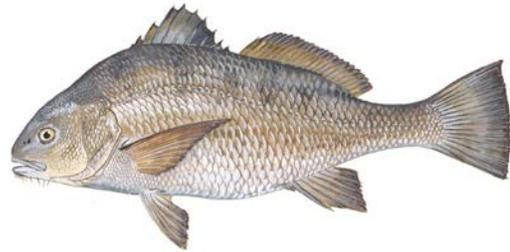


Black Drum

Pogonias cromis

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DESCRIPTION

Taxonomy and Basic Description

Black drum (*Pogonias cromis*) is the largest member of the family Sciaenidae, weighing up to 66 kg (145 lbs.). It is an estuarine-dependent saltwater fish found in the Western Atlantic and Gulf of Mexico from the Bay of Fundy to Argentina (Welsh and Breder 1923; Bleakney 1963; Sutter et al. 1986). Throughout its range, black drum supports both recreational and commercial fisheries, with most commercial landings occurring in the Gulf of Mexico (Sutter et al. 1986; ASMFC 2012).

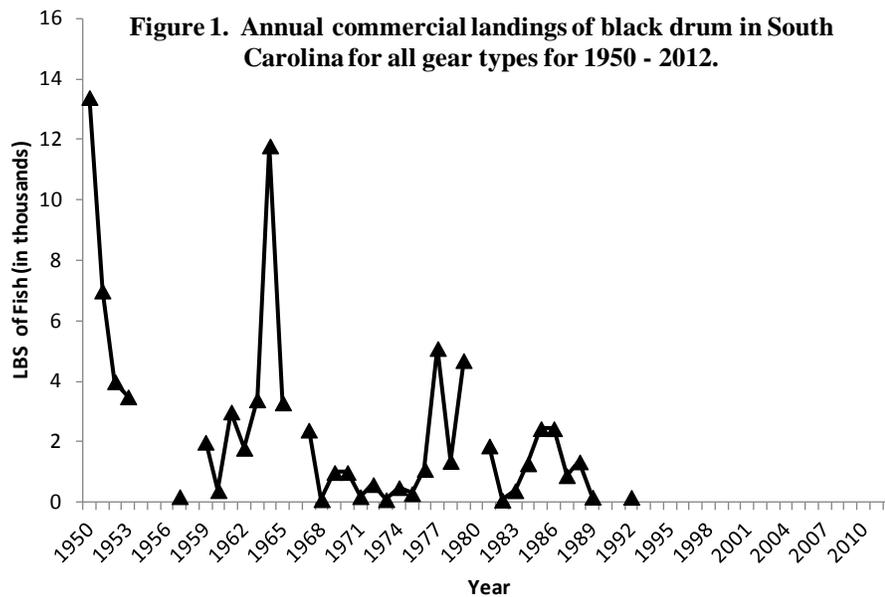
Black drum typically have 11 dorsal spines with 19-22 dorsal soft rays, 2 anal spines, and 5-7 anal soft rays. Colors range from silvery grey to very dark in juveniles with 4 or 5 black vertical bars on their sides which tend to disappear with growth. Pelvic and anal fins are usually dark. The chin has 5 pores and 10 to 13 pairs of small barbels along the median edges of the lower jaws and subopercles, increasing in length posteriorly (Chao 2003).

Along the US East coast, Jones and Wells (1998) reported a maximum age of 59 years in Virginia waters, while a maximum age of only 43 years has been observed in the northern Gulf of Mexico (Beckman et al. 1990). Long-lived adults exhibit group-synchronous maturation of oocytes and batch spawning (Fitzhugh et al. 1993) that occurs annually from sexual maturation to death (Pearson 1929). Annual fecundity of a mature female in the northern Gulf of Mexico has been estimated at 32-37 million eggs (Fitzhugh et al. 1993; Nieland and Wilson 1993). Early studies reported black drum reaching sexual maturity by the end of their second year in the Gulf of Mexico (Pearson 1929; Simmons and Breuer 1962; Sutter et al. 1986), but more recent investigations have presented evidence for later maturation. In northeast Florida, Murphy and Taylor (1989) found black drum to mature between 4-6 years, agreeing with findings from other studies in the northern Gulf of Mexico (Fitzhugh et al. 1993; Nieland and Wilson 1993).

Black drum form large schools and move inshore for spawning during late winter into spring. In the Gulf of Mexico and northeast Florida, spawning occurs from January to May (Pearson 1929; Murphy and Taylor 1989; Nieland and Wilson 1993) but takes place in later months (April to June) at more northern latitudes, like the Chesapeake and Delaware Bays (Richards 1973; Thomas and Smith 1973). Young black drum recruit to shallow, muddy waters, such as tidal creeks, moving to deeper waters as they grow, until they reach sexual maturity and join the spawning stock (Pearson 1929; Richards 1973). Adults move offshore in the late fall and exhibit the potential for long-range migration along the Atlantic coast, especially along the coasts of southeast states (Jones and Wells 1998).

Status

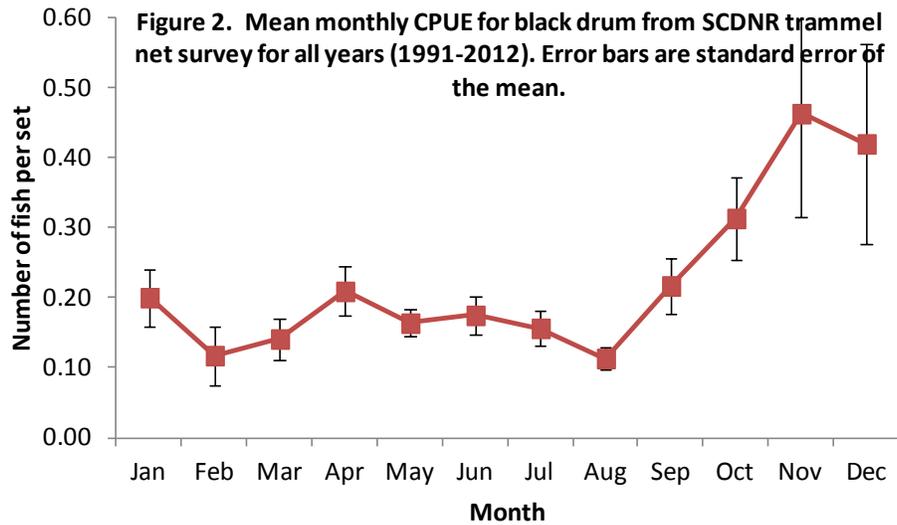
Black drum are not listed as either an endangered or protected species in South Carolina. Black drum support a popular recreational fishery along both the Atlantic coast and Gulf of Mexico in the United States. There are limited commercial fisheries throughout both the Atlantic and Gulf coasts; however, landings of commercial black drum in South Carolina peaked in the 1960s and 1970s (Fig. 1). There have been no significant commercial landings of black drum in South Carolina since 1992 (NMFS 2013).



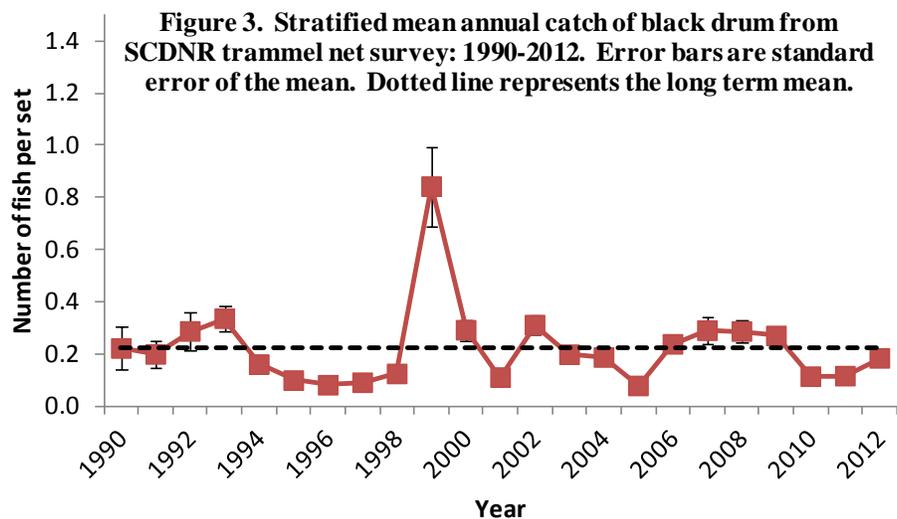
The majority of commercial landings for black drum on the Atlantic coast of the United States occurred on the east coast of Florida, North Carolina, and Virginia, representing 1,488.9 metric tons and a dollar value of approximately \$2.3 million for 2000-2012.

POPULATION SIZE AND DISTRIBUTION

Black drum are found throughout South Carolina estuarine marsh and coastal habitats, depending on life stage. While no specific sampling programs conducted by the South Carolina Department of Natural Resources (SCDNR) target black drum, they have been present in multiple estuarine fishery-independent monitoring surveys over the years. The majority of black drum caught in these surveys were sexually immature juveniles, typically less than 40 cm (16 in.) in total length. Black drum are present in South Carolina estuaries year round, but are more abundant during the fall months (Fig.2).

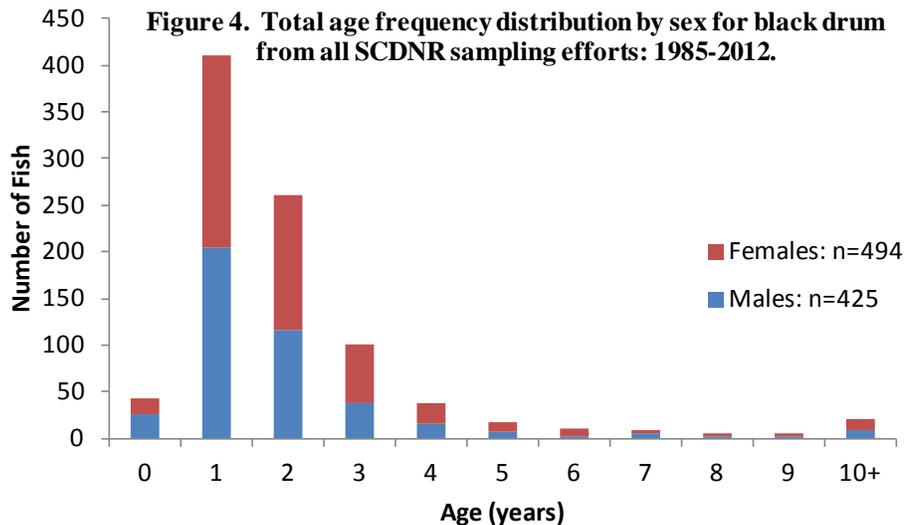


The 1 SCDNR fishery independent trammel net survey (1990-present) has caught black drum at a relatively stable rate over the last 23 years, with the exception of 1999, which had an exceptionally strong year class (Fig. 3).



The majority of black drum captured in the trammel net survey are immature fish (ages 0-3). There is much less known about adult black drum, and no long-term fishery-independent indices of abundance exist for adults in South Carolina. As black drum age and become sexually mature, they move to deeper channel habitat within estuaries and eventually move to deep areas with bottom structure both inside and outside the estuary. This makes them relatively difficult to capture except with recreational hook and line gear. Most of the adult specimens available for study have come from recreational anglers through either fishing tournaments or the SCDNR's fish wrack recycling program. The age distribution for black drum in South Carolina ranges from

0 - 46 with all fish older than 6 years being mature adults (Fig. 4). Overall, however, the age distribution of SCDNR black drum samples is representative of shallow water estuarine habitats with ages 1 and 2 accounting for the majority of all aged specimens. Figure 4 uses a truncated age distribution for all of the older fish (ages 10+) because this group only represented 2.3% of aged black drum.



HABITAT AND NATURAL COMMUNITY REQUIREMENTS

Black drum are found in estuaries throughout South Carolina, typically in habitats with vertical complexity such as oyster bars, salt marsh grass, natural rock outcroppings and reefs, and piling structures around docks, piers and bridges. Black drum in South Carolina are usually found in salinities greater than 18 parts per thousand (ppt), near the mouths of estuaries, although juveniles less than 40 mm (1.5 in.) total length may also occur at lower salinities. As black drum grow during their first few years of life, they move into deeper channels and eventually into deep waters around natural ledges, bridges, and piling structures, both offshore and in higher salinity estuarine habitats.

CHALLENGES

There is currently a lack of information on the population size of black drum in South Carolina, although a coast-wide stock assessment is currently underway (2014). In particular, the abundance and age structure of the adult population is unknown. Black drum feed primarily on fish, mollusks, and crustaceans, and therefore, may be adversely affected by contaminants (organics, pesticides, and heavy metals) that bioaccumulate in these organisms.

CONSERVATION ACCOMPLISHMENTS

Commercial landings in South Carolina reported by the National Marine Fisheries Service (NMFS) are generally low and indicative of reported by-catch rather than a targeted fishery.

Section 50-5-360 of the South Carolina Code requires that anyone who buys, receives or handles any live or fresh saltwater fish or any saltwater fishery products taken or landed in the State for sale, must obtain a wholesale dealers license. Prior to 2007, there were no recreational management regulations for black drum in South Carolina. In 2007 the South Carolina legislature amended section 50-5-1705 of the South Carolina Code creating a slot limit of 36-69 cm (14 to 27 in.) total length and a daily bag limit of 5 fish per person for black drum that applies to both commercial and recreational fisheries.

CONSERVATION RECOMMENDATIONS

- Study basic biological aspects of black drum ecology such as population size, age structure, and reproduction (especially for the adult population).
- Study the B2 portion of the recreational fishery in SC (i.e. the size, age, and sex of those fish released alive).
- Determine the level of contaminants (organics, pesticides, and heavy metals) found in black drum as well as the sediments in the areas in which they are caught. Relate that to the potential effects of bioaccumulation.
- Protect water quality in marine ecosystems by encouraging municipalities to use Best Management Practices (BMPs) to reduce runoff from highways, agricultural fields, and housing developments.
- Plan development based on sound terrestrial and estuarine ecology that takes into consideration all factors that will affect the long-term health of the estuary ecosystem.
- Identify the origin of non-point source pollution and specific point source pollution and develop a plan of action to mitigate any negative effects to the affected aquatic systems.
- Improve BMPs in areas already impacted by non-point source pollution.
- Identify important or essential habitat types for different life stages of black drum and partner with other regulatory agencies (i.e. DHEC) to reduce impacts of development on these fish habitats.
- Partner with other state agencies in order to improve resource management at the whole estuary or drainage basin level using a more holistic ecological approach. Such restructuring should provide for greater regulatory authority in implementing migratory fish management plans.

MEASURES OF SUCCESS

Currently, the abundance of juvenile black drum appears to be relatively stable, as indicated by the fishery-independent surveys. However, very little is known about the size and stability of the adult population. By learning more about this species and protecting the habitat upon which it

depends, we can ensure that this important recreational game fish remains abundant. In addition, by monitoring black drum populations in response to environmental contaminants, South Carolina will be better able to detect problems and work to correct them more quickly.

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