals occupy upper parts on the beaches). We also found that ghost crabs altered the morphology of their burrows on heavily impacted beaches. Ghost crabs create deeper, steeper and smaller burrows under human impacts. These patterns were also influenced by physical characteristics of the beach. Our results suggest that human impacts can directly influence the spatial distribution of ghost crab populations within a beach and therefore sampling at upper parts of the beaches overestimates the population density and individual sizes. Our results support the use of ghost crabs as indicator species in effective beach management, but suggest that assessments would benefit from examining the morphology and distribution of burrows as opposed to simply using burrow counts to assess the health of sandy shores.

Nonlinear Patterns in Mercury Bioaccumulation in American Alligators are a Function of Predicted Age

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Mercury is a widespread, naturally occurring contaminant that biomagnifies in wetlands due to the methylation of this element by sulfate-reducing bacteria. Species that feed at the top trophic level within wetlands are predicted to have higher mercury loads compared to species feeding at lower trophic levels and are therefore often used for mercury biomonitoring. However, mechanisms for mercury bioaccumulation in sentinel species are often poorly understood, due to a lack of long-term studies or an inability to differentiate between confounding variables. We examined mercury bioaccumulation patterns in the whole blood of American alligators (*Alligator mississippiensis*) from a long-term mark-recapture study (1979–2017) in South Carolina, USA. Using a growth model and auxiliary information on predicted age at first capture, we differentiated between age- and size-related variation in mercury bioaccumulation, which are often confounded in alligators due to their determinate growth pattern. Contrary to predictions that the oldest or largest individuals were likely to have the highest mercury concentrations, our best-supported model indicated a peak in mercury concentration at 30–40 years of age, depending on the sex, and lower concentrations in the youngest and oldest animals. To evaluate the robustness of our findings, we re-analyzed data from a previously published study of mercury in alligators sampled at Merritt Island National Wildlife Refuge in Florida. Unlike the South Carolina data, the data from Florida contained minimal auxiliary information regarding age, yet the best supported model similarly indicated a peaked rather than increasing relationship between mercury and body size, a less-precise indicator of age. These findings highlight how long-term monitoring can differentiate between confounding variables (e.g., age and size) to better elucidate complex relationships between contaminant exposure and demographic factors in sentinel species.

Examining Maternal and Environmental Transfer of Mercury Into American Alligator Eggs

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American alligators are exposed to mercury (Hg) throughout their natural range and may maternally transfer Hg into their eggs. Wildlife species are highly sensitive to Hg toxicity during embryonic development and neonatal life, and information on Hg transfer into eggs is critical when attempting to understand the effects of Hg exposure on developing oviparous organisms. To examine Hg transfer in alligators, the objectives of the present study were to 1) determine Hg concentrations in yolk (embryonic and neonatal food source) from wild alligator eggs collected from three locations - Yawkey Wildlife Center SC (YWC), Lake Apopka FL (LA), and Lake Woodruff FL (LW); 2) examine the relationship between THg concentrations in wild alligator nest material and egg yolk at Merritt Island National Wildlife Refuge, FL; 3) examine the Hg concentrations in wild maternal female alligators (blood) and the THg in corresponding egg yolks and embryos across three nesting seasons at a single location (YWC), and evaluate the relationship between nesting female THg concentrations (blood) and their estimated age and number of nesting years (YWC); and 4) assess the transfer of biologically-relevant Hg concentrations (based on Hg measured in maternal female blood) into embryos using an egg-dosing experiment. Mean total Hg (THg) concentrations observed at each site were 26.3 ng/g \pm 11.0 ng/g (YWC), 8.8 ng/g \pm 5.1 ng/g (LA), and 22.6 ng/g \pm 6.3 ng/g (LW). No relationship was observed between THg in alligator nest material and corresponding yolk samples, nor between THg in maternal alligator blood and estimated age and number of nesting years of these animals. However, significant positive relationships were observed between THg in blood of nesting female alligators and THg in their corresponding egg yolk. We observed that 12.8% of the maternal blood THg is found in the corresponding egg yolk, and a highly significant correlation was observed between the two sample types ($r = 0.66$; $p < 0.0001$). The egg dosing experiment revealed that Hg did not transfer through the eggshell at developmental stage 19. Overall, this study provides new information regarding Hg transfer in American alligators which can improve biomonitoring efforts and may inform ecotoxicological investigations and population management programs in areas of high Hg contamination.

The Impact of Maternally Derived Dioxins on Embryonic Development and Hepatic AHR Signaling in a Long-Lived Apex Predator

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Dioxins and related contaminants are highly pervasive in aquatic systems and elicit deleterious effects in exposed organisms. Because dioxins exhibit a proclivity to bioaccumulate, long-lived predatory species are particularly vulnerable to their persistence in the environment. We have previously reported elevated expression of CYP1A2, a biomarker of dioxin exposure, in American alligator embryos collected from the Tom Yawkey Wildlife Center (YWC). This coastal population inhabits a system with historical dioxin contamination associated with industrial activities. Herein, we utilize ecological attributes of the alligator to address the persistence of dioxins and furans in yolk and their potential to drive changes in hepatic function. Specifically, we assess variation in expression of AHR signaling components in embryos and its connection to contaminant levels in matched yolk samples. Compared to a reference population, TEQ levels and total penta-, hexa-, octa-substituted CDDs were elevated at YWC. Contrary to predictions, TEQ levels were not significantly related to hepatic AHR1B or CYP1A2 expression. However, a significant association was detected between expression of both factors and embryo:yolk mass ratios, wherein decreasing embryo mass was negatively associated with CYP1A2 but positively associated with AHR1B. These findings suggest that variation in embryonic metabolism and developmental progression likely influence AHR signaling and dioxin toxicity in alligators and potentially other oviparous species. While dioxin concentrations observed in alligators in this study are lower than historical values reported for other wildlife species inhabiting this system, they indicate the continued presence and possible longterm influence of these contaminants in a high trophic status species.



Spatial and Temporal Variation in Nest Temperatures Forecasts Sex Ratio Skews in a Crocodylian with Environmental Sex Determination

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Species displaying temperature-dependent sex determination (TSD) are especially vulnerable to the effects of a rapidly changing global climate due to their profound sensitivity to thermal cues during development. Predicting the consequences of climate change for these species, including skewed offspring sex ratios, depends on understanding how climatic factors interface with features of maternal nesting behavior to shape the developmental environment. Here, we measure thermal profiles in 86 nests at two geographically distinct sites in the northern and southern regions of the American alligator's (*Alligator mississippiensis*) geographical range, and examine the influence of both climatic factors and maternally driven nest characteristics on nest temperature variation. Changes in daily maximum air temperatures drive annual trends in nest temperatures, while variation in individual nest temperatures is also related to local habitat factors and microclimate characteristics. Without any compensatory nesting behaviors, nest temperatures are projected to increase by 1.6–3.7°C by the year 2100, and these changes are predicted to have dramatic consequences for offspring sex ratios. Exact sex ratio outcomes vary widely depending on site and emission scenario as a function of the unique temperature-by-sex reaction norm exhibited by all crocodylians. By revealing the ecological drivers of nest temperature variation in the American alligator, this study provides important insights into the potential consequences of climate change for crocodylian species, many of which are already threatened by extinction.



Post-Transcriptional Mechanisms Respond Rapidly to Ecologically Relevant Thermal Fluctuations During Temperature-Dependent Sex Determination

Samantha L. Bock¹, Matthew D. Hale¹, Faith M. Leri^{2,3}, Philip M. Wilkinson⁴, Thomas R. Rainwater^{4,5} and Benjamin B. Parrott^{1,2}. 2020. *Journal of Integrative Organismal Biology*, Vol. 2.

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An organism's ability to integrate transient environmental cues experienced during development into molecular and physiological responses forms the basis for adaptive shifts in phenotypic trajectories. During temperature-dependent sex determination (TSD), thermal cues during discrete periods in development coordinate molecular changes that ultimately dictate sexual fate and contribute to patterns of inter- and intra-sexual variation. How these mechanisms interface with dynamic thermal environments in nature remain largely unknown. By deploying thermal loggers in wild nests of the American alligator (*Alligator mississippiensis*) over two consecutive breeding seasons, we observed that 80% of nests exhibit both male- and female-promoting thermal cues during the thermosensitive period, and of these nests, all exhibited both male- and female-promoting temperatures within the span of a single day. These observations raise a critical question—how are opposing environmental cues integrated into sexually dimorphic transcriptional programs across short temporal scales? To address this question, alligator embryos were exposed to fluctuating temperatures based on nest thermal profiles and sampled over the course of a daily thermal fluctuation. We examined the expression dynamics of upstream genes in the temperature-sensing pathway and find that post-transcriptional alternative splicing and transcript abundance of epigenetic modifier genes JARID2 and KDM6B respond rapidly to thermal fluctuations while transcriptional changes of downstream effector genes, SOX9 and DMRT1, occur on a delayed timescale. Our findings reveal how the basic mechanisms of TSD operate in an ecologically relevant context. We present a hypothetical hierarchical model based on our findings as well as previous studies, in which temperature-sensitive alternative splicing incrementally influences the epigenetic landscape to affect the transcriptional activity of key sex-determining genes.

Juvenile Tarpon Use of Natural and Managed Marsh Habitats in Coastal South Carolina

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We investigated juvenile tarpon (*Megalops atlanticus*) use of natural and managed habitats in coastal South Carolina by monitoring recruitment during July – November 2019 in the North Inlet estuary, Kiawah Island, and Tom Yawkey Wildlife Center Heritage Preserve. One hundred and two juvenile tarpon (36 – 333 mm standard length) were observed during July – November. Tarpon from natural marsh pools (North Inlet estuary; mean \pm SD = 65.4 \pm 20.2 mm) were smaller than those from managed impoundments (Kiawah Island and Yawkey Preserve; 253.9 \pm 41.6 mm), with no overlap in size across habitats throughout the study duration. Mean tarpon length was relatively constant throughout the study in marsh pools (65 mm SL), but mean tarpon length increased from 180 mm SL in August to 289 mm SL in October in managed impoundments. Peak catch-per-unit-effort occurred during August (marsh pools) into September (managed impoundments) across habitat types, and then declined as water temperatures decreased at the end of October into November. The absence of size overlap between habitats and increasing size of tarpon over time in marsh impoundments compared to the minimal change in length over time observed for marsh pools suggests tarpon are transient in marsh pools early in life, tarpon do not enter impoundments until reaching a certain size, small juvenile tarpon are cryptic in impoundments and larger juvenile tarpon are more susceptible to capture in those habitats, or a combination of these factors.



PROJECT REPORTS

Effects of Land Use on American Alligator Space Use and Resource Selection

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As part of a study investigating the influence of individual characteristics and anthropogenic landscapes on American alligator (*Alligator mississippiensis*) space use and resource selection, we tracked 45 alligators with GPS transmitters between April 2018 and May 2020 at seven study sites within the South Carolina coastal plain. At one of these sites, the Tom Yawkey Wildlife Center (YWC) in Georgetown County, we tracked two male alligators for approximately 2 years (722 and 761 days), two female alligators for approximately 1 year (333 and 391 days), and two male alligators for approximately 4 months (120 and 138 days). As a preliminary examination of space use patterns, we calculated 95% autocorrelated kernel density estimated home ranges to examine alligator space use within YWC. The largest range was 20.61 km² for a 2.4 m (total length) male alligator, which contained all or part of the ranges of the other tracked alligators. This alligator's range almost completely contained the ranges of a 2.9 m male alligator and a 2.3 m female alligator measuring 12.15 km² and 4.02 km², respectively. Within these three ranges, the alligators spent most of their time in Mosquito Creek (brackish tidal creek) and the South Lowndes swamp (freshwater impoundment). The range sizes for the remaining three alligators - a 2.2 m female, a 2.7 m male, and a 2.4 m male - were similar at 2.47 km², 2.98 km², and 3.88 km², respectively. Similar to other space use studies of crocodylians, these results suggest a high degree of variation in alligator movement behaviors within natural areas. In upcoming analysis of these data, we will investigate movement patterns and resource selection between alligators living in coastal golf course communities and protected natural areas, specifically examining movements of individuals between different areas within their range as well as the influence of alligator characteristics and season on movement and space use.



Generation of Monoclonal Antibodies Against American Alligator Immunoglobulin IgY: Antibody Responses Against Environmental Pathogens and Correlations with Select Body Condition Factors

Bailey M. Alston, MS Student (graduated 2019), Department of Biological Sciences, Clemson University

Little is known regarding the disease ecology of American alligators (*Alligator mississippiensis*), particularly their susceptibility to environmental pathogens or their potential role as environmental reservoirs for human pathogens. While it is generally accepted that alligators have robust levels of anti-microbial peptides that serve as a first line of defense against the many potential pathogens in their natural habitats, almost nothing is known about the ability of alligators to mount pathogen-specific antibody responses leading to long-term immunity. In addition, although molecular tools such as environmental polymerase chain reaction (PCR) can illuminate the presence of pathogens in alligator habitats, such approaches cannot inform us about alligator immune responses, if any. In this study, we purified immunoglobulin Y (IgY), the mature immune antibody type, from alligators and immunized mice to generate a highly specific monoclonal antibody (mAb) against this IgY. This mAb (mAb AMY-9) was then used to develop sensitive enzyme linked immunosorbent assays (ELISA) to in turn determine individual alligator IgY-specific antibody responses against *Escherichia coli*, *Vibrio parahaemolyticus*, *Vibrio vulnificus*, *Mycobacterium fortuitum*, and *Erysipelothrix rhusiopathiae*, each of which are known to be environmental pathogens. Blood samples for this study were collected from a total of 40 female and 32 male adult alligators at the Tom Yawkey Wildlife Center, South Carolina at various times during 2011, 2012, 2014, 2015, 2016, and 2017. We found that antibody titers against these pathogens were very robust during the years of 2011, 2014, and 2015 but very low in years 2016 and 2017. Some individuals exhibited high antibody titers against all 6 of the bacterial pathogens. Of note, one of the oldest alligators sampled (~68.6 years old) had the highest antibody titers of all animals examined. We were also able to compare antibody responses to allometric data including body length, tail girth, and body mass indices (BMI) to determine if there were any predictive correlations. Antibody responses against *S. agalactiae*, *M. fortuitum*, and *E. coli* correlated well with BMI. These data suggest that given a larger sample size, BMI calculations may be a key indicator of immune responses in alligators in South Carolina and throughout their range. While this study focused on select bacterial pathogens, the approaches developed in this study may be used on virtually any pathogen of interest to alligator biologists. As such, the development and characterization of mAb AMY-9 will allow novel approaches to understanding the disease ecology of American alligators and possibly other species of crocodylians.

Habitat Use and Breeding Ecology of Bachman's Sparrow in a Wiregrass-Free Longleaf Pine Ecosystem in South Carolina

Mikayla Thistle, MS Student, Department of Forestry and Environmental Conservation, Clemson University

Through much of its range, Bachman's Sparrow (*Peucaea aestivalis*) uses the wiregrass (*Aristida sp.*) dominant understory typical of longleaf pine (*Pinus palustris*) forest. The central South Carolina Coastal Plain, however, lies within the "wiregrass gap" where longleaf pine understories are absent of wiregrass and have greater shrub density. Habitat use of Bachman's Sparrow in this unique region has yet to be studied and declining Bachman's Sparrow populations necessitate a better understanding of habitat selection processes and population dynamics across regional habitat types. The objectives of this study are to (1) identify management treatments and landscape scale characteristics that Bachman's Sparrows select for home ranges, (2) identify vegetation characteristics that Bachman's Sparrows select for nest-sites, and (3) relate nest-site selection to nest success within a wiregrass-free ecosystem. In 2020 and 2021, we are conducting point count surveys at Tom Yawkey Wildlife Center and Santee Coastal Reserve to estimate Bachman's Sparrow abundance across upland pine habitat and relate forest characteristics including time since last burn, basal area, canopy closure, and hardwood density to home range selection. We are locating nests and comparing selected nest-site vegetation structure and species composition to available nest-sites. To determine if habitat selection in our study population is adaptive, we are monitoring nests, calculating daily survival rates, and relating nest-site selection to daily survival. As Bachman's Sparrow is adapted to frequently burned, ephemeral habitat, we expect that time since last burn will be the greatest predictor of home range selection. We also anticipate that Bachman's Sparrow will select home ranges with low canopy closure as light reaching the understory promotes grass growth. We expect that Bachman's Sparrow will select nest sites that mimic wiregrass understory structure, i.e. intermediate grass and woody vegetation density and patchy bare ground, despite differences in species composition. Finally, we predict that nest survival will be highest at nest-sites and home-ranges that have the highest probability of selection, providing evidence for adaptive selection. Our results will be used to inform region-specific management plans and restoration of degraded habitats, which also lack typical vegetation composition, to improve Bachman's Sparrow survival, recruitment, and nesting success.



Ecotoxicology and Diet of the American Alligator as a Function of Ontogenetic Shift and Prey Selection

Kristen Zemaitis, MS Student, Odum School of Ecology, University of Georgia

The American alligator (*Alligator mississippiensis*) is an apex predator that can accumulate heavy metals such as mercury (Hg) in high concentrations through prey consumption. While several studies have aimed to assess Hg presence in blood and tissue throughout their range, little is known about the ecological drivers of contaminant accumulation in alligators. The objective of this study was to address how ontogenetic dietary shifts interact with site-specific factors (e.g., freshwater vs. marine prey availability, trophic level of prey) to influence Hg accumulation. This study was conducted by obtaining blood samples and stomach contents of alligators at three locations to assess trends across unique habitat types: Okefenokee Swamp, GA (acidic blackwater), Jekyll Island, GA (developed barrier island), and the Tom Yawkey Wildlife Center, SC (undeveloped barrier island). In addition to Hg analysis, stable isotope analysis was conducted as an ecological tool for interpreting feeding relationships of organisms and determining food web connectivity. Specifically, stable isotope ratios of nitrogen-15 (^{15}N) have been used to estimate trophic position of organisms due to the predictable enrichment of ^{15}N in consumer tissues relative to their diet. We hypothesized a positive relationship between Hg, ^{15}N and size class that is modulated by ontogenetic dietary shifts and prey base specific to each location. The results of this study may provide evidence that varying levels of Hg in apex predators are directly related to dietary shifts and habitat, furthering the value of alligators as bioindicators of mercury in the locations they inhabit.



Factors Influencing Nest Attendance by Maternal Female American Alligators in Coastal South Carolina

Randeep Singh, MS Student, Department of Forestry and Environmental Conservation, Clemson University

Although many aspects of American alligator (*Alligator mississippiensis*) reproduction have been well-studied, little is known regarding nest attendance by maternal females and the site (physical) and environmental factors influencing this behavior. To address these data gaps, we placed automated game cameras at 25 alligator nests to examine maternal female nest attendance and associated behaviors at the Tom Yawkey Wildlife Center in coastal South Carolina during the 2019 nesting season. In addition, we collected several site and environmental measurements at each nest to explore the factors influencing alligator nest attendance. Site factors examined included distance from the nest to nearest water, salinity of nearest water, distance of the nest to the nearest tree line, distance of the nest to the nearest road, vegetation density around the nest site, canopy cover, and presence/absence of a guard hole. Environmental factors measured included time of day/night, week of incubation, ambient air temperature, and rainfall. Over 2.4 million photographs were taken at alligator nests and examined for patterns of female alligator nest attendance. Data from these photographs as well as corresponding site and environmental measurements are currently being analyzed to assess when and how female alligators attend their nests during the 9-week incubation period and what factors drive this behavior.

American Alligator Nests in Coastal South Carolina: Associated Fauna and Factors Influencing Presence of a Nest Predator

Randeep Singh, MS Student, Department of Forestry and Environmental Conservation, Clemson University

American alligators (*Alligator mississippiensis*) are generally considered to be “ecosystem engineers” because their modification of habitats provides opportunities for feeding, drinking, breeding, and other vital life activities to a wide variety of other animals. However, few empirical data are available supporting this contention. In addition, raccoons (*Procyon lotor*) are the primary predators of alligator nests throughout the southeastern U.S., but information regarding the site and environmental factors influencing their presence at alligator nest sites is scant. To address these data gaps, we placed automated game cameras at 25 alligator nests at the Tom Yawkey Wildlife Center in coastal South Carolina to record and identify fauna associated with nests. We also collected multiple measurements at nest sites to examine site and environmental factors influencing the presence of raccoons at alligator nests. Site factors examined included distance of the nest to nearest water, salinity of nearest water, distance of the nest to the nearest tree line, and distance of the nest to the nearest road. Environmental factors measured included time of day/night, week of incubation, ambient air temperature, and rainfall. Preliminary data from approximately 2.4 million photographs examined indicate a total of 70 wildlife species (68 vertebrates, 2 invertebrates) including 40 birds (57.14%), 10 mammals (14.28%), 15 reptiles (21.43%), 3 amphibians (4.29%), 1 crustacean (1.43%), and 1 insect (1.43%) present at alligator nests. These organisms used nests or nest sites for a variety of life functions, including foraging, feeding, basking, traveling, nesting, burrowing, and possibly breeding. Data from site and environmental measurements are currently being analyzed to assess factors affecting raccoon visits to alligator nests.



Integrating Counts from Aerial and Ground Surveys to Estimate Densities of Waterfowl

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Monitoring data can be challenging to incorporate into models for statistical and ecological inference as spatio-temporal scales and data quality may vary. Surveys to monitor waterfowl are particularly challenging in that waterfowl are highly mobile and occur throughout multiple ecoregions during different portions of their life cycle. Given their mobile nature, waterfowl in the U.S. are typically monitored based on continent-wide monitoring or surveying efforts (e.g., Waterfowl Breeding Population and Habitat Survey). While important for understanding population-level changes, supplemental monitoring is still needed to understand habitat use and population dynamics of waterfowl during the non-breeding season at the flyway and state level. Given methods for monitoring waterfowl at these finer spatial scales, opportunities exist to combine multiple data sources to better inform population estimates and habitat relationships. The goal for our project was to combine count data from aerial surveys with ground-based surveys to better estimate abundance of waterfowl along the lowlands of South Carolina. We conducted ground count and aerial surveys at the Tom Yawkey Wildlife Center, South Carolina in January and February 2019. Our data integration model provided more precise estimates of abundance while correcting for detection probability. We also compare abundance estimates based on visibility correction factors between ground and aerial surveys with abundance estimates from our integrated model. Lastly, we describe how additional information from other data sources (e.g., banding data or nest monitoring) could be incorporated into the model for additional inference.



Influence of Alligator Nesting on Plant Decomposition, Nutrient Movement, and Biodiversity in Coastal South Carolina Wetlands

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American alligators (*Alligator mississippiensis*) are large reptiles ranging throughout the southeastern U.S. These animals are often referred to as ecosystem engineers because they construct nests, holes, dens, and pathways in wetlands, potentially modifying these habitats in ways that influence the diversity, abundance, life history, and behavior of other plant and animal species. However, few empirical data are available supporting the alligator in this ecological role. We are currently investigating how alligator nest construction alters the physical environment of wetland habitats at the Tom Yawkey Wildlife Center in coastal South Carolina and the impact of this activity on ecosystem level processes such as plant decomposition and nutrient movement, as well as changes in biodiversity. In early-mid June, maternal female alligators construct nests by knocking down available vegetation with their head, limbs, and tail and heaping this material into a mound that can be 60-91 cm (2-3 feet) in height and 1.5-2.4 m (5-8 feet) across the base. During this process, a significant amount of vegetation is cleared and moved, often resulting in large openings (~12.8 m² on average at our study site) around the nest mound. Based on our preliminary work, during nest construction female alligators are moving approximately 17-35 kg (dry weight) of vegetation per nest. The warm, moist environment of the nest increases the decomposition rates of plant material therein, which in turn may increase or hasten nutrient availability to microorganisms, plants, and animals. This study aims to quantify these processes.

Exposure of American Alligators to Microplastics in Coastal South Carolina

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Microplastics are particles of plastic < 5 mm in size that enter the environment through a variety of primary and secondary sources. Pollution of estuarine and marine systems by microplastics is a global environmental concern, and many studies have documented the ingestion of microplastics in aquatic organisms including zooplankton, seabirds, fish, and marine mammals. Ingestion of microplastics may cause physical internal damage to wildlife and increase the uptake of organic and inorganic contaminants (e.g., pesticides, industrial chemicals) attached to microplastic particles. Microplastics have recently been detected in coastal South Carolina estuaries, creating concern for exposure of these pollutants in resident wildlife and humans. The purpose of this pilot study is to examine ingestion of microplastics by a top-level predator in coastal South Carolina, the American alligator (*Alligator mississippiensis*). In 2019 and 2020, alligator scat samples were collected from nest sites and other areas frequented by alligators in coastal South Carolina. We then developed a laboratory method to chemically digest and remove excess organic matter from these samples, and microplastics were isolated using density separation. Preliminary results indicate the presence of microplastics in alligator scat samples, most of which are fragments and fibers. Our continued work will focus on further quantifying microplastics in alligator scat and identifying the types of microplastics ingested by these animals.

THESES AND DISSERTATIONS

Effect of Controlled Burns on the Bacterial Community Composition Over Time at Four Sites on Cat Island at the Tom Yawkey Wildlife Center

Richard Thomas Pepple. 2019. MS Thesis, Clemson University, Clemson SC

Fire is known to be capable of disturbing the composition of soil microbial communities due to changes in soil chemistry post-fire. These fire based disturbances leave behind higher levels of inorganic nutrients and toxic byproducts from incomplete combustion. Ecosystems are seen to recover from these disturbances given enough time. To determine if the controlled burns utilized on Cat Island in Georgetown South Carolina caused a disturbance, and if so to track the recovery from that disturbance, samples were collected from Cat Island over the course of 12 months from 03/07/2016 – 03/06/2017 from four separate locations. Samples of the soil immediately prior to the controlled burn were collected and compared to those acquired immediately after those locations had cooled enough for sample collection purposes. To determine if there was an effect on the microbial communities from these controlled burns, DNA was extracted from each soil sample and used to measure the communities composition via 16S rRNA gene sequencing. The soil chemistry was also measured to compare to changes in the soil microbial communities. The specific measurements of soil chemistry included pH, soil moisture content, nitrate, ammonium, phosphorus, carbon and nitrogen. Examination of the changes in alpha diversity, beta diversity, and phylum level taxonomy of the microbial communities indicate that the severity of the fires that are utilized on Cat Island did not cause a large enough disturbance to the forest soil to create significant shifts in the microbial communities structure. The measurements of soil chemistry proved inconclusive as they did not appear to vary based on location of sampling, time of sampling, burn frequency of sampling location or time past burn. While the lack of change in relative abundance limits the inferences that can be made into the natural process of post-fire remediation that has evolved over time in forest ecosystems for recovering from fire-based disturbances, it does show that the management practices employed on Cat Island are not causing disturbances in the soil biology or chemistry that might prove detrimental to the ecosystems health.



A Test of the Use of Timber Wolf Urine to Reduce Coyote Depredation Rates on Loggerhead Sea Turtle Nests

Michael Wauson, 2019, MS Thesis, Winthrop University

Loggerhead sea turtles (*Caretta caretta*) are currently listed as vulnerable, with a decreasing population trend, by the International Union of Conservation of Nature. Over the past 4 years, coyotes (*Canis latrans*) have depredated 24.12% of loggerhead nests on the night they were laid on South Island beach at the Tom Yawkey Wildlife Center, near Georgetown, SC. That has resulted in an estimated 3,816 eggs lost each year between 2015 and 2018. Over that time, a South Carolina Department of Natural Resources Turtle Technician Team patrolled the beach at dawn every morning to cage and catalog loggerhead eggs and nests but were unable to cost-effectively protect the nests the night the eggs were laid. To test a new method to dissuade coyote depredation, we used dispensers filled with wolf urine to simulate timber wolf (*Canis lupus*) activity on 7 sections of the beach and left 7 sections untreated as controls. We observed a significant depression in depredation rates where urine was present relative to control areas. The results suggest this may be an example of exploitative competition in the absence of interference competition. Furthermore, kairomones in the wolf urine might allow exploitative competition to exist even when coyotes have not been exposed to wolves for many generations. With daily teams patrolling the beaches already, using wolf urine as a deterrent could be an inexpensive, non-invasive way to reduce coyote depredation on loggerhead nests elsewhere.

Humoral Immune Responses to Select Bacterial Pathogens in the American Alligator

Bailey M. Alston, 2019, MS Thesis, Clemson University

The American alligator, *Alligator mississippiensis*, is widely distributed and abundant throughout the south-eastern United States. Despite their abundance, these reptiles have not been examined for their role in environmental pathogen distribution, as a sentinel for the presence of various pathogens, or other humoral immune responses in individuals from different habitats. This study investigates the humoral immune responses of alligators to select bacterial pathogens. Immunoglobulin Y (IgY), an immunoglobulin molecule found in amphibians, birds and reptiles, similar to IgG in higher vertebrates. IgY was purified from pooled alligator serum collected in coastal South Carolina. Mouse polyclonal antisera (pAb) was then generated against IgY to develop a sensitive ELISA to quantify serum antibody responses and relative titers. Serum samples from alligators collected from multiple localities in Florida were screened for bacteria-specific antibodies to the following nine aquatic bacteria: *Vibrio cholera*, *Escherichia coli*, *V. anguillarum*, *V. vulnificus*, *V. parahaemolyticus*, *Brevundimonas vesicularis*, *Mycobacterium marinum*, *Erysipelothrix rhusiopathiae* and *Streptococcus agalactiae*. C-reactive protein (CRP) is an ancient acute phase protein, participating in complement activation and opsonization of pathogens, and is usually indicative of relative levels of systemic inflammation. Alligator CRP was purified and used to generate a specific monoclonal antibody to develop ELISA-based approaches to semi-quantifying circulating CRP in individuals. Finally, serum lysozyme enzymatic activity was also quantified in individual samples. Humoral immune responses to various pathogens, along with CRP and lysozyme activity, may be correlated with environmental health. This study provides the first baseline data and proof of concept, to compare responses of wild alligators to pathogens throughout their distribution. This information will allow *A. mississippiensis* to be used as a sentinel of pathogen occurrence and environmental quality in future studies.

PROFESSIONAL PRESENTATIONS

Rainwater, T.R., M. Hale, C. Jachowski, S. Lance, A. Lawson, F. Nilsen, B. Parrott, S. Whitmire, P. Wilkinson and A. Woodward. American alligator research in coastal South Carolina: an update. Oral presentation, 2020 Hobcaw Research Symposium. Georgetown, SC.

Bae, J., E.M. Bertucci, J.A. Moore, S.L. Bock, T.R. Rainwater, M.D. Hale and B.B. Parrott. The effects of the developmental environment on telomere length in Alligator mississippiensis hatchlings. Poster presentation, Society for Integrative & Comparative Biology Annual Meeting, Austin, TX.

Bock, S.L., R.H. Lowers, T.R. Rainwater, M.D. Hale, F.M. Leri and B.B. Parrott. Real-time responses to ecologically-relevant thermal fluctuations during temperature-dependent sex determination in the American alligator. Oral presentation, Society for Integrative & Comparative Biology Annual Meeting, Austin, TX.

Lawson, A., P. Jodice, T. Rainwater, and C. Moore. Synthesizing monitoring data to estimate abundance and detection probability in American alligators in South Carolina. Oral presentation, 73rd Annual Conference of the Southeastern Association of Fish and Wildlife Agencies. Hilton Head, SC.

Rainwater, T.R. Ecology of the American Alligator in coastal South Carolina. College of Charleston, Fort Johnson Marine Science Seminar Series. Charleston, SC.

Singh, R., M. Priore, S. Whitmire, B. Song, P. Wilkinson, C. Jachowski and T. Rainwater. Factors influencing nest attendance of American alligators in coastal South Carolina. "Behind the Gate" Summer Student Research Event, Clemson University Baruch Institute of Coastal Ecology and Forest Science, Hobcaw Barony, Georgetown, SC.

Singh, R., M. Priore, S. Whitmire, B. Song, P. Wilkinson, C. Jachowski and T. Rainwater. Factors influencing nest attendance of American alligators in coastal South Carolina. Poster, "Behind the Gate" Summer Student Research Event, Clemson University Baruch Institute of Coastal Ecology and Forest Science, Hobcaw Barony, Georgetown, SC.

Priore, M., P. Simmons, R. Singh, S. Whitmire, P. Wilkinson and T. Rainwater. American alligator ecosystem services and microplastics consumption by alligators in South Carolina. Poster, "Behind the Gate" Summer Student Research Event, Clemson University Baruch Institute of Coastal Ecology and Forest Science, Hobcaw Barony, Georgetown, SC.

Ross, B., N. Masto, R. Kaminski, J. Dozier, M. McAlister, and J. Woods. Integrating counts from aerial and ground surveys to estimate densities of waterfowl. Oral presentation, 73rd Annual Conference of the Southeastern Association of Fish and Wildlife Agencies. Hilton Head, SC.

Thistle, M., J. Dozier, M. McAlister, and B. Ross. Habitat selection and breeding ecology of Bachman's sparrow in a wiregrass-free ecosystem. Poster, The Wildlife Society Conference, Louisville, KY.

Thistle, M., J. Dozier, M. McAlister, and B. Ross. Habitat selection and breeding ecology of Bachman's sparrow in a wiregrass-free ecosystem. Oral presentation, North American Ornithological Conference, San

IN THE MEDIA

Our Secret Delta by Tony Bartelme and Glenn Smith was newspaper and web series produced by the *Post and Courier* newspaper in 2019 focused on the significant natural resources protected by and the threats too the Santee Delta. This series was awarded the prestigious Sigma Delta Chi Award for Exceptional Professional Journalism and the outstanding feature story award by the Society of Environmental Journalists.

The Ghost Bird: Few Will Ever See South Carolina's Elusive Black Rail. Will Climate Change Make it Vanish Forever by Tony Bartelme in the *Post and Courier* newspaper.

Managing Habitat in Coastal South Carolina's Brackish Wetlands by Jamie Dozier in the book *A Shorebird Manual*.

"For Older Alligators, Mercury is in Retrograde" by Jess Mackie in the *Hakai Magazine: Coastal Science and Societies* that discusses alligator research conducted by Dr. Abby Lawson.

"Forecast Predicts Dismal Future for American Alligators" in the *Savanah River Ecology Laboratory* newsletter that discusses research by Samantha Bock and Dr. Ben Parrot.

"Wildlife Researchers Offer Insights into Aging" by Vicki Sutton-Jackson in the *UGA Today* that discusses epigenetic aging research conducted by Emily Bertucci and Dr. Ben Parrot.

Island Science: Special Ecosystems Lure Researchers by Joey Holleman *Coastal Heritage Magazine*.

Alligators build a secret and important world in South Carolina's 'High Grass' by Phil Wilkinson in the *Post and Courier* newspaper.

DNR Gets Big Grants to Continue Archaeological Digs at Sites Impacted by Climate Change by Adam Parker in the *Post and Courier* newspaper.





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South Carolina Department of Natural Resources
1 Yawkey Way South
Georgetown, South Carolina
Phone: (843) 546-6814



**2010-2020
SCDNR PROPERTY
ACQUISITIONS**

Name	County	Acres	Cost	Date	Funding
Belfast Phase II	Newberry	2,436	\$7,710,440	7/2/10	HT, Federal, NWTFF
Gopher Tortoise HP/WMA	Aiken	20	\$32,000	11/2/10	State Appropriation
Congaree Creek HP	Lexington	3	\$0	12/29/10	Donation from SCE&G
Pitts WMA	Laurens	509	\$1,300,000	8/25/11	Reedy River MTF
Sassafras Mountain	Transylvania, NC	5	\$0	3/21/13	Donation from The Conservation Fund
Calhoun Falls	Abbeville	690	\$0	4/22/13	Donation from SCDOC
Santee Delta WMA	Georgetown	80	\$0	5/30/13	Donation from TNC
Bundrick Island LE Office	Lexington	3	\$0	6/17/13	Donation from SCE&G
Lewis Ocean Bay HP/WMA	Horry	754	\$0	6/25/13	Donation from EBX
Gopher Tortoise HP/WMA	Aiken	66	\$129,250	10/22/13	HT
Jocassee WMA	Pickens	24	\$101,622	12/9/13	Timber, County Game & Fish
Dungannon HP/WMA	Charleston	88	308,000	12/20/13	HT, Chas Co. Greenbelt Bank
Liberty Hill Phase I	Lancaster	1,628	\$4,500,000	4/25/14	HT, SCCB, Federal, Timber, Co G&F, WREC
Waccamaw River HP/WMA	Horry	1,304	\$0	7/23/14	Donation from American Timberlands
Lewis Ocean Bay HP/WMA	Horry	25	\$0	12/31/14	Donation from Cottonpatch Tbr.
Cooks Mountain	Richland	1,132	\$0	5/26/15	Donation from Haile Gold Mine
Goodwill Plantation	Richland	2,545	\$0	5/25/15	Donation from Haile Gold Mine
Marsh WMA	Marion	100	\$0	5/5/16	Donation from CSX
Forty Acre Rock HP/WMA	Lancaster	698	\$0	5/26/16	Donation from Haile Gold Mine
Waterree Range	Richland	132	\$0	6/15/16	Federal, Timber
Lake Waterree LE Office	Kershaw	2	\$135,000	6/22/16	Federal
Jocassee WMA	Pickens	96	\$400,000	7/25/16	Timber
Liberty Hill Phase II	Lanc/Kershaw	1,824	\$5,601,801	7/28/16	Federal, SCCB, HT, WREC

2010-2020
 SCDNR Property
 Acquisitions (Page 2)

Name	County	Acres	Cost	Date	Funding
Donnelley WMA	Colleton	91	\$286,000	9/28/16	SCCB
Pitts WMA	Laurens	589	\$1,300,000	10/31/16	Reedy River MTF, NWTF, Deer
Chestnut Ridge HP/WMA	Greenville	305	\$973,000	2/8/17	Federal, SCCB
Henderson HP/WMA	Aiken	70	\$0	7/25/17	Donation from SCDOT
South Fenwick Island	Colleton	405	\$2,876,200	9/7/17	Federal, SCCB
Palachucola WMA	Hampton	32	\$88,200	2/19/18	Timber
Jocassee WMA	Pickens	154	\$100,000	3/14/18	Deer
Vallentine HP	Orangeburg	923	\$0	4/4/18	Donation with Life Estate
Jocassee WMA	Pickens	63	\$0	9/13/18	Land Trade
Waterree Range	Richland	11	\$0	10/13/18	Donation from Boyd Foundation
Forty Acre Rock HP/WMA	Lancaster	159	\$238,080	10/15/18	Lynches River Cons. Fund
Lynches River	Florence	1,784	\$0	12/19/18	Donation from Riverstone
Tall Pines WMA	Greenville	1,757	\$4,000,000	1/24/19	SCCB, HT, Timber
Forty Acre Rock HP/WMA	Lancaster	49	\$0	2/19/19	Donation from TNC
Blackwell HP	Greenville	56	\$970,000	4/2/19	Federal, HT, Naturaland Trust
Donnelley WMA	Colleton	12	\$348,000	9/11/19	Timber
Waterree River – Love Farm	Richland	782	\$2,944,032	9/27/19	Federal, Timber
Waccamaw River HP/WMA	Horry	227	\$468,000	10/31/19	HT
Waccamaw River HP/WMA	Horry	300	\$675,000	10/31/19	HT
Brasstown Creek HP/WMA	Oconee	2,709	\$0	3/24/20	Donation from GA Power
Liberty Hill WMA	Lancaster	593	\$1,800,000	4/7/20	Federal, Deer, Timber
Forty Acre Rock HP/WMA	Lancaster	59	\$200,000	6/8/20	HT, Lynches River Cons. Fund
South Fenwick Island	Colleton	8	\$240,000	6/19/20	Federal
Total		24,672	\$37,724,625		





- Horry County Mitigation Bank
- Lewis Ocean Bay Heritage Preserve
- Parcel Proposed for Rezoning
- Gates

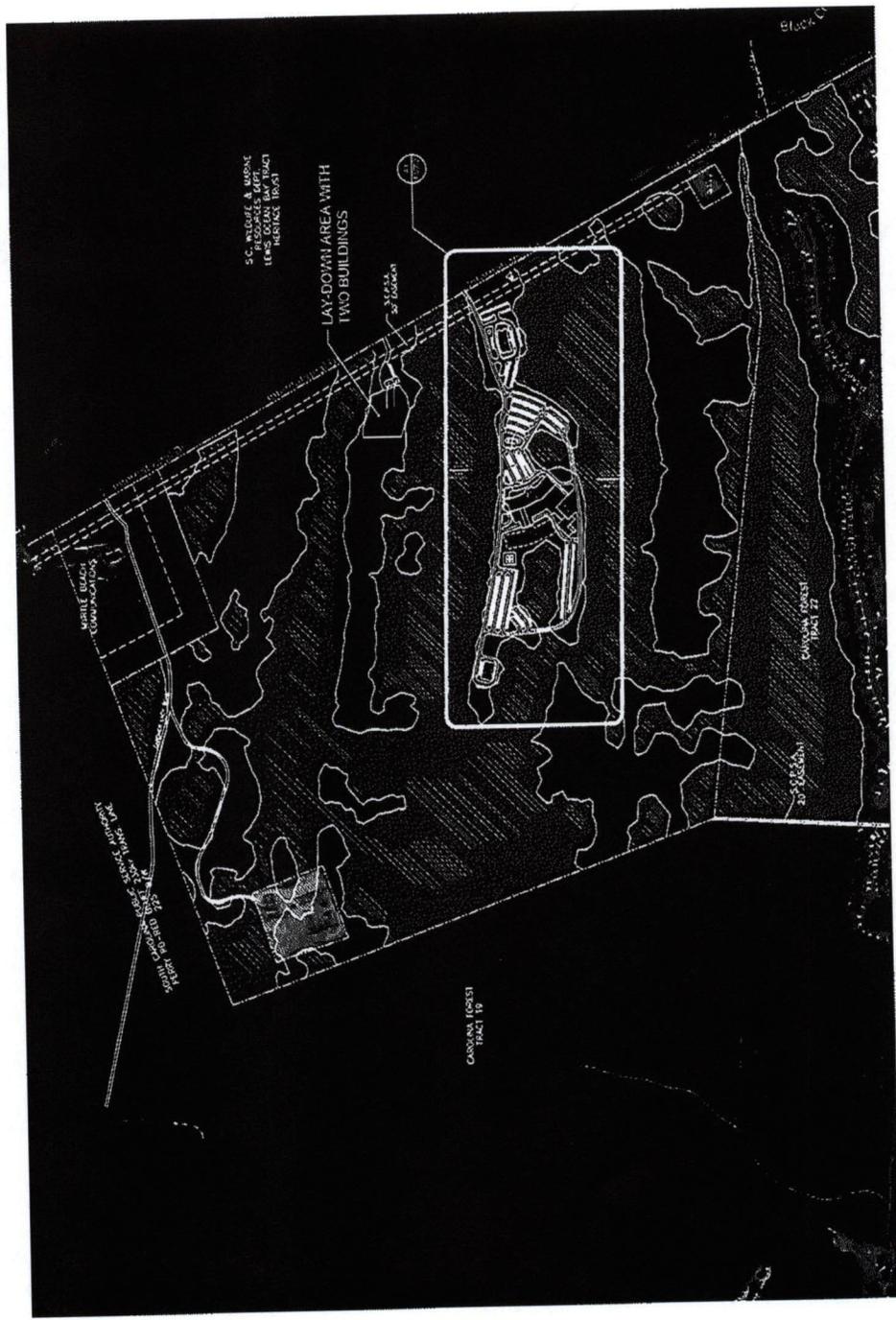
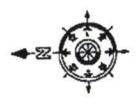






REVISIONS	
NO.	DATE

SHEET INFORMATION	
DATE	
SCALE	
PROJECT	
CLIENT	
DESIGNER	
APPROVED	



OVERALL ARCHITECTURAL SITE PLAN
OPTION 3
SCALE: 1/8" = 1'-0"

