
Southeast Drum and Croaker Fisheries



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INTRODUCTION

Important recreational and commercial species in the family Sciaenidae (drums and croakers) include the Atlantic croaker, spot, red drum, black drum, kingfishes (whiting), weakfish (grey seatrout), spotted seatrout, and other seatrouts. These species are all bottom-dwelling carnivores that feed on benthic invertebrates and small fishes. Sciaenids have constituted an important fishery resource since the late 1800's, although significant increases in commercial landings did not occur until the 1950's, when the pet food industry began harvesting them in the northern Gulf of Mexico. The recreational harvest of Sciaenids in the Gulf of Mexico and Atlantic Ocean has generally been similar to commercial landings in weight (Figure 9-1). Some stocks occur primarily within state

jurisdiction (generally 0–3 n.mi.) and are managed by state authorities and the interstate fishing commissions; other stocks are managed jointly by the interstate fishing commissions and the regional fishery management councils. Most recreational fishing occurs within state waters and is managed primarily by the coastal states. Regulations heavily favoring recreational use of Sciaenids have been established in some states, including the declaration of some species (red drum and spotted seatrout) as game fish species, prohibiting commercial fishing. The recent average annual yield of Sciaenids in the Southeast Region is estimated at almost 41,000 metric tons (t; Table 9-1).

Large numbers of Sciaenids are caught and killed as an incidental catch in Southeast shrimp fisheries. The small mesh used in shrimp trawls can catch nontarget species such as sea turtles, red

Photo above:
Juvenile Atlantic croaker,
spot, other Sciaenids, and
other species in the bycatch
from a shrimp trawl.

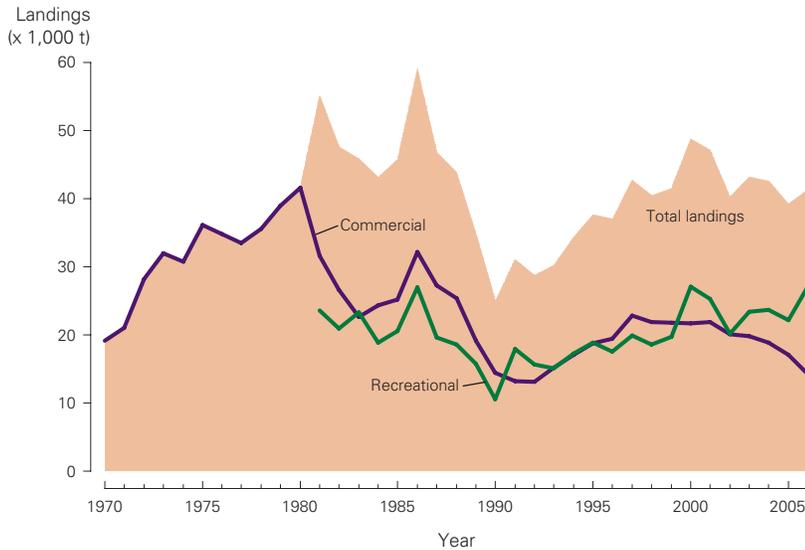


Figure 9-1
Southeast Sciaenid landings in metric tons (t), 1970–2006.

snappers, croakers, seatrouts, and other species. Sciaenids constitute the bulk of the finfish bycatch biomass. Much of this bycatch is juveniles, and mortality resulting from incidental take may slow the recovery of overfished stocks or otherwise prevent full use of the recruited adult population.

SPECIES AND STATUS

Commercial landings of drums and croakers in the northern Gulf of Mexico rose sharply in 1956 to over 32,000 t, more than 20,000 t above that of 1953. The catch consisted mainly of Atlantic croaker and sand and silver seatrouts, which made up about 76%. This increase for the most part resulted from a developing demand for Sciaenids as raw material in the production of canned pet foods.

Atlantic Croaker

As one of the most abundant fishes along the U.S. Atlantic coast, Atlantic croaker are popular in both commercial and recreational fisheries. Although they are found in coastal waters from the Gulf of Maine south to Argentina, croaker fisheries occur mainly off Maryland through North Carolina. The annual recruitment for Atlantic croaker is highly variable and can fluctuate with environmental conditions. Because of this, commercial landings tend to be cyclical and range between approximately 1,100 and 15,500 t annually. Landings have been near the high end of the cycle since 1996; the commercial catch in 2006 was 9,460 t. The available time series of recreational

Table 9-1
Productivity in metric tons (t) and status of southeast drum and croaker fisheries resources.

Species/stock	Recent average yield (RAY) ¹	Current yield (CY) ²	Sustainable yield (MSY) ²	Stock level relative to B_{MSY}	Harvest rate	Stock status
Atlantic croaker ³	15,224	Unknown	50,000	Below		
Black drum ⁴	4,079	Unknown	Unknown	Unknown		
Kingfishes (whiting) ⁴	2,039	Unknown	Unknown	Unknown		
Red drum ⁵						
Atlantic	709	Unknown	Unknown	Below	Overfishing	Unknown
Gulf of Mexico	5,869	Unknown	7,900	Below	Not overfishing	Undefined
Seatrouts ⁶	9,002	Unknown	Unknown	Variable		
Spot	4,072	Unknown	Unknown	Unknown	Unknown	Unknown
Total	40,994					

¹2004–06 average.

²MSY is probably underestimated and CY overestimated; although potential production estimates are not available for some species groups, it is expected that they may be overfished.

³Status determinations are made for two separate stocks of Atlantic croaker: the Mid-Atlantic stock is not overfishing and not overfished; the harvest rate and stock status of the South Atlantic stock are both unknown.

⁴Harvest rate and stock status are not available for this stock.

⁵Gulf of Mexico red drum were last assessed in 1999 and Atlantic red drum were last assessed in 2000.

⁶Status determinations are not available for this stock grouping. The most recent assessment of weakfish (grey seatrout) in 2002 showed that the stock had recovered and was no longer overfished. However, the population abundance is believed to have declined precipitously in recent years and is now classified as unknown. The status of other species in this group is unknown as well.

landings goes back only as far as 1981, but shows a similar trend (steadily increasing since the early 1990's, with current levels at about 4,000 t). The recent average yield (2004–06; commercial and recreational landings) of Atlantic croaker is 15,224 t (Table 9-1). Although the stock status is unknown, the current stock biomass is estimated to be below the level required to produce the maximum sustainable yield (MSY).

The Atlantic States Marine Fisheries Commission (ASMFC) approved the Fishery Management Plan (FMP) for Atlantic croaker in 1987. This plan addressed the lack of data available for stock assessments, as well as the serious issue of bycatch of Atlantic croaker in other fisheries (particularly in the shrimp trawl fishery). In 1994, ASMFC determined that the FMP lacked the clearly defined recommendations necessary to meet its goals. Amendment 1 was prepared in response and later approved in November 2005. In addition to revising the management goals and objectives, the amendment also establishes biological reference points and provides for the development of separate management measures for the Mid-Atlantic and South Atlantic stock components.

Spot

The recent average yield (2004–06) of spot is 4,072 t (Table 9-1), divided evenly between commercial landings and recreational catches. The commercial fishery peaked at 6,600 t in 1952, and landings have generally fluctuated between 2,000 and 5,000 t since. Annual fluctuations in landings are normal because spot are a short-lived species, the catch is composed mainly of a single year-class, and stock abundance is largely determined by environmental conditions. No formal coast-wide spot assessment has ever been conducted, and its stock status is currently unknown.

The ASMFC and the South Atlantic Fishery Management Council (SAFMC) cooperatively manage spot. In 1987, the FMP for Spot addressed the lack of biological and fisheries data necessary for management of the resource. Currently, management is primarily through minimum size limits administered by the Atlantic coastal states. Progress has also been made in reducing the impact of spot bycatch in the shrimp trawl fishery.

Charles Gardner



Red Drum

Red drum are one of the most popular recreational fish species in the Southeast Region. Recreational anglers catch red drum mainly in nearshore (state) waters; most of this nearshore catch is composed of juveniles. Since the 1980's, recreational landings have accounted for approximately 90% of the total catch (ASMFC, n.d.). State management actions have heavily favored recreational use of the red drum resource; North Carolina and Virginia are currently the only states that allow commercial fishing for red drum.

Commercial landings of red drum increased rapidly in the mid 1980's, when public popularity and market demand suddenly grew for a new seafood preparation called blackened redfish. To supply this demand, a red drum purse-seine fishery primarily targeting the offshore adult spawning stock evolved in the Gulf of Mexico. As the offshore purse-seine fishery developed it became clear that the schooling adults were extremely vulnerable to overexploitation, thus jeopardizing recruitment in subsequent years.

Fishery analyses showed that maintaining the maximum sustainable yield depended in large part on limiting the harvest of adult red drum from offshore waters, as well as limiting the take of smaller individuals in inshore waters by both recreational and commercial fishermen (Goodyear, 1996; Porch, 2000). These conservation measures were

A young angler displays her red drum catch in Florida.



Catch of red drum from a recreational charter boat in Mississippi.

established by FMP's developed and implemented first in the Gulf of Mexico and later in the U.S. Atlantic. The FMP for the Red Drum Fishery of the Gulf of Mexico (administered by the Gulf of Mexico Fishery Management Council [GMFMC]), was followed by the Atlantic Coast Red Drum FMP (administered by the SAFMC). Both ban red drum fishing within Federal jurisdiction of the U.S. Exclusive Economic Zone (EEZ; generally 3–200 n.mi. off the shore) until the adult population has sufficiently increased in abundance. Because state management actions have preserved inshore harvests, they have in effect barred the development of another adult red drum fishery in Federal waters.

The ASMFC and SAFMC are responsible for jointly managing the red drum fishery resource on the Atlantic coast, where the recent average yield (2004–06) is 709 t. The stock status of red drum on the Atlantic coast is unknown, and the stock level is below the MSY level (Vaughan and Carmichael, 2000), although significant population increases have been seen over the past decade. Major concerns remain over poor recruitment to the spawning stock due to heavy fishing pressure on juveniles in state waters. Because data on the adult population are very limited, scientists are not able to accurately assess its status and the state fishery is managed to ensure that a certain percentage of juvenile females survive to reproduce (referred to as spawning potential ratio or SPR). Amendment 2 to the Atlantic Coast Red Drum FMP was approved in June 2002 and established several measures, including bag and size limits for recreational fisheries. The Amendment also requires management actions to achieve and maintain a SPR of at least

40%. A new stock assessment is scheduled for 2009 to check the effect of the management measures implemented in Amendment 2.

The GMFMC and various state agencies are responsible for managing red drum in the Gulf of Mexico. The recent average yield (2004–06) of red drum is 5,869 t, a level substantially higher than landings on the Atlantic coast (Table 9-1). The status of the Gulf stock is undefined, although the stock level is thought to be below the level necessary to produce MSY. The absence of an offshore fishery, size limits, bag limits, and increased catch-and-release by conservation-oriented anglers are all expected to help rebuild the red drum spawning stock and reduce overall mortality in the Gulf of Mexico. Current statistics indicate that such conservation measures are having this desired effect in some areas.

Black Drum

Black drum are found mainly within state waters in the Southeast Region and are managed primarily by the Gulf States Marine Fisheries Commission (GSMFC). The species was generally considered undesirable and was underutilized until the late 1970's and early 1980's, when demand grew because black drum could be substituted for red drum in restaurants as blackened fish. The demand for black drum has dropped since 1988 and it is currently a relatively low-value species (GSMFC 2005). The recent average annual yield of black drum is 4,079 t (Table 9-1).

Weakfish

Weakfish (grey seatrout) have supported coastal fisheries since the 1800's. They are found along the entire U.S. Atlantic coast, but are most common from New York through North Carolina. Tremendous growth in commercial fisheries began in the early 1970's and continued until 1980, when annual landings reached a peak of 16,000 t. Since then, commercial landings have steadily declined to 482 t in 2006. Recreational catches of weakfish have exhibited a similar decline and are currently about equal to the commercial catch (417 t). The ASMFC is the primary management authority for weakfish. In 1996, Amendment 3 to the Weakfish

FMP was approved and a subsequent assessment indicated that the measures imposed led to significant declines in fishing mortality and increases in recruitment and the spawning stock biomass. These developments moved the stock status from overfished to recovered. In November 2002, Amendment 4 was approved and established assessment benchmarks for fishing mortality (F) and spawning stock biomass (SSB), further improving management of weakfish. However, some important concerns regarding weakfish stock assessments were identified during an external peer review in 2006 and the stock status is currently unknown; a new peer-reviewed assessment is scheduled for 2009.

Spotted Seatrout

Abundant from Chesapeake Bay southward, spotted seatrout are a highly popular and sought-after gamefish. In the Gulf of Mexico, landings are almost exclusively in state waters and management is coordinated through the GSMFC. Some states have declared spotted seatrout a gamefish (banning all commercial fishing), while other states still allow limited commercial harvests. On the Atlantic Coast, management actions are administered jointly by the ASMFC and SAFMC. Declines in spotted seatrout abundance have been seen in South Atlantic waters in recent years; such declines are the combined result of habitat loss due to increased coastal development and heavy fishing pressures. Recreational landings have been substantially larger than commercial landings for the past 20 years and have increased since 1996 (ASMFC, n.d.). However, the number of spotted seatrout released annually by conservation-oriented anglers has also increased since 1998. Although the collection of data on catch and effort has improved since the Spotted Seatrout FMP was approved by the ASMFC in 1984, more accurate data is still needed to support a coast-wide stock assessment.

ISSUES

Bycatch

Bycatch of Sciaenids in other fisheries, particularly in the southeast shrimp fishery, has a

significant impact on their status. Large numbers of small Atlantic croaker, spot, and seatrout are caught and discarded dead from shrimp trawls. It is estimated that as many as 500 million spot, 1 billion seatrout, and 7.5 billion Atlantic croaker are discarded annually. These species constitute the bulk of the finfish bycatch (Atlantic croaker alone make up about 10%), which averaged about 175,000 t per year during the 1980's. The National Marine Fisheries Service continues to actively work with the fishing industry to develop and test gear designs that will reduce bycatch levels without being prohibitively expensive to the fishing industry. Cooperative efforts have developed bycatch reduction devices for shrimp trawls, which can reduce the amount of bycatch by as much as 50 to 75%. Use of these types of gear modifications have become more popular as the cost has fallen and the devices have become easier to use. Shrimp management regulations currently require the use of bycatch reduction devices, and shrimpers throughout the South Atlantic use them. Widespread use of such devices has contributed to the rebound of some overfished stocks, such as weakfish.

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SEAMAP Plankton Team

Two red drum larvae collected by researchers at the Southeast Fisheries Science Center.

