

State of South Carolina's Coastal Resources



Shrimp Update

Introduction

The most valuable commercial fishery in the southeastern United States is the harvest of penaeid shrimp. In South Carolina and Georgia, this fishery is comprised of two species, the white (*Litopenaeus setiferus*) and brown (*Farfantepenaeus aztecus*) shrimps, with white shrimp dominating catches. Pink shrimp (*F. duorarum*) also occur but are a minor component of commercial catches in SC. This report provides an update on the 2006 status of penaeid shrimp in South Carolina. Previous status reports up to 2005 are available at <http://www.dnr.state.sc.us/marine/>.

Commercial Fishery Harvest of Wild-stock Shrimp

Penaeid shrimp caught by trawl and channel net constitute important commercial fisheries in South Carolina, with approximately 2.4 million pounds of shrimp (heads-off), including all species of wild-stock shrimp, landed with an approximate value to the harvesters of \$6.5 million in 2006. However, commercial shrimp landings were the lowest recorded since 1985, when landings were affected by a severe winter. Total value was approximately \$6 million below the long-term average due in part to weak unit prices symptomatic of increased imports. White shrimp landings increased 20% from last year. However landings were still 18% below the long-term average and were among the lowest recorded over the past 25 years, consider-

ing only those years in which winter freezes did not affect abundance (Figure 1a). Brown shrimp landings also decreased substantially (80% below the long term average) and were the lowest recorded over the last 25 years (Figure 1b).

In the 1990s, trawling license numbers in South Carolina were fairly stable fluctuating between 800 and 1000 licenses sold per season. Since 2000, both the numbers of resident and non-resident licenses have shown decreasing trends, with the exception of non-resident licenses in fiscal year 2002 and 2007 (Table 1). The total number of trawling licenses has decreased by over 50% since 2000.

Table 1. Number of SC trawling licenses by year.

Year	Resident	Non-resident	Total
2000	507	408	915
2001	418	269	687
2002	403	314	717
2003	372	199	571
2004	365	190	555
2005	337	131	488
2006	306	134	440
2007	286	143	429

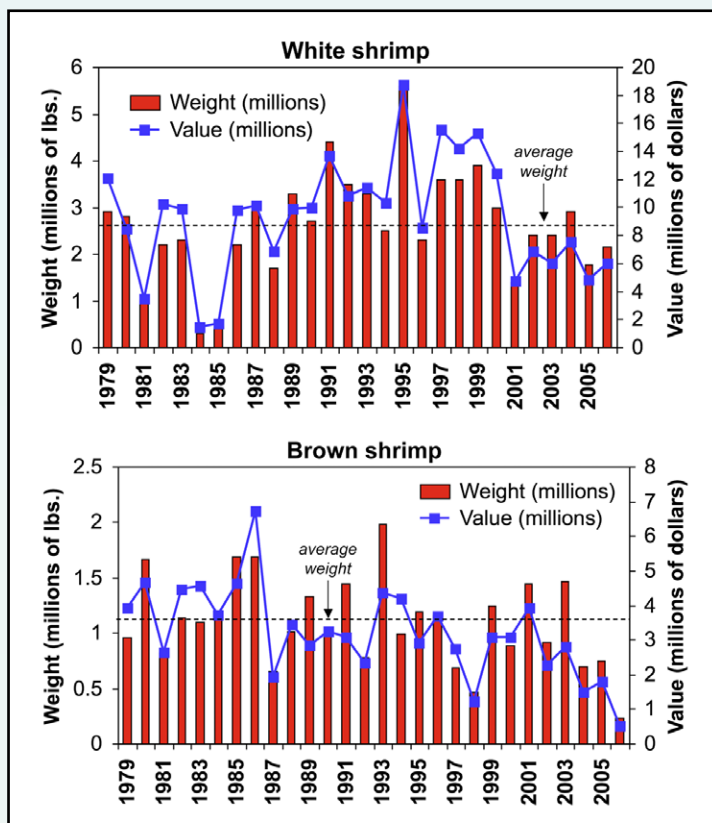


Figure 1. Wild-caught shrimp landings and value.

In September 2003, a mandatory landings reporting system was put into place to collect information on area fished, effort, and pounds by grade. Analysis of these data shows a difference between the catch per unit effort in the fall seasons of 2003-2006 (Figure 2). Although only small differences were seen in the total landings between years, catch rates were highest in 2005 and 2006 due to a substantial decrease in the number of hours spent trawling. The number of hours trawled in the fall months (September, October, and November) has decreased by more than 55% over this four year period. Decreases in effort were seen primarily on large and mid-size trawlers (headrope greater than or equal to 80 feet), while effort was stable on small boats (headrope less than 80 feet). This may be due to rising operating costs.

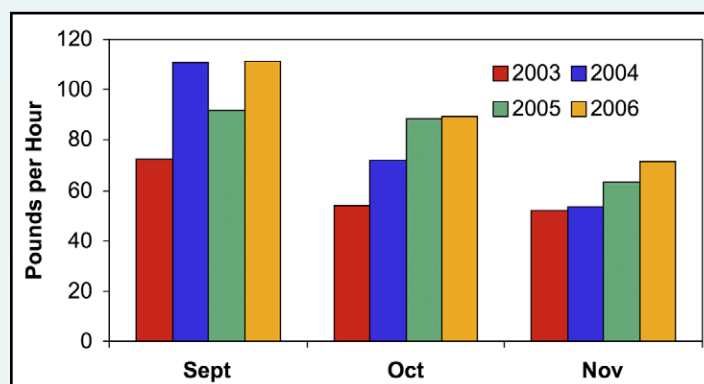


Figure 2. Pounds per hour of shrimp caught during fall 2003-2006.

Recreational Harvest

Recreational penaeid shrimp are harvested by a variety of methods including cast nets, lift nets, and seines. However, casting for shrimp over bait during the fall shrimp baiting fishery has become the most significant method of recreational harvest. The number of shrimp baiting licenses sold has been in decline since 1998. However, license sales in 2006 increased and were approximately 12% higher (1,087 licenses) than the previous year. Nevertheless, 2006 was among the five lowest years recorded since the license was put into place in 1988. Effort continued to decline in 2006 as well, with just over 29,000 trips, the majority of which were taken in the Beaufort and Bulls Bay areas. This marked the lowest effort recorded in this fishery to date. The statewide catch rate also decreased by 12% when compared to the 2005 rate and was just slightly above the 10 year average at 20.16 quarts of whole shrimp per trip. The estimated take of this fishery was just over 597,200 pounds (heads-off), accounting for approximately 31% percent of the total fall shrimp landings (1.4 million pounds heads-off; Figure 3). The 2006 estimated baiting catch was one of the lowest recorded in South Carolina since the fishery began and was likely related to decreased effort, high fuel prices, and the availability of relatively low priced shrimp from commercial outlets.

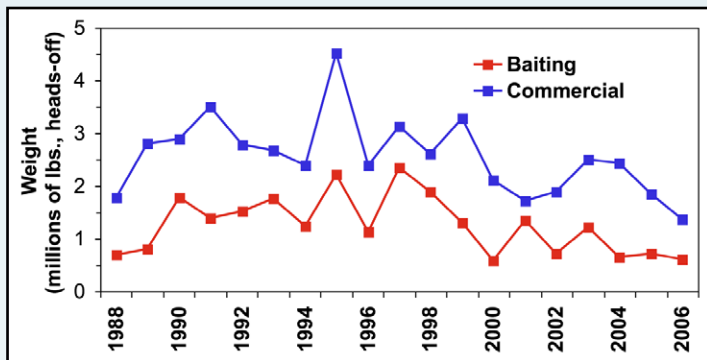


Figure 3. Comparison of estimated shrimp baiting catches and reported commercial landings (all gears, wild-caught) from 1988 to 2006.

Fishery Independent Sampling

Catch rates of brown shrimp in trawl samples near Charleston have been below average since 2003. In 2006, unusually warm temperatures in January-February may have caused premature recruitment of postlarval shrimp with less than optimal survival, thus yielding poor abundance and harvest. In spring 2007, similar temperature conditions prevailed, although brown shrimp abundance appeared to improve.

Samples of white shrimp in creek trawls in 2006 were similar to 2004, well above average in numbers and relatively small in size, reflecting good numbers of spring spawners (Figure 4). Numbers taken in the larger trawl in summer and fall were similar to 2005, but drought conditions and “black gill” disease continued to be prevalent, making less than optimal growing conditions for fall white shrimp stock (Figure 5).

The ultimate goal of fisheries managers is to not only understand the causes of fluctuations in stocks, but also predict future abundances. Efforts to develop predictive capabilities will continue, as the impor-

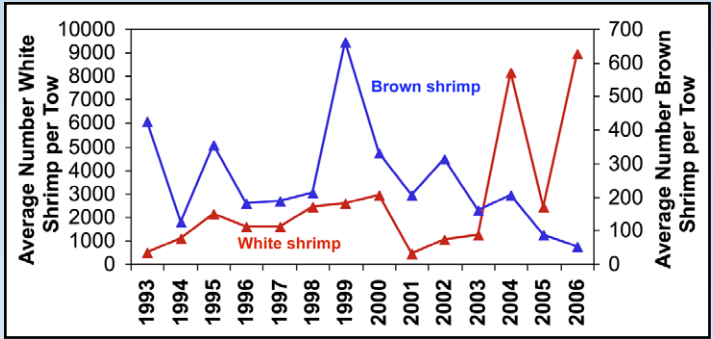


Figure 4. Number per tow of shrimp taken by trawl in summer in creeks.

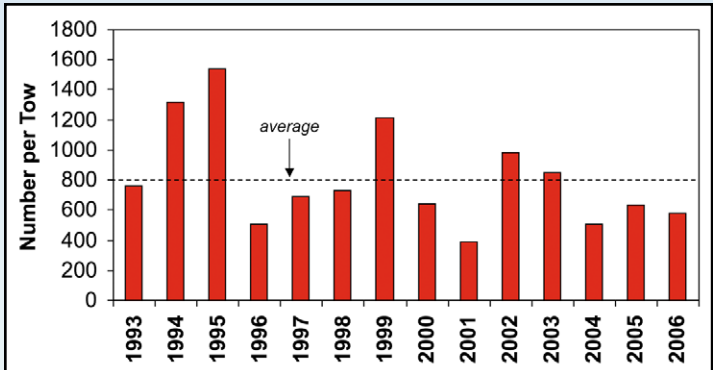


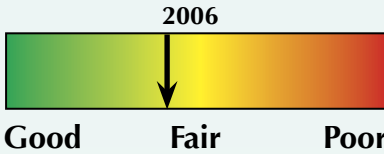
Figure 5. Number per tow of white shrimp caught by trawl surveys in fall.

tance of rapidly changing climate patterns and expected sea level rise to the shrimp resource is of concern.

Overall Condition of the Stock

White shrimp catches in 2006 appear to be similar to those in 2005. In spring 2006, conditions were dry, and persistence of these conditions into fall indicate that harvest of white shrimp is below normal. Black gill disease continues to be prevalent in fall white shrimp stocks. Brown shrimp stocks remain below the long-term average.

Additionally, as a result of increased operating costs and the availability of low price, imported shrimp, the number of boats trawling has decreased substantially over the past three years. Total effort and catch among the boats that are trawling are also decreasing. Similar decreases have also been seen in the recreational baiting fishery, probably related to the availability of low cost shrimp. Unless the unit value of shrimp rises, these decreases are likely to continue, potentially changing the character of the commercial and recreational shrimp fisheries in South Carolina.



The South Carolina Department of Natural Resources, an Equal Opportunity Employer, prohibits discrimination on the basis of race, color, gender, national origin, disability, religion or age. Direct inquiries to the Office of Human Resources, P.O. Box 167, Columbia, SC 29202.

Contact Information:
 Elizabeth Wenner
 wennere@dnr.sc.gov
 Larry DeLancey
 delanceyl@dnr.sc.gov
 Julia Byrd
 byrdj@dnr.sc.gov