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Snapper Grouper Complex
Seabasses and groupers

Seabasses: Family Serranidae

Black Sea Bass

Centropristis striata - Black Sea Bass (Blackfish, Pinbass, Rock bass).

Larger Black Sea Bass are black, while the smaller individuals are more of a dusky brown, with both having a belly that is only slightly lighter in color than the sides. The fins are dark, and the dorsal is marked with a series of white spots and bands. In larger fish, the upper portion of the caudal fin ends as a filament. During spawning, males may have a conspicuous blue nuchal hump. Black Sea Bass can be separated from their closest relatives, the Rock Sea Bass, *C. philadelphica* and the Bank Sea Bass, *C. ocyurus*, by color and morphology, body depth, and gill raker and fin ray counts.

Black Sea Bass is a temperate species with permanent reproducing populations from Cape Cod, Massachusetts, to Cape Canaveral, Florida, and in the northeastern Gulf of Mexico. Larval Black Sea Bass settle in coastal and estuarine waters often near structure and migrate to inshore and mid-shelf reefs when they grow larger and mature. Once settled on (offshore) reefs, site fidelity is very high. Black Sea Bass are opportunistic feeders eating whatever is available, preferring crabs, shrimp, worms, small fish and clams.

Black Sea Bass can reach a maximum age of about 11 years, but can live longer (up to 20 years) in others regions, and grow to 24 inches or 6 pounds.

Black Sea Bass are protogynous hermaphrodites, transitioning from female to male at about 4 years of age and a length of about 10 inches. Females can mature within their first year and around 6 inches in length (larger elsewhere). The spawning season extends from February through September, but peaks in the cooler months of February through April. Females spawn multiple times during the spawning season with the number of eggs produced during the spawning season ranging from 30,000 to 500,000 depending on fish size.

In the Atlantic waters off the southeastern U.S., Black Sea Bass is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP. Black Sea Bass has been under intense commercial and recreational fishing pressure at least since the late 1970s, being an important reef fish species targeted by both fisheries. It is caught in hook and line and trap fisheries.

Other vulnerabilities and sources of mortality include decline in estuarine water quality, harmful algal blooms, and predation by larger reef predators, potentially including invasive lionfish.

Bank Sea Bass

Centropristis ocyurus - Bank sea bass (Rock squirrel, Rockfish (misnomer))

Bank Sea Bass is a warm temperate, small demersal serranid with a tapering yellow-brown body with tri-lobed caudal fin. There are black markings which consist of three longitudinal rows of blotches on the sides in addition to spots on the dorsal and caudal fins. The head, fins, and front portion of the body often have blue and yellow spots and stripes. Bank Sea Bass are similar in appearance to Rock Sea Bass, but can be distinguished by the lack of dermal flaps above the dorsal fin spines.

Bank Sea Bass occurs in reefs or rocky offshore habitats from Cape Lookout, North Carolina, to the Yucatan banks of the southern Gulf of Mexico. It is found in waters ranging from 50 - 500 feet and in the Atlantic waters off the southeastern U.S., it is more common in shelf edge habitats than the Black Sea Bass, which is found more on inner- and mid-shelf reefs. Bank Sea Bass is an opportunistic carnivore consuming crustaceans, mollusks, fishes, and echinoderms.

Little is known about the life history of Bank Sea Bass. They can grow to about 16 inches and nearly 2 lbs, and live to a maximum age of 7 to 8 years. Bank Sea Bass are protogynous hermaphrodites and transition from female to male generally between 5 and 7 inches of length. Females mature when they are 2 to 3 years old and spawning occurs offshore between January and November, but peak spawning occurs from February through April. Female Bank Sea Bass can spawn multiple times during the spawning season and can spawn, depending on size, well over 30,000 eggs in a spawning season.

In the southeastern United States, Bank Sea Bass is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP. Bank Sea Bass is of limited direct economic value and is captured incidentally by anglers and commercial fishermen.

Rock Sea Bass

Centropristis philadelphica - Rock Sea Bass

Rock Sea Bass is small demersal serranid with a tri-lobed caudal fin, an overall brown/greenish color with 5 to 7 darker bars (saddles) along the dorsal area, and long fleshy tabs on dorsal fin spines. The fins have diffuse light and darker brown bands. It can be confused with Bank sea bass which is similar in size and appearance, but Rock Sea Bass has a black blotch at the posterior end of the spinous dorsal fin that is continuous with one of the bars. Black Sea Bass grows to a larger larger size and is black in color.

Rock Sea Bass is a warm temperate species that occurs in the Western Atlantic from North Carolina to Palm Beach, Florida as well as the northern Gulf of Mexico. It prefers hard-bottom, rocks, jetties, and ledges. Rock Sea Bass is an opportunistic bottom feeder with a diet mostly consisting of crustaceans, small fish, polychaetes, and mollusks.

This species has a fast growth rate and reaches a maximum size of 12 inches and a maximum age of 3 years Rock Sea Bass is a protogynous hermaphrodite that matures at an early age (1 year) and undergoes sex transition at ages 1 to 2 years. Spawning occurs at offshore locations at depths greater than 36 ft during February through July, with a peak in April and May. The sex ratio is skewed toward females at younger ages, with the % females ranging from 100% at age 0 to 60% at age 2 to 0% at age 3.

In the Atlantic waters off the southeastern U.S., Rock Sea Bass is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP. Rock Sea Bass is of limited direct economic interest and is captured incidentally by anglers and commercial fishermen.

Gag

Mycteroperca microlepis - Gag, Gag grouper (Gray grouper, Charcoal belly (large males))

Gag is a large grouper with a compressed body. Coloration is highly variable and changes with the size of the fish but has some variation of a distinct reticulate body color pattern. Large Gag are dark brownish-gray above and paler below, with traces of dark wavy markings on the sides. Smaller fish are much lighter and have numerous dark brown or charcoal reticulate marks along the sides. Large males sometimes display a "blackbelly" and "black-back" phase that is mostly pale grey, with a network of faint dark markings below the soft dorsal fin; the belly and ventral part of the body above anal fin are black in this phase, as are edge of the soft dorsal fin, central rear part of the tail fin and rear margins of pectoral and pelvic fin. Gag resembles Black grouper, Scamp, and Yellowmouth grouper, but can de distinguished by its distinct reticulate body color pattern and caudal fin shape. The deeply notched preopercle further distinguish them from the most similar Black grouper.

Gag is a warm temperate species, from the Yucatan Peninsula throughout the Gulf of Mexico, around the Florida peninsula northward to Cape Hatteras, North Carolina. They are usually found shallower than 375 ft on sponge-coral habitat and rock ledges. Larvae and/or juveniles migrate to specific estuarine seagrass and oyster reef habitats at depths less than 3 ft and leave for shallow coastal shelf reefs in the fall and winter of their first year. They prey on crabs, shrimp, lobster, octopus, squid and fish that live close to reefs.

Gag can grow to over 5 feet in length and live over 30 years. Gag are protogynous, transitioning from females to male at an age of about 10 years and a length of about 39 inch Female Gag mature at an age of 3 to 4 years, when they are about 28 to 31 inches long. The sex ratio may have been changed from historical levels as a result of overfishing, skewing towards more females. Spawning occurs from December through May, with a peak between February and April, at which time they may make annual spawning migrations to specific locations where they may form spawning aggregations. Adult spawning aggregations have been reported on shelf edge reefs at depths of 240 to 300 ft.

In the southeast, Gag is managed by the South Atlantic Fishery Management Council under the Snapper Grouper Fishery Management Plan and is subject to annual catch limits, size and bag limits, trip limits, gear restrictions, and a spawning season closure. Gag is a popular target by commercial and recreational fishermen using a variety of hook and line gear, including electric and snapper reels, power heads, and spear-guns.

Because Gag post-larvae and juveniles depend on specific estuarine micro-habitats, seagrass and oyster reefs, non-fishery mortality can be high with the loss of these habitats due to anthropogenic causes.

Red Grouper

Epinephelus morio - The Red Grouper

Red Grouper are easily recognized by their deep brownish-red color and by the sloped, straight line of their spiny dorsal fin. The fin has a long second spine and an unnotched interspinous membrane, while other shallow-water *Epinephelus* groupers have a notched dorsal spine membrane and a third spine longer than the second. The body has occasional white spots on the sides, and there are often dark spots on the snout or cheeks. The inside of the mouth is bright red-orange. The Red Grouper is most closely related to the Nassau Grouper, which has several vertical bars and blotches, and is found more commonly on coral reefs in the West Indies.

The Red Grouper is a protogynous serranid that is associated with reef habitat, especially the adults, in the Western Atlantic from Massachusetts through the Gulf of Mexico and south to Brazil, with a disjunct distribution off the Atlantic coast. They are commonly caught off North Carolina, northern South Carolina and southern Florida but are rare from southern South Carolina to northern Florida. Red Grouper are reported to occur at depths of 80 - 400 ft. Red Grouper inhabits ledges, crevices, and caverns of rocky limestone reefs, and also lower-profile, live-bottom areas. They are also known to be important ecosystem engineers due to their creation of large depressions in the sea floor which become habitat for various species.

Red grouper can live to over 25 years, with older fish reaching a size of 33 inches in length and 25 lbs. Red grouper are protogynous hermaphrodites transitioning from female to male at an age of about 8 years and a length of about 28 inches. Female Red Grouper mature at an age of about 3 years, when they are about 20 inches in length. Red Grouper spawning season is from February through June, with a peak in April. Females can spawn multiple times during the spawning season and can release over 1.5 million pelagic eggs in a season. The larvae remain at the surface for 30 - 40 days before settling to the bottom.

In the Atlantic waters off the southeastern U.S., Red Grouper is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP and is subject to annual catch limits, size and bag limits, trip limits, gear restrictions, and a spawning season closure. It is targeted by recreational and commercial fishers using a variety of hook and line gear, including snapper reels and spear guns.

Scamp

Mycteroperca phenax - Scamp (Broomtail)

Scamp is a small to medium sized slender-bodied grouper. They are identified by their pronounced anal and soft dorsal ray extensions, a more concave profile of the head, and by their color. Scamp have a tan to grayish-brown body covered with sharply defined, well-separated dark spots, which are approximately an eighth of an inch in diameter. Yellowmouth Grouper can have a very similar appearance, but generally live in deeper waters. Coloration in Scamp is variable, as cat's paw and grey-head color phases have also been observed. Juvenile Scamp are not bi-colored as in Yellowmouth Grouper.

Scamp can be found along the Atlantic Coast of the U.S. from North Carolina to Key West, FL, in the Gulf of Mexico, and along the southern shores of the Caribbean. Scamp inhabit low-profile live-bottom areas, areas of living *Oculina* coral (off Florida east coast), and over ledges and high-relief rocky bottoms in waters between 75 to 300 feet deep. Scamp can be an aggressive ambush predators preying on crabs, shrimp, and fish.

Scamp can live up to 30 years and reach lengths to over 40 inches in length and weighing more than 35 lbs. Scamp are protogynous hermaphrodites transitioning from female to male at the age of 5 to 9 when they are 20 to 30 inches in length. Female Scamp mature at an age of 1 to 2 years, when they are about 14 inch length. Scamp spawn from February to August with a peak in March through May.

In the Atlantic waters off the southeastern U.S., Scamp is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP and is subject to annual catch limits, size and bag limits, trip limits, gear restrictions, and a spawning season closure. Scamp is highly prized and has been targeted by commercial and recreational fisheries. Scamp is caught using various hook and line gear, including snapper reels, and spearguns.

Snowy Grouper

Hyporthodus niveatus - Snowy Grouper (chocolate grouper)

Snowy Grouper is a large deepwater reef-associated species. Although coloration varies with the size, smaller fish are dark brown overall, punctuated with pearly white spots on the sides that are not always visible on larger fish. A distinctive black, saddle occurs on the upper caudal peduncle and extends down below the lateral line. Larger Snowy Grouper usually lose the white spots and caudal saddle and become dark brown with a slight coppery tint. The spiny portion of the dorsal fin has a black margin. It is rarely confused with other species.

Snowy Grouper occurs in the western Atlantic from Massachusetts to Brazil, including Bermuda, Cuba, the Bahamas, and the Gulf of Mexico. Off the Atlantic waters off the southeastern U.S., Snowy Grouper can be found on the outer continental shelf and upper slope at depths greater than 150 feet in habitats characterized by ridges, terraces and precipitous cliffs; or on wrecks and artificial reefs. Snowy Grouper is a bottom fish that ambushes bottom-dwelling prey. The most common diet items are deepwater crabs, but finfish are eaten also.

Snowy Grouper is relatively long-lived and may reach a maximum age of 35 years and a weight of 70 lbs. Like many groupers, it is a protogynous hermaphrodite transitioning from female to male at the age of 10 to 17 when they are about three feet long. Female Snowy grouper mature at an age of 5 to 6 years, when they are about 24 inches in length. The spawning season is from April to September, with a peak in May to August.

In the Atlantic waters off the Southeast U.S., Snowy Grouper is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP and is subject to annual catch limits, bag limits, trip limits, gear restrictions, and a seasonal closures. Snowy Grouper landings occur primarily in commercial fisheries using snapper reels, but some recreational hook and line catch occurs, particularly at the shallow end of the depth range (160 to 200 feet).

Speckled Hind

Epinephelus drummondhayi - Speckled Hind (Kitty Mitchell, Strawberry Grouper)

Speckled Hind is a distinctive grouper with a laterally-compressed body densely covered with small pearly white spots on a dark reddish-purple to brown background. Some juveniles undergo a "xanthic phase", where white spots cover a light yellow background.

Speckled Hind is a warm-temperate species, occurring from the Yucatan Peninsula throughout the Gulf of Mexico, around the Florida peninsula northward to Cape Hatteras, North Carolina and Bermuda. It is absent from the tropical continental and insular Caribbean Sea and Bahama Islands. They commonly inhabit mid-shelf to upper continental slope reef habitats at depths ranging from 65 to 600 feet. Speckled Hind is usually found inshore of more typical deepwater reef fish such as Tilefish, and Snowy, Warsaw, and Yellowedge groupers. Yellow (xanthic) phase juvenile Speckled Hind have been observed on shelf-edge *Oculina* coral reefs off east central Florida, and on shelf-edge hard-bottom reefs off South Carolina. Speckled Hind is considered piscivorous and generally engulf their prey whole.

Speckled Hind can reach a maximum age of 35 years, and can weigh over 50 pounds (the world record is 64 lbs caught off North Carolina). Speckled Hind are protogynous hermaphrodites spawning over a prolonged period from April to October with a peak in May to August. Females transition to male at 6 years of age or older and at a length of 1.5 to 2.0 feet. Female Speckled Hind mature at an age of 4 to 6 years, when they are about 1.5 feet long.

In the Atlantic waters off the southeast U.S., Speckled Hind is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP. Speckled Hind are caught on shelf edge and continental slope reefs using hook-and-line gear including electric reels and bottom longlines.

Predation by larger groupers and snappers is highly likely in early developmental stages, and invasive lionfish have been documented to feed on juvenile *Epinephelus* groupers.

Black Grouper

Mycteroperca bonaci - Black grouper

Black Grouper is a large reef fish that is grayish or dark brown, with irregular coppery spots (some spots join to form chain-like streaks). The pectoral fins are dusky brown, gradually becoming orange at the edge; the soft dorsal and anal fins and leading edges of pelvic fins have a dark margin. The preopercle (cheek) bone is evenly rounded, without a notch or projecting bony lobe at the corner. Black Grouper is often confused with Gag; however, the most noticeable color difference is the coppery spots on Black Grouper that do not occur on Gag. The tail of Gag is slightly concave, whereas the tail of a Black Grouper is squared off.

Black Grouper occur off North Carolina to Florida, around Bermuda, and in the Gulf of Mexico, West Indies, and from Central America to southern Brazil. Adults are found over hard-bottom such as coral reefs and rocky ledges. Black Grouper occur at depths of 30 to 100 ft. Juveniles sometimes occur in estuarine seagrass and oyster habitat, or on shallow patch reefs.

Black Grouper live for at least 33 years and attain sizes as great as five feet. Black Grouper change sex from female to male, and approximately 50% of females are sexually mature by 2.7 ft and 5.2 years of age. At a length of 4 ft and an age of 15.5 years, approximately 50% of the females have become males. Black grouper are in spawning condition throughout the year; however, peak spawning of females occurs from January to March.

In the southeast, Black Grouper are managed by the South Atlantic Fishery Management Council under the Snapper Grouper Fishery Management Plan and are subject to annual catch limits, size and bag limits, trip limits, gear restrictions, and a spawning season closure. Most of the landings are in the Florida Keys.

Rock Hind

Epinephelus adscensionis - Rock Hind

Rock Hind is a medium-sized grouper that is generally yellow-brown or pale greenish. The body is covered with reddish-brown spots and scattered pale blotches; there is usually 3 to 5 dark brown blotches (groups of dark spots) at the base of the dorsal fin and a blackish brown blotch on top of of the caudal peduncle. The maximum lengths is about 24 inches. Rock Hind occurs on rocky reefs in depths of 6 to 350 ft. It feeds mainly on crabs and fishes. Females mature at 12 inch (2 years old); ripe females (14 to 17 inches) were noted from January to June at the Florida Middle Grounds.

Rock Hind has a large range and is known from both sides of the Atlantic Ocean and some of its islands. In the region, Rock Hind occurs in Bermuda and from North Carolina to Florida, the Gulf of Mexico, and in the Caribbean to southern Brazil.

Rock Hind has been observed to spawn in aggregations near insular shelf edges in depths of 66 to 98 ft, January through March. Off South Carolina, females in spawning condition have been collected during May through August. Rock Hind are reported to be protogynous. Crabs compose the majority of their diet, but Rock Hind have also been observed to feed on fishes and young sea turtles.

Rock Hind is of minor importance to commercial and sport fisheries in the region, as it is less abundant than other groupers. Rock Hind are managed by the South Atlantic Fishery Management Council. It is caught with hook-and-line and spear.

Red Hind

Epinephelus guttatus - Red hind

Red hind and Rock hind (*Epinephelus adscensionis*) are characterized by numerous dark spots on a lighter background. This color feature alone distinguishes the two species from Speckled Hind. Red Hind have pale pink bodies with uniform red spots. The back and the sides of Red Hind lack the large black blotches or saddles that are seen on Rock Hind, and the soft-rayed portions of the dorsal and anal fins as well as caudal fin of Red Hind are margined in black.

The species is found in tropical and subtropical waters as deep as 400 feet, from North Carolina to Brazil, including the southern part of the Gulf of Mexico and the Caribbean. It is most abundant off Bermuda and in the West Indies.

The species may live up to 17 years or longer. Maximum reported size is 30 inches in length (male) and 55 lbs. Red hind is protogynous. Spawning occurs from March to July in Atlantic waters off the southeastern U.S., and females release an average of 90 thousand to 3 million pelagic eggs. Annual spawning aggregations occur during the full moon in January and February off the southwest coast of Puerto Rico and during the summer in Bermuda with no relation to lunar periodicity.

Red hind is managed by the South Atlantic Fishery Management Council in the Snapper Grouper FMP. Commercial and recreational landings are small.

Graysby

Cephalopholis cruentata - Graysby

The Graysby is a smaller species of grouper that varies in color from pale gray to dark brown. It has many darker orangish to red-brown spots on its body, fins, and head, and 3-5 pale or dark spots that run along the base of the dorsal fin. A white line runs between the eyes from the nape to the lower lip. The tail is more rounded than in similar species. This species and the Coney have only 9 spines in their dorsal fins, whereas other groupers in the area have 10 or 11 spines.

Graysby occur from North Carolina to south Florida and in the Gulf of Mexico, Caribbean, and Bermuda. The Graysby inhabits live bottom habitat and is found as deep as 557 ft. It is sedentary, solitary, and secretive, usually hiding during the day and feeding at night. Juveniles feed on shrimp, whereas adults eat primarily fishes. Adult Graysby eat bony fish, shrimp, stomatopods, crabs, and gastropods.

Maximum reported size is 17 inches and 2.4 lbs. In the Caribbean, individuals in spawning condition have been observed in March and from May to July, and spawning there occurs from July through October. Female Graysby approaching spawning condition have been found during summer off the southeastern U. S. Size and age at first maturity are estimated as 6 inches and 3.5 years. Sexual transition occurs at sizes ranging from 6 to 10 inches, with most transitional individuals occurring between the sizes of 8 and 9 inches and ages 4 to 5. Maximum reported age is 13 years, and maximum size is 17 inches.

Graysby is managed by the South Atlantic Fishery Management Council in the Snapper Grouper FMP. Commercial and recreational landings are small.

Yellowfin Grouper

Mycteroperca venenosa - Yellowfin grouper (Fireback)

Yellowfin Grouper is a large grouper with a highly greenish olive or bright red color with longitudinal rows or darker black blotches over its entire body. The outer one-third of pectoral fins are bright yellow, while the lower parts of larger fish have small bright red spots. In shape, Scamp and Yellowmouth Grouper are similar, but the Yellowfin Grouper's coloration is distinctive enough to avoid misidentification.

Yellowfin Grouper occurs in the Western Atlantic, ranging from Bermuda to Brazil and the Guianas, including the Gulf of Mexico and Caribbean Sea at depths of 7 to 449 ft. Off the southeastern U.S., it is mostly found offshore on reefs off southern portions of Florida. The juveniles are commonly found in shallow seagrass beds, while adults occur over rocky areas and coral reefs. Yellowfin Grouper is primarily a piscivore, but includes squid in its diet.

Yellowfin Grouper can grow to 40 inches in length and 40 lbs, while reaching ages of 15 years. They are protogynous hermaphrodites, but data on maturity and transition from female to male is largely lacking. Spawning occurs from February to August, but off Florida most spawning activity is seen in May. Yellowfin Grouper seem to aggregate for spawning at some of the same sites utilized by Tiger Grouper, Nassau Grouper, and Black Grouper.

In the Atlantic waters off the southeast United States, Yellowfin Grouper are managed by the South Atlantic Fishery Management Council under the Snapper Grouper Fishery Management Plan and are subject to annual catch limits, size and bag limits, gear restrictions, and a spawning season closure.

Coney

Cephalopholis fulva - Coney

Coney is a small grouper with red fins, many small blue spots edged with black line scattered on the body, a caudal peduncle with two prominent black spots on the upper edge, and a pair of black blotches on the tip of the lower jaw. The overall body color is highly variable, from yellow or red to brown or bicolored.

Coney occurs in the Western Atlantic, ranging from South Carolina and Bermuda to southern Brazil. The Coney is a common species in shallow waters, and is a sedentary species that usually hides in caves or under ledges during the day. It is often seen in coral reefs and clear water, and can be found to depths as great as 492 ft. Coneys are predators, feeding mostly on crustaceans and small fish; they may also follow morays and snake eels to feed.

The maximum reported length for coneys is 16 inches and they can reach an age of 11 years. Coney is a protogynous hermaphrodite transitioning from female to male at a length of about 8 inches. Females mature at about 5 to 6 inches. Spawning occurs in small groups composed of one male and multiple females. Although ripe ovaries can be found in female Coney from November to March, spawning activity appears to be linked to particular moon phases (several days around the last quarter and new moon) in January and February.

In the Atlantic waters off the southeastern U.S., Coney is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP. There is not much of a directed fishery for coney, which are most commonly caught off the southeast Florida and in the Caribbean. Most commercial landings of coney are often labeled as unclassified grouper. They are mostly caught by hook and line gear.

Yellowmouth Grouper

Mycteroperca interstitialis - Yellowmouth Grouper

Yellowmouth Grouper is a tan or brown grouper with darker spots. It has spots, or a network of spots, fused into lines on the body, and a distinct yellow wash behind the jaws, yellow around the eyes and the outer edges of fins yellowish. Young fish are bi-colored, dark above with white below. It is very similar to Scamp, but adults generally occurs in deeper waters.

Yellowmouth Grouper occurs along the eastern U.S. coast, Bermuda, Bahamas, Gulf of Mexico, and in the Caribbean south to Brazil. Adults are found over rocky hard-bottom and coral reefs near the shoreline to depths of up to 500 ft. Young commonly occur in mangrove lined lagoons. Yellowmouth Grouper mostly eat fish, but also consumes crustaceans.

Yellowmouth Grouper can grow to about 33 inches, weighing over 22.5 lbs. The maximum age is reported to be between 28 to 41 years. Yellowmouth Grouper is a protogynous hermaphrodite transitioning from female to male at a length of about 20 to 25 inches at an age between 5 and 14 years. Females mature at about 16 to 18 inches and between the age of 2 and 4 years. Yellowmouth Grouper may spawn all year, but peak spawning (in the Gulf of Mexico) is in March to May. Spawning occurs in small groups composed of one male and multiple females

In the Atlantic waters off the southeastern U.S., Yellowmouth Grouper is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP. There is not much of a directed fishery for Yellowmouth Grouper, but is is generally caught with other deep water Snapper Grouper species by both commercial and recreational fishers. They are mostly caught by hook and line gear, including snapper reel.

Goliath Grouper

Epinephelus itajara - Goliath Grouper, jewfish, guasa

Goliath Grouper is one of the largest and most distinctive groupers in the Atlantic waters off the southeastern U.S. The first (spinous) dorsal consists of a series of short spines not seen in other regional groupers. Head and fins are covered with small black spots, and irregular dark vertical bars present on the sides of body. The pectoral and caudal fin are rounded, and the first dorsal fin is shorter than, and not separated from second dorsal.

Goliath Grouper occurs in estuaries as post-larvae, juveniles (in mangroves and seagrass) and adults with a center of abundance in shallow nearshore and mid-shelf reefs, rarely to depths of more than 330 ft. Goliath grouper feed primarily on crustaceans, particularly spiny lobsters, as well as turtles and fishes, including stingrays. It is a territorial species, and larger individuals have reportedly stalked and approached divers.

The maximum reported size is 100 inches (male) and over 1,000 lbs. The reported maximum age is 37 years. However, it is likely that this species could live much longer if left unexploited. There is some evidence that males may transform from immature females. Males exhibit a similar testicular structure to those of other serranids that are protogynous, however, some mature males are smaller than mature females. Males mature at 44 inch length and age 4, with all males being mature at 46 inches and age 7. Females mature at 47 inches in length and age 6, while all are mature at 53 inches in length and age 8. Goliath Grouper form consistent spawning aggregations. Spawning occurs during full moon from June through December, with a peak in July through September. Spawning locations are shipwrecks, rock ledges, and isolated, and reef habitat.

In the Atlantic waters off the southeastern U.S., Goliath Grouper are managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP. Goliath Groupers are typically captured by hook and line, mostly incidental to other bottom fisheries (Grouper Snapper and Snook). Because Goliath Grouper post-larvae and juveniles depend on specific estuarine micro-habitats, seagrass and mangrove forest, estuarine reefs, non-fishery mortality can be high with the loss of these habitats or major declines in water quality. Unfortunately the majority of estuarine seagrass and most mangrove habitat (over 90%) has been lost in estuaries of the southeastern U.S. due to coastal urbanization and impoundment for mosquito control.

In the Atlantic waters off the southeastern U.S., Goliath Grouper are managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP. Goliath Grouper is taken by hook and line, mostly incidental to other bottom fisheries. The fishery is closed to possession or harvest with any gear in all sectors.

Nassau Grouper

Epinephelus striatus - Nassau Grouper

The Nassau Grouper is easily distinguished from other shallow-water groupers by the five dark bars on the body and the black saddle on the tail, just before the tail fin.

Nassau Grouper occurs on coral reefs and associated habitats in the tropical Western Atlantic, and range from Bermuda, the Bahamas, and Florida to southern Brazil, including the Gulf of Mexico. Juveniles are common in seagrass beds.

Nassau Grouper is a medium-sized grouper (maximum 48 inches and 30 lbs maximum) that is famous for its large spawning aggregations that form at predictable times and places, primarily in winter. Unlike most other groupers, where some large females become males, Nassau Grouper have individuals that begin life as males, with some females having a potential for sex change. Male and female Nassau Grouper mature between 16 and 20 inches at ages between 4 to 8 years. The spawning season is associated with water temperature and the moon phase. At lower latitudes, spawning activity lasts for about one week per month during December through February.

In the Atlantic waters off the southeastern U.S., Nassau Grouper are managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP. Nassau Groupers typically are captured by hook and line, mostly incidental to other bottom fisheries. The fishery is closed to possession or harvest with any gear in all sectors.

Yellowedge Grouper

Hyporthodus flavolimbatus - Yellowedge Grouper

Yellowedge Grouper belongs to a complex of deepwater groupers that include the Warsaw, Snowy and Misty Groupers. The Yellowedge and Snowy Groupers lack the elongate second dorsal spine that is so obvious in the Warsaw Groupers. Yellowedge Grouper typically do not show the classical lateral spot pattern that the Snowy Grouper has.

Yellowedge Grouper is a warm-temperate species with spawning populations from Cape Hatteras North Carolina to Florida and the Gulf of Mexico to Brazil. It occurs on reefs and sand/mud bottom at depths ranging from 210 to 902 ft. On soft-bottom habitats it is often seen within or near trenches or burrow-like excavations. Yellowedge Grouper eat a wide variety of invertebrates (mainly brachyuran crabs) and fishes.

Yellowedge Grouper are one of the longest living groupers as are other members of this deepwater group, likely exceeding 85 years. The maximum reported size is 45 inches and 41 lbs. Yellowedge Groupers are protogynous hermaphrodites, reversing sex with over half the females having transformed into males at 32 inches. Spawning occurs from April through October in the South Atlantic. Yellowedge Grouper spawning aggregations have been observed around deep slope shipwrecks off east central Florida.

Yellowedge Grouper managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP, and are caught in shelf edge and deep continental slope hook and line fisheries, both in commercial and recreational fisheries. A variety of hook and line gear are used including electric reels and bottom multi-hook long lines. Non-fishery mortality sources are largely unknown as critical post-larvae and juvenile habitat for Yellowedge Grouper has not been documented.

Warsaw Grouper

Hyporthodus nigritus - Warsaw Grouper (jewfish, black jewfish, Warsaw, guasa)

The Warsaw Grouper belongs to a complex of deep water groupers that include the Yellowedge, Snowy and Misty Groupers. Warsaw Grouper has 10 dorsal spines, the second of which is much longer than the third, which distinguishes it from all others in this complex. The color is a grayish brown to dark reddish-brown background with numerous small, irregular white blotches on the sides. The color appears much lighter around the nape and along the posterior margin of the operculum. All of the fins are dark brown, except the white-splotched spiny portion of the dorsal fin. The young are characterized by a yellow caudal fin; dark saddle on caudal peduncle; and some whitish spots on body.

Warsaw grouper is a warm-temperate cool water species with permanent breeding populations in deep reefs along the continental shelf edge and deep slope from Cape Hatteras, North Carolina to east central Florida and the Gulf of Mexico. The Warsaw Grouper has been consistently observed in small groups typically with a single very large (80 inches in length) individual around deep Oculina coral reefs and shipwrecks at depths from 180 to 1,722 ft on the east central coast of Florida. The warsaw's huge mouth enables it to engulf prey whole after capturing it.

Warsaw Grouper are protogynous hermaphrodites. Females mature 40 inches at 9 years**.** Female to male transition size is unknown, but the largest reported females were 45 inches. while the smallest male was 47 inches and 10 years old. The oldest and largest males are reported to be 41 years and 92 inches. The maximum age is estimated at 44 to 46 years. The Warsaw Grouper spawning activity has not been documented in the Atlantic waters off the southeastern U.S., but is estimated to occur from spring into summer based on post-larval collections and aging and is known to spawn August - October in the Gulf of Mexico, and during April and May off Cuba.

In Atlantic waters off the southeastern U.S. the Warsaw Grouper is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP. Warsaw Grouper are caught in shelf edge and deep continental slope hook and line fisheries, both in commercial and recreational fisheries. A variety of hook and line gear are used including electric reels and bottom multi-hook long lines. Non-fishery mortality sources are largely unknown as critical post-larvae and juvenile habitat for Warsaw Grouper has not been documented.

Misty Grouper

Hyporthodus mystacinus - Misty Grouper

Misty Grouper have alternating light and dark bars from the nape to the base of the tail (usually 8 or 9 of each). Light and dark bars extend onto the dorsal and anal fins, and the two dark bars just before the tail may be joined into a broader and darker band around the caudal peduncle.

The range of Misty Grouper is limited to the Western North Atlantic from North Carolina and Bermuda to the West Indies and probably northern South America; this species also apparently occurs in the Eastern Pacific Ocean. It inhabits both hard-bottom and soft-bottom habits at depths from approximately 330 to 1,640 ft.

Maximum length of Misty Grouper is 62 inches and they can grow to 166 lbs. The age of two large specimens from Bermuda was estimated at 135 and 150 years. Like other groupers, Misty Groupers are probably protogynous hermaphrodites, but little is known about their biology. Misty Grouper are known to consume crabs, shrimps, squid, and fish.

Misty Grouper is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP, however it has been rare in landings. It is caught mostly by hook and line.

Tilefishes

Blueline Tilefish

Caulolatilus microps - Blueline Tilefish (Gray Tilefish, Tilefish)

Blueline Tilefish has a dull olive-gray overall appearance with white below. It has elongate, continuous dorsal and anal fins more than half the length of body, and a long snout with narrow gold stripe underlined in blue from snout to the tip of the eye. The gill cover has a strong, flat spine. The lack of fleshy protuberance behind the head distinguishes it from (Golden) Tilefish (*Lopholatilus chamaeleonticeps*).

Blueline Tilefish is patchily distributed along the outer continental shelf of North America from Cape Lookout, NC, to Campeche Bank, Mexico. Adults appear to move little, inhabiting areas along the outer continental shelf, shelf break, and upper slope on irregular bottom. Usual adult habitats include ledges or crevices and around boulders or rubble piles at depths of 160 to 820 ft Individuals have been observed hovering near or entering burrows under rocks as observed in many other tilefishes (malacanthids). Blueline Tilefish feeds on bottom creatures, such as crabs, shrimp, snails, worms, sea urchins, and small fish.

Blueline Tilefish can live to at least 26 year but the expected maximum age may be closer to 45 years. There is dimorphic growth with males growing larger at age than females, with both sexes reaching over 32 inches.

Blueline Tilefish are gonochorists with an extended spawning season from February to November, with a peak March – September. Data suggests they are fully mature by 365mm FL. Females are prolific spawners and produce up to 94 batches of eggs during the spawning season producing over 3 million eggs during a season.

In the Atlantic waters off the southeastern U.S., Blueline Tilefish is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP and is subject to annual catch limits, bag limits, trip limits, and gear restrictions. They are caught by both commercial and recreational fishers. Hook and line is most commonly used by recreational fishers, snapper reels and longlines are the gear used most by commercial fishers to catch Blueline Tilefish.

Golden Tilefish

Lopholatilus chamaeleonticeps – Tilefish (Golden Tilefish)

Tilefish is easily distinguishable from other members of the family Malacanthidae by the large adipose flap, or crest, on the head. The species is blue-green and iridescent on the back and sides, with numerous spots of bright yellow and gold, and a white belly.

Tilefish is a long-lived, slow-growing deepwater demersal member of the family Malacanthidae distributed along the outer continental shelf of North America from Nova Scotia to the northern shoreline to Campeche Bank, Mexico including the Gulf of Mexico. Golden Tilefish is also found throughout continental Caribbean. It is also off of South America from Venezuela to Surinam. Tilefish move little as adults and occupy burrows within clay bottoms or scour depressions around boulders or rubble piles in depths of 250 to 1,500 ft and water temperatures of about 50° to 60° F.

Tilefish can reach a length of 38 inches and 40 years of age. Females are smaller than males, although whether or not the species displays hermaphroditism is still under investigation. Sexual maturity is reached when fish are about 27 inches long, 3 years of age, and weigh about 9 lbs. Female Tilefish spawn from March through November with a spawning peak occurring between April and June. Male Tilefish was also in spawning condition from March through November, however, most spawning activity occurred from April through June.

Tilefish feed during the day on the bottom on crustaceans, clams, snails, worms, anemones and sea cucumbers. In the Atlantic waters off the southeastern U.S., Tilefish is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP and is subject to annual catch limits, bag limits, and gear restrictions. They are caught by both commercial and recreational fishers. Hook and line is most commonly used by recreational fishers, while snapper reels and longlines are the gear used most by commercial fishers.

Sand Tilefish

Malacanthus plumieri - Sand Tilefish

Sand Tilefish are elongate and slender pale gray fish that may have a bluish cast. They are reef-associated but are found over sand and coral or rock rubble from near shore to depths of about 150 ft, from Cape Lookout, NC, to Santos, Brazil, including Bermuda, Bahamas, Gulf of Mexico, and Caribbean (also around Ascension Island in South Atlantic).

Sand Tilefish build burrows surrounded by mounds of rubble and shell fragments near reefs and grass beds. Prey items include shrimps (amphipods, stomatopods, decapods), fishes, polychaete worms, chitons, sea urchins and sea stars.

Males guard territories that include several haremic females. The maximum reported size is 28 inches and 2.4 lbs; however the common average size is much smaller. There is little information on the life history of this species. Tilefishes that have been studied are not hermaphroditic, and it is likely that Sand Tilefish is also a gonochorist.

Sand Tilefish is of minor economic importance, but is probably landed and sold as mixed unidentified tilefish or reef fish. This species is managed by the South Atlantic Fishery Management Council in the Snapper Grouper FMP.

Triggerfishes

Gray Triggerfish

Balistes capriscus - Gray Triggerfish (Taly, Leatherjacket, Leatherneck)

The Gray Triggerfish, has large incisor teeth and a deep laterally compressed body covered with tough, sandpaper-like skin. The Gray Triggerfish is easily distinguished from other triggerfishes in the Atlantic waters off the southeastern U.S., such as Queen Triggerfish, by its drab gray color. Triggerfish can be distinguished from filefish species by the presence of more than one dorsal spine.

Gray Triggerfish is a warm-temperate species in the family Balistidae that is found throughout the Atlantic Ocean, including the Mediterranean Sea. Gray Triggerfish occurs in coastal waters of the western Atlantic from Nova Scotia (Canada) to Argentina, including the Gulf of Mexico and Bermuda. Throughout this distribution they generally are found at depths to 330 ft, though they are commonly found between 40 and 140 ft among reefs and hard-bottom habitat, such as wrecks and rock outcroppings. The most common items in their diet are small mussels, sea urchins and barnacles, which they dislodge and crush with their teeth.

Gray Triggerfish is a gonochorist that can reach a maximum age of 15 years and length of 22 inches. Males grow larger and live longer than females. Female Gray Triggerfish begin maturing at or before 1 year of age and around 6 inches in length. Spawning occurs off-shore from April-September, with Gray Triggerfish having demersal eggs that are deposited in guarded nests. Typically a single male guards a territory that houses several nests belonging to several females in a harem-like system. Females can spawn up to 12 times a season.

In the Atlantic waters off the Atlantic waters off the southeastern U.S., Gray Triggerfish is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP and is subject to annual catch limits, size and bag limits, trip limits, and gear restrictions. They are caught by both commercial and recreational fishers, with hook and line gear being the most commonly used.

Ocean Triggerfish

Canthidermis sufflamen - Ocean triggerfish,

The Ocean Triggerfish is grayish in color with a dark edge on the dorsal and anal fins. It occurs in both the Western and Eastern Atlantic. In the Western Atlantic, it ranges from Massachusetts to South America, including the Gulf of Mexico and Caribbean. The ocean triggerfish is found at depths of 16 to 197 ft in mid-water or at the surface associated with *Sargassum,* near drop-offs of seaward reefs, and occasionally in shallow waters. This species is sometimes solitary, but also is known to form small groups in open water of over 50 individuals. It is sometimes seen in association with the Black Durgon. This species feeds primarily on large zooplankton, but also eats benthic invertebrates.

Maximum reported length is 26 inches (male) and Ocean Triggerfish wan weigh up to 13.5 lbs. Spawning reportedly occurs year round with, but with a peak September.

Jacks

Greater Amberjack

Seriola dumerili – Greater Amberjack

Greater Amberjack are large, silvery fish with a bluish grey or olivaceous dorsal surface, often a dark bar passing through the eye and ending at the base of the first dorsal fin, and a relatively long anal-fin base. A vertical line from the depressed lobe of the soft dorsal fin generally intersects the origin of the anal fin. They often have an amber stripe along mid-body. The dorsal fin usually has 7 spines, but it may appear to have only 6 because the last spine is small and may be covered by skin in larger specimens.

The Greater Amberjack, *Seriola dumerili*, is a pelagic and epibenthic warm-temperate species in the family Carangidae. This large jack is distributed from Nova Scotia to Brazil and throughout the Pacific, Indian, and Eastern Atlantic Oceans as well as the Gulf of Mexico, the Caribbean Sea, and the Mediterranean Sea. Greater Amberjack often are found near reefs, rocky outcrops, or wrecks off the southeastern United States, with a relatively broad depth range of 50 to 780 ft.

Greater Amberjack has a fast growth rate and reaches a maximum size of 74 inches, maximum weight of 178 pounds, and maximum age of 13 years. Females are generally larger at age than males. This species is gonochoristic with a spawning season from January to June with a peak in April and May. Spawning appears to be more prevalent off south Florida and the Florida Keys compared to locations further north along the Atlantic coast. They mature at 1 year of age and 29 inches in length.

Greater Amberjack are included in the Snapper Grouper FMP and are managed by the South Atlantic Fishery Management Council. Recreational fishing for Greater Amberjack began in the early 1950s, but there was no targeted fishery until the 1970s.

Almaco Jack

Seriola rivoliana - Almaco Jack

Almaco Jack is elongate, moderately deep-bodied and compressed, with the upper profile more convex than lower. This gives Almaco Jack a more oval shape than other species of *Seriola*. The scales are small and smooth, and there are no scutes on the tail as in many jacks. There are grooves present on the caudal peduncle. Almaco Jack are brown or olive to bluish-green above, with the sides and belly lighter. A darker band that is prominent in juveniles and often persistent in adults extends from the eye to the first dorsal fin. A faint amber lateral stripe extending backward from the eye is frequently present. Juveniles (to about 7 inches in length) have six dark vertical body bands, and a dark seventh band at the end of caudal peduncle.

Almaco Jack occurs in the Indo-West Pacific, in the Eastern Pacific, and in the Western Atlantic, where it occurs from Massachusetts to northern Argentina. It is pelagic and inhabits outer reef slopes and offshore hard-bottom banks, generally at depths from 49 to 525 ft. Juveniles are often seen around floating objects. Almaco Jack feeds mainly on fish.

Almaco Jack are usually seen between 22 and 32 inches and 3.5 to 6 lbs. Size at maturity is estimated at 32 inches. The all-tackle IGFA Atlantic world angling record is 78 lbs, but they have been reported up to 132 lbs in other areas.

Almaco Jack are caught on hook and line gear. It is not targeted, but the flesh is regarded as good to very good. It has been implicated in ciguatera poisoning in the Caribbean. Almaco Jack are managed in the South Atlantic Fishery Management Council Snapper Grouper management unit and are included in the recreational aggregate bag limit with no size or seasonal limits. The recreational and commercial fisheries are open year round with no size limits, but with gear restrictions and an annual catch limit set by NMFS.

Banded Rudderfish

Seriola zonata - Banded Rudderfish

Banded Rudderfish less than 11 inches long have dark band from eye to first dorsal fin and six prominent bars on body, while larger fish are bluish, greenish, or brown. The soft dorsal base is about twice the length of the anal fin and the tail-lobe is white tipped. They can be differentiated from other amberjacks by having a shallower body.

Banded Rudderfish are typically found in the Western Atlantic from Nova Scotia, Canada to Santos, Brazil, including the Gulf of Mexico and the Caribbean Sea. They are absent from Bahamas and most islands. Adult Banded Rudderfish are pelagic or epibenthic and confined to coastal waters over the continental shelf. Young fish are associated with weed lines or floating debris and may follow sharks and other large fish. Banded Rudderfish feed on shrimp and fishes.

Banded Rudderfish is a relatively small carangid, reaching a maximum size of less than 30 inches and 11.5 lbs. Little is known about maturity and spawning.

In the Atlantic waters off the southeastern U.S., Banded Rudderfish is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP and is subject to annual catch limits (in the jack complex), bag limits, and gear restrictions. They are caught by both commercial and recreational fishers, with hook and line gear being the most commonly used.

Bar Jack

Caranx ruber - Bar Jack

The Bar Jack, *Caranx ruber*, occurs in the Western Atlantic from New Jersey to southern Brazil, including the Gulf of Mexico and throughout the Caribbean Sea. Fish less than 11 inches long have dark band from eye to first dorsal fin and six prominent bars on body; larger fish are bluish, greenish, or brown; soft dorsal base about twice the length of the anal fin; tail-lobe white tipped.

It is commonly found in clear insular areas or coral reef habitats off mainland coasts, from depths of 10 to 115 ft. Juveniles frequent areas with *Sargassum* and appear to be common in shallow water (0 to 49 ft) reef habitats, but probably move to the outer margins of the shelf at or before maturity. Bar Jack are founds in nearshore and offshore waters over hard-bottom, generally in shallower water than other amberjacks. Young are associated with weed lines or floating debris and may follow sharks and other large fish. Bar Jack are sometimes solitary, but usually forms schools, possibly associated with spawning events. Prey items include fishes, shrimps, and other invertebrates.

Maximum reported size is 28 inches and 18.2 lbs. The minimum size of maturity for both males and females off Jamaica is 9 inches. The mean length at maturity is 10 inches for both sexes, and most fish are probably mature when they reach 10 inches in length. Spawning occurs during all year with peak spawning during April and October. Peak spawning off Cuba occurs during April and July.

In the Atlantic waters off the southeastern U.S., Bar Jack are managed by the South Atlantic Council under the Snapper Grouper FMP and are subject to annual catch limits (in the jacks complex), bag limits, and gear restrictions. They are caught by both commercial and recreational fishers, with hook and line gear being the most commonly used.

Lesser Amberjack

Seriola fasciata - Lesser Amberjack

Lesser Amberjack has an olive green or brownish back and silversides, with a dark band (variably present) extending backward and upward from eye. Juveniles can have split or wavy bars on their sides. Lesser Amberjack has a proportionately larger eye and deeper body than the Greater Amberjack.

Lesser Amberjack occur in the Eastern and Western Atlantic Oceans. In the Western Atlantic, it is found from Massachusetts to Brazil. This is a benthopelagic species, primarily found in depths of 180 to 430 ft, with smaller juveniles being epipelagic in oceanic or offshore neritic waters. Lesser Amberjack feeds on squids and fishes.

Lesser Amberjack is a relatively small carangid, reaching a maximum reported size of 27 inches and over 10 lbs. Sexually dimorphic growth was observed in the Gulf of Mexico, with females attaining a larger size than males. Little is known about maturity and spawning.

In the Atlantic waters off the southeastern U.S., Lesser Amberjack is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP and is subject to annual catch limits (in the jack complex), bag limits, and gear restrictions. They are caught by both commercial and recreational fishers, with hook and line gear being the most commonly used.

Porgies

Red Porgy

Pagrus pagrus - Red Porgy (Pinky, Pink Porgy, Rose Porgy, Strawberry Porgy)

The Red Porgy is a sparid distributed throughout the Atlantic Ocean and Mediterranean Sea. In the western Atlantic, they range from New York, U.S., the Caribbean Sea, and through the Gulf of Mexico to Argentina. Their head and body are a silvery red, with many tiny blue spots. They are distinguished from other porgy species in the U.S. by having a rear nostril that is round (not slit-like).

In the Atlantic waters off the southeastern U.S,, Red Porgy inhabit reefs on the middle to outer continental shelf and shelf-break out to 920 ft in depth, but commonly found between 30 and 260 ft. They are found over rock, rubble, or sand bottom, with young frequently found on seagrass beds and the continental shelf. They feed on crustaceans, fishes, and mollusks. Red Porgy in the northwestern Atlantic are thought to constitute a single stock, but are separate from the northeastern and southwestern Atlantic.

Red Porgy are protogynous winter spawners (November to May), with the peak spawning season in November through March. Notable plasticity in the growth as well as reproductive parameters, such as size and age at female maturity and size and age at transition, has been documented. The oldest reported age is 14 years with sizes upwards of 20 inches.

In the Atlantic waters off the southeast U.S., Red Porgy is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP and is subject to annual catch limits, size and bag limits, trip limits, gear restrictions, and a spawning season closure. They are caught by both commercial and recreational fishers, with hook and line gear being the most commonly used gear.

Knobbed Porgy

Calamus nodosus - Knobbed porgy

The Knobbed Porgy is deep-bodied, with a conspicuously steep forehead and bony protrusions just in front of the eyes. The body is iridescent silvery blue, and the snout is purplish with numerous yellow-bronze spots and a blue streak under the eyes.

Knobbed Porgy is a warm-temperate species that occurs in the Western Atlantic Ocean from North Carolina to the Florida Keys, and throughout most of the Gulf of Mexico. This fish is a demersal species, and typically occurs over hard-bottom habitat at depths from 25 to 300 ft. Knobbed porgy have large incisors and strong molars which enable them to crush and consume hard-bodied animals, such as clams, snails, crabs, urchins, starfish and barnacles. They are fast enough to catch small fish, but fishes are rarely a part of their diet.

Maximum reported size is 21 inches in length (male/unsexed) and 5.8 lb. The maximum reported age is 21 years off the southeastern United States. Growth rate is medium, as asymptotic length is reached in 6 to 10 years. Length and age at which 100% of sampled fish are mature is 12 inches and 6 years, respectively. Male to female sex ratios increase with increasing length and age, and histological evidence of protogyny was found. Females transition to males between 11 and 15 inches in length, and between 5 to 20 years, during any time of year. Females spawn during March to July at outer-shelf reefs with a peak during April and May, and an estimated spawning interval of 1.5 days.

In the Atlantic waters off the southeastern U.S., Knobbed Porgy is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP and is subject to annual catch limits (porgy complex), bag limits, and gear restrictions. They are caught by both commercial and recreational fishers, with hook and line gear being the most commonly used gear.

Jolthead Porgy

Calamus bajonado - Jolthead Porgy

Jolthead Porgy are most recognizable by their long snout. They are generally silvery to brassy, with a bluish cast. The front of the head is brown, sometimes with a blue line along lower rim of eye. Live specimens under water display a whitish stripe below the eye and another between the eye and mouth; these marks are said to fade quickly upon death. The corner of the mouth is orange.

Jolthead Porgy occur in the Western Atlantic from Rhode Island and Bermuda, southward to Brazil, including the northern Gulf of Mexico. This species inhabits coastal waters from 10 to 650 ft in depth. It can be found on vegetated sand bottoms but occurs more frequently on coral and hard-bottom. Large adults are usually solitary. Crabs and mollusks constitute its primary prey items.

Maximum reported size is 30 inches and 23 lbs. Little is known about Jolthead Porgy reproduction in the Atlantic waters off the U.S., but size and age at maturity in the Gulf of Mexico ranges from 12 to 17 inches and 3 to 5 years.

In the Atlantic waters off the southeastern U.S., Jolthead Porgy is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP and is subject to annual catch limits (porgy complex), bag limits, and gear restrictions. They are caught by both commercial and recreational fishers, with hook and line gear being the most commonly used.

Whitebone Porgy

Calamus leucosteus - Whitebone porgy, Silver Porgy

The Whitebone Porgy is silvery with faint brownish blotches on the sides. It has a rounded head and a pointed snout. The pectoral fin is relatively long. The caudal fin has dark edges. Note that many other porgies have 14 to 15 rays in the pectoral fins and markings between the eye and snout. Whitebone Porgy has 16 rays in the pectoral fin and evenly dusky cheeks with no marks.

Whitebone Porgy are found in the Western Atlantic from North Carolina to southern Florida in the U.S. and the entire Gulf of Mexico. They are most frequently encountered in or near sponge-coral habitats at depths of 33-328 ft. Off the southeastern United States, Whitebone Porgy feed mainly on small hard-shelled species of gastropods, pagurid decapods, and sipunculids. Polychaetes, pelecypods, barnacles, and fishes are also eaten. Larger individuals consume fishes and echinoderms.

Off the southeastern United States, maximum reported size is 16.5 inches and maximum reported age is 12 years. Whitebone Porgy are protogynous and approximately 60% of the females transition into males. Spawning occurs during April-August off the southeastern United States with a peak during May.

In the Atlantic waters off the southeastern U.S., Whitebone Porgy is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP and is subject to annual catch limits (porgy complex), bag limits, and gear restrictions. They are caught by both commercial and recreational fishers, with hook and line gear being the most commonly used gear.

Saucereye Porgy

Calamus calamus - Saucereye Porgy

The Saucereye Porgy has a larger eye than the other porgies. Its color is silvery with bluish reflections, with golden scales forming longitudinal stripes and pearly-bluish interspaces. The cheeks and snout are purplish, with round brassy spots. Their fins are pale and blotched with orange. The iris of the eye is golden.

Saucereye Porgy is a reef-associated species that occurs from North Carolina and Bermuda to Brazil at depths of 3-246 ft. Adults are frequently found in coral areas, while the young prefer seagrass (e.g. *Thalassia*) and sandy bottoms.The diet of saucereye porgy includes polychaetes, echinoderms, mollusks, crabs, gastropods, and other benthic crustaceans.

Not much is known about the life history of this species, but the reported maximum size is 22 inches in length (male/unsexed) and 1.5 lbs.

In the Atlantic waters off the southeastern U.S., Saucereye Porgy is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP and is subject to annual catch limits in the Porgy complex, bag limits, and gear restrictions. They are caught by both commercial and recreational fishers, with hook and line gear being the most commonly used gear.

Scup / Longspine Porgy

Stenotomus caprinus - Longspine porgy, and *Stenotomus chrysops* - Scup

Longspine Porgy and Scup are very similar species with the Longspine Porgy having a significantly elongated first dorsal spine that can break off easily when caught. Note that juvenile Scup can also have an elongated first dorsal spine. They are deep-bodied species with very spiny fins. The front teeth are incisor-form and are very narrow, almost conical. There are two rows of molars in the upper jaw. The color is dusky brown with somewhat bright silvery reflections below. The fins are mottled with dark brown in the adults and the young may be faintly barred.

Stenotomus caprinus - Longspine Porgy

Longspine Porgy is found on mud bottom from North Carolina to Georgia in the U.S. and in the Gulf of Mexico from northern Florida to Yucatan, Mexico at depths of 16-607 ft. Their diet includes polychaetes, crabs, other benthic invertebrates, shrimps, prawns, fishes, stomatopods, and amphipods.

Not much is know about the life history of Longspine Porgy, but the maximum reported size is 12 inches in length and the maximum age is reported to be 3 years.

In the southeastern United States, Longspine Porgy is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP and is subject to annual catch limits in the Porgy Complex, bag limits, and gear restrictions. They are caught by both commercial and recreational fishers, with hook and line gear being the most commonly used gear.

Stenotomus chrysops - Scup

Scup is a schooling species that occur in the Western Atlantic from Nova Scotia in Canada to Florida and inhabit the nearshore region of the continental shelf from Nova Scotia to South Carolina. It is found over hard-bottom habitats, such as rock outcroppings and wrecks in waters of 45° F or warmer. Scup feed on squid, polychaetes, amphipods, and other benthic invertebrates.

Maximum reported size is 18 inches in length (male/unsexed) and 4.6 lbs. Length at 50% maturity is 6 inches in length. Spawning is reported to occur from May through August, peaking in June. It is a gonogoristic species and mature sexually at the age of 2 and about 8 inches in length. The eggs and larvae are pelagic and are carried by currents and winds before settling to the bottom. Scup may live to be 15 years old.

In the Atlantic waters off the southeastern U.S., Scup is managed by the South Atlantic

Fishery Management Council under the Snapper Grouper FMP and is subject to annual catch limits in the Porgy Complex, bag limits, and gear restrictions. They are caught by both commercial and recreational fishers, with hook and line gear being the most commonly used gear.

Snappers

Red Snapper

Lutjanus campechanus - Red Snapper (Mules, Sow Snapper, Spot Snapper (small))

Red Snapper has a pinkish-red color over its entire body, with whitish color below. Red Snapper has red eyes, long triangular snout, and a sharply pointed anal fin. Red Snapper less than 1 ft in length have a large dark spot on the upper sides, below the anterior soft dorsal rays, that disappears as it gets larger.

Red Snapper is distributed in warm-temperate waters throughout the Gulf of Mexico south to the Yucatan Peninsula and in United States Atlantic waters north to North Carolina. Adult Red Snapper are associated with structured habitats such as coral reefs, wrecks, gas and oil platforms, rocky outcroppings, and live-bottom habitats in relatively shallow waters (typically <250 ft) in the Atlantic waters off the southeastern U.S. Juveniles occur in shallow waters over sandy or muddy bottom.

Red Snapper reach a maximum length of about 40 inches and maximum reported age over 50 years. They are gonochoristic and spawn May through October in the Atlantic, with a peak June through September. They begin to mature under 2 years of age for both sexes. Overall sex ratio appears to vary by age and size, with more females present at older ages and larger sizes.

Red Snapper has been under intense commercial and recreational fishing for decades. In the Atlantic waters off the southeastern U.S., Red Snapper is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP and is subject to annual catch limits, size and bag limits, trip limits, and gear restrictions when the fishery is open. They are caught by both commercial and recreational fishers, with hook and line gear being the most commonly used gear.

Vermilion Snapper

Rhomboplites aurorubens - Vermilion Snapper (Beeline(r) Snapper)

Vermilion Snapper have streamlined bodies which are pale to silver white below and vermilion/reddish above. Narrow yellow-gold streaks, some horizontal and others oblique, occur below the lateral line. The dorsal fin is rosy colored with a yellow margin. The caudal fin is red but has a faint black margin. Large canine teeth are absent and the orientation of the mouth and eye give it the appearance of looking upward. The Vermilion Snapper is the only Western Atlantic snapper with 12 dorsal-fin spines (other species usually have 10 spines and rarely have 9 or 11 spines).

The Vermilion Snapper is a warm-temperate and tropical lutjanid occurring from North Carolina and Bermuda, throughout the West Indies and Gulf of Mexico, and south to southeastern Brazil. Off the Atlantic waters of the southeastern U.S., Vermilion Snapper is a schooling fish that is commonly associated with patches of sponge/coral habitat, rocky outcrops, and rocky ledges on the continental shelf and shelf-break (85-180 ft), as well as the upper-slope reef habitats (~330 ft). Young fish occur in shallower waters than the adults (typically < 85 ft), where they also form large schools. They feed on fishes, shrimps, crabs, polychaetes, other benthic invertebrates, cephalopods, and planktonic organisms.

Vermilion Snapper is relatively small, reaching maximum lengths of 24 inches and maximum ages greater than 20 years old. They are gonochoristic and spawn off the Atlantic waters off the southeastern U.S. from April to September, with a peak between June and August. They mature at a young age (nearly all are mature at 1 year old) and small size (beginning around 6 inches in length). There is also a skewed sex ratio, with more females present than males.

This species has been targeted by commercial and recreational fishers for decades. In the Atlantic waters off the southeastern U.S., Vermilion Snapper is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP and is subject to annual catch limits, size and bag limits, trip limits, and gear restrictions. They are caught by both commercial and recreational fishers, with hook and line gear being the most commonly used gear.

Queen Snapper

Etelis oculatus - Queen Snapper

The Queen Snapper is a moderately large snapper that occurs in the Western Atlantic, ranging from Bermuda and North Carolina to Brazil, including the Gulf of Mexico and Caribbean Sea. It is commonly found near oceanic islands, and is particularly abundant in the Bahamas and the Antilles. The back and upper sides of Queen Snapper is red; body is silvery, long and slender; dorsal fin distinctly notched; eyes are large; caudal fin deeply forked; and there is no dark lateral spot.

Queen Snapper is a bathydemersal species that moves offshore to deepwater reefs and rocky ledges as it grows and matures. It is primarily found over rocky bottom habitat, in depths of 327 to 1,475 ft. Maximum reported size is 39 inches (male) and 11.7 lbs. Limited information indicates the size at maturity and age at first maturity are estimated as 21 inches and 1 year, respectively. Spawning is reported to occur during April and May off St. Lucia. Approximate life span is 4.7 years.

Queen Snapper is targeted by commercial and recreational fishers, but most landings are from the commercial sector. Off the Southeast United States, Queen Snapper is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP. It is included in the Deepwater Complex along with Yellowedge Grouper, Silk Snapper, Misty Grouper, Sand Tilefish, and Blackfin Snapper, which is subject to annual catch limits, size and bag limits, and gear restrictions. They are caught by both commercial and recreational fishers, with hook and line gear being the most commonly used.

Yellowtail Snapper

Ocyurus chrysurus - Yellowtail Snapper

Yellowtail Snapper are primarily silver with a prominent mid-lateral yellow band from the snout to the tail.

Yellowtail Snapper occurs in the Western Atlantic, ranging from Massachusetts to southeastern Brazil, including the Gulf of Mexico and Caribbean Sea, but is most common in the Bahamas, off south Florida, and throughout the Caribbean. The Yellowtail Snapper inhabits waters as deep as 590 ft, but are most abundant at depths of 66 to131 ft. Adults typically inhabit sandy areas near offshore reefs, and juveniles are usually found over back reefs and seagrass beds. Yellowtail snapper typically exhibit schooling behavior. Yellowtail Snapper are nocturnal predators; juveniles feed primarily on plankton, whereas adults eat a combination of planktonic and benthic organisms, including fishes, crustaceans, worms, gastropods, and cephalopods.

Maximum reported size is 34 inches in length (male) and 9 lbs. Maximum age is 17 years. There is a truncation in the size and age structure of Yellowtail Snapper near human population centers. Yellowtail Snapper have separate sexes throughout their lifetime. Size at 50% maturity is estimated as 9 inches in length (males) and 10 inches length (females). Spawning occurs over a protracted period and peaks generally from late spring through summer. Spawning generally occurs in offshore waters during the new moon, and spawning often involves large spawning aggregations.

In the Atlantic waters off the southeastern U.S., Yellowtail Snapper are managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP and is subject to annual catch limits, size and bag limits, trip limits, and gear restrictions. Most U.S. landings are from the Florida Keys and southeastern Florida.

Gray Snapper

Lutjanus griseus - Gray Snapper or Mangrove Snapper

Gray Snapper are among the species of Western Atlantic snappers with no dark spot below the soft dorsal fin, at any size, and a rounded anal fin. They are separated from the similar Cubera Snapper by having upper canines distinctly larger than lower and by having an anchor-shaped tooth patch on the roof of the mouth. Color is quite variable, ranging from reddish to olive to greyish. Young often have a dark diagonal bar from tip of snout through eye and may have a blue line below eye.

Gray Snapper occur in the Western Atlantic from Massachusetts to Brazil, including the Gulf of Mexico and Caribbean Sea. This species occupies a variety of habitats during its life history. It occurs at depths of 16 to 591 ft, in coral reefs, rocky areas, estuaries, mangrove areas, and in the lower reaches of rivers (especially the young). Gray Snapper often forms large aggregations. The gray snapper feeds mainly at night on small fishes, shrimps, crabs, gastropods, cephalopods, and some planktonic items.

Maximum reported size of Gray Snapper is 35 inches in length (male) and 44 lbs, and maximum reported age is 24 years. Gray Snapper are gonochorists. Length and age at first maturity is estimated as 9 inches and 2 years for females and 9 inches for males. Spawning occurs during summer near the time of the full moon. This species spawns from late May to early September in the Florida Keys. In the northeastern Caribbean, individuals in spawning condition have been observed in May, August, and September. Off Cuba, Gray Snapper spawn during June through September with a peak in July.

In the Atlantic waters off the southeastern U.S., Gray Snapper is managed by the South Atlantic Fishery Marine Council under the Snapper Grouper FMP and is subject to annual catch limits, size and bag limits, trip limits, and gear restrictions. Most Gray Snapper landed in Atlantic waters off the southeastern U.S. are caught in Florida. Due to the use of various habitats during their life history, Gray Snapper are vulnerable to habitat degradation from tidal rivers to the continental shelf, with the loss of mangrove habitat being of special concern.

Mutton Snapper

Lutjanus analis - Mutton Snapper

Mutton Snapper are among the snappers in the Western Atlantic with a dark spot under the soft dorsal fin and a pointed anal fin, although the lateral spot is progressively smaller in larger fish. Among this group of snappers the mutton is the only one with a roughly v-shaped patch of teeth in the front of the roof of the mouth (as opposed to an anchor-shaped patch with a posterior extension). The iris of the eye is red, and lateral coloration varies from uniform to barred with shades of red, olive, and whitish. The head has blue lines and spots.

Mutton Snapper are found in the Western Atlantic from Massachusetts to southeastern Brazil, including the Caribbean Sea and the Gulf of Mexico. It is most abundant around the Antilles, the Bahamas, and off southern Florida. Mutton snapper can typically be found in both brackish and marine waters at depths of 82 to 312 ft, although they have been captured on mud slopes at depths of 328 to 656 ft. Juveniles generally occur closer to shore, over sandy, vegetated bottom habitats, while large adults are commonly found offshore among rocks and coral habitat. Mutton snapper feed on fishes, shrimps, crabs, cephalopods, and gastropods.

Mutton Snapper have a reported maximum size of 37 inches in length (male) and 35 lbs. Maximum age of Mutton Snapper is 29 years. Mutton Snapper are gonochorists (separate sexes). Size at 50% maturity is 13 inches in length and 16 inches in length for males and females, respectively; all males and females are probably mature by 17 inches in length and 18 inches length, respectively. Spawning occurs in aggregations. Individuals have been observed in spawning condition February through July. Some spawning occurs during February to June, but spawning peaks during the week following the full moon in April and May. Spawning aggregations are known to occur north of St. Thomas, USVI, and south of St. Croix, USVI, in March, April, and May. Spawning at Riley's Hump off south Florida peaks in June.

In the Atlantic waters off the southeastern U.S., Mutton Snapper is managed by the South Atlantic Fishery Marine Council under the Snapper Grouper FMP and is subject to annual catch limits, size and bag limits, trip limits, and gear restrictions.

Lane Snapper

Lutjanus synagris - Lane Snapper

The Lane Snapper is one of two species of snappers in the Western Atlantic with a large dark spot below the soft dorsal fin (usually) and a rounded anal fin. Most of the lateral spot is above the lateral line. In addition to the lateral spot, this species can usually be easily identified by the yellow lateral stripes below the lateral line and diagonal yellow stripes above the lateral line.

Lane Snapper occur in the Western Atlantic, ranging from North Carolina and Bermuda to southeastern Brazil, including the Gulf of Mexico and Caribbean Sea. It is most common near the Antilles, on the Campeche Bank, off Panama, and off the northern coast of South America. This species occurs over all bottom types, but is usually encountered near vegetated areas as juveniles and coral reefs as adults. Lane Snapper feed primarily at night on small fishes, benthic crabs, shrimp, worms, gastropods, and cephalopods.

Maximum reported size is 24 inches (male), the world record weight is 8.3 lbs. Maximum age of Lane Snapper is 19 years. Size at 50% maturity is 6 inches for males and 7 inches in length for females. Lane Snapper first become sexually mature at age 1. They often form large aggregations, especially during the spawning season. Reproduction occurs over a protracted period, with some degree of reproductive activity occurring all year, although peak spawning occurs during April to July.

In the Atlantic waters off the southeastern U.S., Lane Snapper is managed by the South Atlantic Fishery Marine Council under the Snapper Grouper FMP and is subject to annual catch limits, size and bag limits, trip limits, and gear restrictions.

Cubera Snapper

Lutjanus cyanopterus - Cubera Snapper (Cuban snapper)

Cubera Snapper is a dark brown or gray color that may have a reddish tinge, while the fins have only a slight hint of blue. It has a broad-based triangular tooth patch on roof of mouth without a posterior extension. Canine teeth in both jaws are very strong, with one pair of canines enlarged and visible even when mouth is closed.

Cubera Snapper occurs in the Western Atlantic from Nova Scotia and Bermuda to Brazil. It also occurs throughout the Bahamas and Caribbean, including Antilles. It is rare north of Florida and in the Gulf of Mexico. Adults are found mainly around ledges over rocky bottoms or around reefs, at depths of 59-180 ft. Juveniles are reef-associated but also occur in brackish marine waters, and sometimes inhabit mangrove areas.

Maximum reported sizes for Cubera Snapper are 64 inches (male/unsexed) and 127 lbs. There is little information regarding Cubera Snapper reproduction, though spawning has been observed during July-August off Cuba. Cubera snapper feed on fishes, crabs, and shrimp.

In Atlantic waters off the southeastern U.S., Cubera Snapper is managed by the South Atlantic Fishery Marine Council under the Snapper Grouper FMP and is subject to annual catch limits, size and bag limits, trip limits, and gear restrictions.

Silk Snapper

Lutjanus vivanus - Silk Snapper (Silky Snapper or Yellow-Eyed Snapper)

Silk Snapper is red overall, darker above and lighter below with fine wavy longitudinal yellow lines. The caudal fin has a dusky margin. The yellow iris identifies the Silk Snapper from its close relatives, the Red Snapper and the Blackfin Snapper, both of which possess a red iris.

The Silk Snapper is a warm-temperate and tropical species that occurs in the Western Atlantic, from North Carolina to Brazil, including the Bahamas and the northern Gulf of Mexico. It commonly occurs along rocky ledges, in depths of 300 to 800 ft. Adults are generally found further offshore than juveniles and usually ascend to shallow water at night. However, juveniles are sometimes observed on deep reefs. Silk snapper form moving aggregations of similar-sized individuals. They eat primarily fishes, shrimps, crabs, gastropods, cephalopods, tunicates, and some pelagic items, including urochordates.

Maximum reported size is 33 inches and 18 lbs. Silk Snappers are gonochorists that begin maturing at 9 to 11 inches in length for females and males, respectively, which coincides with 5 to 6 years of age. Spawning occurs in June, July, and August in waters off North and South Carolina.

In the Atlantic waters off the southeastern U.S., Silk Snapper is managed by the South Atlantic Fishery Marine Council under the Snapper Grouper FMP and is subject to annual catch limits (other snapper complex), size and bag limits (aggregate snapper bag limit), and gear restrictions. They are caught by both commercial and recreational fishers, with hook and line gear being the most commonly used.

Blackfin Snapper

Lutjanus buccanella - Blackfin Snapper

Blackfin Snapper color is generally red, with yellowish caudal, anal, and pelvic fins. Blackfin Snapper also have a distinctive and prominent dark comma-shaped blotch at the base of the pectoral fins, which gives the fish its common name, and differentiates it from similar species. It also has a rounded anal fin and the absence of the black spot on side underneath dorsal fin present in many other juvenile and/or adult snappers.

Blackfin Snapper is a warm-temperate and tropical species that occur in the Western Atlantic, generally ranging from North Carolina, south throughout the Bahamas, and the northern Gulf of Mexico, to southeast Brazil. This is a demersal species in which adults occur in deep waters over sandy or rocky bottoms, and near drop-offs and ledges, ranging from 165-300 ft in depth. Juveniles occur in shallower waters, often associated with reefs in depths of 115-164 ft.

Blackfin Snapper can reach sizes of 30 inches and excess of 30 lbs. Blackfin snapper is a gonochorist that begins maturing around 9 inches in length for both sexes. There is little information regarding spawning off the Atlantic coast of the Atlantic waters off the southeastern U.S., but in the Caribbean, Blackfin Snapper spawn year round, with peaks in April and September. Fishes are the primary prey item of Blackfin Snapper.

In the Atlantic waters off the southeastern U.S., Blackfin Snapper is managed by the South Atlantic Fishery Marine Council under the Snapper Grouper FMP and is subject to annual catch limits (other snapper complex), size and bag limits (aggregate snapper bag limit), and gear restrictions. They are caught by both commercial and recreational fishers, with hook and line gear being the most commonly used.

Grunts

White Grunt

Haemulon plumieri- White Grunt (Ruby Red Lips, Red Mouth Grunt, or Common Grunt)

White Grunt is silver-gray, with numerous blue and yellow horizontal stripes on the body and head with a white underbelly. The mouth is large and bright orange. The lining of the body cavity, or peritoneum, is black.

White Grunt is a demersal reef fish found in warm-temperate and tropical waters of the western Atlantic from Virginia to Brazil. It has a disjunct distribution off the Atlantic waters off the Atlantic waters off the southeastern U.S., as it is typically absent from Cape Romain, SC, to Cape Canaveral, FL. White Grunt is typically associated with live-bottom and rocky outcrop habitats where it can be found in dense aggregations during the day at depths from 10 - 130 ft. Juveniles are common in seagrass beds. They are known to feed on crustaceans, small mollusks, and small fishes.

White Grunt reach a maximum reported size of 25 inches, 8 lbs, and live over 20 years of age. White Grunt is a gonochoristic species that begins maturing before 2 years of age and around 6 inches in length. It has a spawning season from May to September with a peak in April to June.

In the waters off the southeastern U.S., recreational fishermen are the primary source of White Grunt landings and this species managed by the South Atlantic Fishery Marine Council under the Snapper Grouper FMP and is subject to annual catch limits, size and bag limits, trip limits, and gear restrictions.

Margate

Haemulon album - Margate

Margate occurs in the Western Atlantic from the Florida Keys to Brazil, including the Caribbean Sea. The margate is similar appearance and proportions to White Grunt (*Haemulon Plumieri*), but with a more elevated and arching back, and is more compressed. The teeth of Margate are in narrow bands, and are somewhat smaller than in the other grunts. Adult Margate is whitish, olivaceous on the back, with faint spots on the scales of back and sides. The inside of the mouth is orange; the lips and snout yellowish; the fins dusky greenish; a broad but indistinct band extends along the sides. Younger fish are bluish in coloration of body and fins, with dark parallel stripes below.

Margate are found in pairs or larger schools, over seagrass beds, sand flats, coral reefs, and wrecks in depths of 66 to 197 ft. Maximum reported size is 32 inches (male) and 2 lbs. The mean size at maturity off Jamaica is 10 inches in length. In the northeastern Caribbean, individuals in spawning condition have been observed in February, March, April, and September. Margate off Cuba are in spawning condition throughout the year with a peak during March and April.

Margate in the Atlantic waters off the Southeast United States is managed by the South Atlantic Fishery Marine Council in the Snapper Grouper FMP. It is included in the Grunts Complex along with White Grunt, Sailor's Choice, and Tomtate. The Complex is subject to annual catch limits , size and bag limits (aggregate snapper bag limit), and gear restrictions. The magnitude of their landings is small. They are caught by both commercial and recreational fishers, with hook and line gear being the most commonly used.

Tomtate

Haemulon aurolineatum - Tomtate (Red Mouth, Blood Mouth)

Tomtate is silver white all over with a yellow-brown stripe running the length of the body and ending as a black blotch at the base of the caudal fin. This spot is also evident in most juvenile grunts, and may be lost by older fish. The inside of its mouth is bright red.

Tomtate occur in the Western Atlantic from Massachusetts to Brazil, including the Gulf of Mexico and Caribbean Sea. Tomtate inhabits seagrass beds, sand flats, patch reefs, rocky outcrops, and even muddy bottom habitat, to depths of 180 ft. They swim in schools and feed on small crustaceans, mollusks, other benthic invertebrates, plankton, and algae.

Along the Atlantic waters off the Atlantic waters off the southeastern U.S., maximum reported length of Tomtate is 10 inches in length and up to 1 lb, which is one of the smallest grunt species. It has a maximum reported age of 17 years. They are a gonochorist species with nearly all females being mature by 6 inches in length and two years old. Along the southeastern United States, female Tomtate are in spawning condition from March through July, with peak spawning occurring in April through June.

Tomtate are not highly regarded by fishermen due to their size. However, in the Atlantic waters off the Atlantic waters off the southeastern U.S., Tomtate is managed by the South Atlantic Fishery Marine Council under the Snapper Grouper FMP and is subject to annual catch limits (Grunt complex), and gear restrictions, but no size, bag limits, or trip limits.

Sailors Choice

Haemulon parra - Sailors Choice

Sailors Choice, *Haemulon parra*, is a large grunt, with an oblong compressed body. The head is blunt, with its upper profile moderately convex. The body is pale, with brown to grey spots forming broken stripes, often oblique, along the scale rows. The dorsal, caudal, anal, and pelvic fins are chalky and there is a black blotch usually present beneath free margin of preopercular bone on the lower cheek. As with many grunts, the mouth is red within. The outer margin of the eyes is often yellow.

Sailors Choice is a reef-associated species that occurs in the Western Atlantic including the Bahamas, Florida, northern Gulf of Mexico, throughout the Caribbean Sea, and Central and South American coasts. It occurs from the shore to outer reefs (to about 130 ft) in association with a variety of structured habitats. It feeds on crustaceans, annelid worms and echinoderms. Young occur on seagrass beds. Adults occur in schools in relatively open areas and the species is rare around oceanic islands.

Sailors Choice attain a maximum size of 16 inches and are common to about 12 inches. Not much is know about life history aspects such as age, growth, and reproduction of this species.

Sailors Choice are not targeted, but are caught with traps, seines, and hook-and-line. Separate statistics are not reported for this species. They are managed in the South Atlantic Fishery Marine Council Snapper Grouper management unit and are included in the recreational aggregate bag limit (no size or season limit); there are no commercial catch limits, although the species is managed with an annual catch limit set by NMFS and gear restrictions.

Cottonwick

Haemulon melanuru - Cottonwick

Cottonwick is found in the Western Atlantic from Bermuda, southeastern Florida, and the Bahamas to Brazil. This reef-associated species occurs at depths ranging from 10 to 164 ft. Cottonwick feeds on benthic crustaceans and other benthic invertebrates.

Maximum reported size is 13 inches (male/unsexed) and 1.2 lbs. The length at 50% maturity is 8 inches off Jamaica .

Wrasses

Hogfish

Lachnolaimus maximus - Hogfish

Hogfish has a long, pig-like snout, and protrusible jaws with thick lips and strong canine teeth. The first three spines of the dorsal fin, as well as the upper and lower tips of the caudal fin, are extended into long filaments. Color is highly variable and changes with size. The scales on the back are often edged in yellow, and a dark spot is at the rear base of the dorsal fin. This spot disappears with age. Males possess a dark oblique band that covers the top portion of the head, extending to the tip of the snout. Juveniles are much lighter in color overall, usually of a pink or gray with white mottling along the sides.

Hogfish occur in the Western Atlantic from Nova Scotia (Canada) to northern South America, including the Gulf of Mexico and Caribbean Sea, although it is most commonly found in the Caribbean. Hogfish are primarily found in warm subtropical and tropical waters. Genetic analysis indicates there at three stock in U.S. waters, which include the Gulf of Mexico, Florida/Florida Keys, and Carolinas. In U.S. waters, hogfish are most commonly found in the Florida Keys. Hogfish are usually found in loose aggregations around hard-bottom areas, such as coral reefs, rocky ledges and wrecks. They occur at depths of 10 to 98 ft over open bottom or coral reef; however, hogfish have occasionally been captured by the MARMAP program at depths ranging from 75 to 174 ft and have been observed during submersible dives off South Carolina at depths of 171 ft. Hogfish primarily eat mollusks, but also feed on crabs and sea urchins.

Maximum reported size is 36 inches in length (male) and 22 lbs. Maximum reported age in the eastern Gulf of Mexico is 23 years and 13 years in the Florida Keys. Hogfish are protogynous. Spawning aggregations have been documented to occur in water deeper than 52 ft off La Parguera, Puerto Rico from December through April. It is reported that Hogfish spawn off Cuba during May through July. Peak spawning of Hogfish off Puerto Rico is during December through April. Off the Florida Keys, spawning occurs from September to April with a February and March peak. Off of the southern coast of NC, spawning occurs from April through July.

Hogfish in the Atlantic waters off the southeastern U.S. are managed by the South Atlantic Fishery Management Council in the Snapper Grouper FPM. They are primarily taken by spear and hook and line gear.

Spadefishes

Atlantic Spadefish

Chaetodipterus faber. Atlantic Spadefish, angelfish

The Atlantic Spadefish is characterized by a deep and compressed body, extended dorsal and anal fin rays, and dark vertical bars on a light silvery background (bars may fade in large individuals). Its mouth is small and provided with bands of brush-like teeth. Young are entirely dark brown or blackish with white mottling.

Atlantic Spadefish are found from Massachusetts to southeastern Brazil, including the Gulf of Mexico. They have been Introduced to Bermuda. They inhabit a variety of different habitats in coastal waters (10 to 115 ft), including reefs, mangroves, sandy beaches, estuaries, around wrecks and pilings, and under bridges. They are often seen in large schools of hundreds of similarly-sized individuals. Juveniles are apt to be encountered around mangroves and in estuaries in their dark coloration with white mottling. Atlantic Spadefish feeds on a variety of invertebrates, both benthic and planktonic, as well as algae.

Maximum reported length is 39 inches, but they are commonly half that size. They live to be at least 8 years old off South Carolina. The sexes are separate and 64% of age 0 males are sexually mature and all males age 1 and older are mature. All age 0 females are immature, while all females age 1 and older are mature. Atlantic Spadefish are in spawning condition off South Carolina during May-September with peak spawning occurring during May.

Adults readily take a baited hook and have a firm, well-flavoured flesh. There is no extensive fishery for them. They are managed in the South Atlantic Fishery Marine Council Snapper Grouper management unit and are included in the recreational aggregate bag limit (no size or season limit); there are no commercial catch limits, although the species is managed with gear restrictions, a limited access permit requirement, and an annual catch limit that is set by NMFS.

Wreckfishes

Wreckfish

Polyprion americanus - Wreckfish

Wreckfish are a commercially-important, deepwater, demersal fish, occurring on both sides of the Atlantic Ocean. They are bluish grey on the back and paler with a silvery sheen on the belly. Their fins are blackish brown. Juveniles have black blotches on their head and body. Wreckfish have a relatively big head with a big mouth and a rough bony ridge across the upper part of the gill cover. Juveniles have black blotches on their head and body.

Wreckfish can be found in the eastern Atlantic from Norway to South Africa, including the Mediterranean, Canary Islands, Azores, Bermuda, and Madeira, and in the western Atlantic from Grand Banks, Newfoundland, to La Plata River, Argentina. Adult Wreckfish are found from depths of 130 to 2,625 ft, but most occur in waters deeper than 1,000 ft, with a maximum reported depth of 3,284 ft. At these depths, adult Wreckfish concentrate around steep, rocky bottoms and deep coral reefs, but they can be found in lower concentrations along flat, hard-bottom. Juveniles up to 24 inches in length are pelagic and are widely dispersed and are common in the surface waters of the eastern North Atlantic, but rare in the western North Atlantic. It mostly feeds on fishes and squids.

Wreckfish reach a maximum age of 80 years and maximum size of 6 ft. Juvenile pelagic phases grow quickly, but the adults are slow-growing. Females grow larger than males. Wreckfish are gonochorists that mature at age 7 years and 31 inches in length. Spawning has been documented off of South Carolina and Georgia, but may be more widespread. Spawning season is December to April.

In Atlantic waters off the southeastern U.S., Wreckfish is managed by the South Atlantic Fishery Management Council under the Snapper Grouper FMP. Until the mid-1980s, Wreckfish were unexploited commercially in the western North Atlantic. The resource was discovered by pelagic longliners along the Charleston Bump on coral pinnacles. Currently, they are mostly caught by commercial fishers in deep waters (>1,000 ft) using a specialized modified snapper reel. It is managed under an individual transferable quota system, so there are no size or trip limit requirements, though there are gear and annual catch limit restrictions, with commercial and recreational allocations.

Coastal Migratory Pelagics

King Mackerel

Scomberomous cavalla - King Mackerel

King Mackerel, (*Scomberomous cavalla*), is a coastal pelagic species that is found throughout the Gulf of Mexico and Caribbean Sea and along the western Atlantic from the Gulf of Maine to Brazil and from the shore to 2,000 ft depths. King mackerel have a streamlined body with tapered head, iridescent bluish green or iron-gray back, silvery sides and ventral surface, and pale to dusky fins. It is distinguished from Spanish mackerel by the lateral line, which dips sharply in Spanish mackerel. In addition, the anterior dorsal fin on a Spanish mackerel is gray in coloration.

Adult King Mackerel are known to spawn in areas of low turbidity, with salinity and temperatures of approximately 30 ppt and 80°F, respectively. There are major spawning areas off Louisiana and Texas in the Gulf; and off the Carolinas, Cape Canaveral, and Miami in the western Atlantic. Spawning occurs generally from May through October with peak spawning in September. Eggs are believed to be released and fertilized continuously during these months, with a peak between late May and early July with another between late July and early August.

King mackerel mature at approximately age 2 to 3 and have longevities of 24 to 26 years for females and 23 years for males. Maturity may first occur when the females are 18 to 20 inches in length and usually occurs by the time they are 35.4 inches in length. Stage five ovaries, which are the most mature, are found in females by about age 4 years. Males are usually sexually mature at age 3, at a length of 28 inches. Females in U.S. waters, between the sizes of 18 to 59 inches released 69,000-12,200,000 eggs. Because both the Atlantic and Gulf populations spawn while in the northernmost parts of their ranges, there is some thought that they are reproductively isolated groups.

Larvae of the king mackerel have been found in waters with temperatures between 79-88°F. This stage of development does not last very long. Larvae of the king mackerel can grow as quickly as 0.02 to 0.05 inches per day. This shortened larval stage decreases the vulnerability of the larva, and is related to the increased metabolism of this fast-swimming species. Juveniles are generally found closer to shore at inshore to mid-shelf depths (to < 29 feet) and occasionally in estuaries. Adults are migratory, and the Coastal Migratory Pelagics FMP recognizes two migratory groups (Gulf and Atlantic). Typically, adult king mackerel are found in the southern climates (south Florida and extreme south Texas/Mexico) in the winter and in the northern Gulf in the summer. Food availability and water temperature are likely causes of these migratory patterns. Like other members of this genus, king mackerel feed primarily on fishes. They prefer to feed on schooling fish, but also eat crustaceans and occasionally mollusks. Some of the fish they eat include jack mackerels, snappers, grunts, and halfbeaks. King Mackerel are managed by the South Atlantic Fishery Management Council in Atlantic waters from the Florida Keys to

Maine. They are primarily taken with hook and line.

Spanish Mackerel

Scomberomorus maculatus - Spanish Mackerel

Spanish Mackerel, (*Scomberomorus maculatus)* is a coastal pelagic species, occurring over depths to 246 ft throughout the coastal zones of the western Atlantic from southern New England to the Florida Keys and throughout the Gulf of Mexico. Spanish Mackerel are greenish dorsally with silver sides and belly. Yellow or olive oval spots traverse the body, which is covered with very tiny scales. The lateral line curves gently to base of tail, which distinguishes it from king mackerel. The Spanish Mackerel is much smaller than King Mackerel, averaging only 2 to 3 pounds in weight.

Adults Spanish Mackerel usually are found in neritic waters (area of ocean from the low-tide line to the edge of the continental shelf) and along coastal areas. They inhabit estuarine areas, especially the higher salinity areas, during seasonal migrations, but are considered rare and infrequent in many Gulf estuaries.

Spanish Mackerel generally mature at age 1 to 2 and have a maximum age of approximately 11 years. The size at 50% maturity is approximately 12 to 13 inches and 0.70 years. The size at 50% maturity for males is 8 to 9 inches. Spawning occurs along the inner continental shelf from April to September. Eggs and larvae occur most frequently offshore over the inner continental shelf at temperatures between 68°F to 90°F and salinities between 28 and 37 ppt. They are also most frequently found in water depths from 30 to about 275 ft, but are most common in depths less than 164 ft.

Juveniles are most often found in coastal and estuarine habitats and at temperatures >77°F and salinities >10 ppt. Although they occur in waters of varying salinity, juveniles appear to prefer marine salinity levels and generally are not considered estuarine dependent. Like King Mackerel, adult Spanish Mackerel are migratory, generally moving from wintering areas of south Florida and Mexico to more northern latitudes in spring and summer.

Like King Mackerel, Spanish Mackerel primarily eat other fish species (herring, sardines, and menhaden) and to a lesser extent crustaceans and squid at all life stages (larvae to adult). They are eaten primarily by larger pelagic predators like sharks, tunas, and bottlenose dolphin. Spanish Mackerel are managed by the South Atlantic Fishery Management Council in Atlantic waters from the Florida Keys to Maine. They are primarily taken with hook and line.

Cobia

Rachycentron canadum - Cobia

Cobia is a large, fast growing pelagic species. The body is dark brown to silver, paler on the sides and grayish white to silvery below, with two narrow dark bands extending from the snout to base of caudal fin. Young cobia have pronounced dark lateral bands, which tend to become obscured in the adult fish. Most fins are deep brown, with gray markings on the anal and pelvic fins. The body is elongate and torpedo-shaped with a long, depressed head. The eyes are small and the snout is broad. The lower jaw projects past the upper jaw. The skin looks smooth with very small embedded scales.

Cobia are distributed worldwide in tropical and subtropical waters, except for the eastern Pacific. They prefer water temperatures between 68° to 86°F and are abundant in the warm coastal waters of the U.S. from the Chesapeake Bay south and throughout the Gulf of Mexico. Cobia are often found in harbors, estuaries, nearshore around wrecks and reefs and offshore along the continental shelf. Cobia are opportunistic feeders, their diet includes crustaceans, cephalopods, and fish. They have been seen in shallow coastal waters in schools of up to 100 fish. Additionally, cobia are known to follow larger sharks, rays, and turtles, taking advantage of prey items lost during their feeding activity.

Cobia grow quickly and can reach a maximum age of 14, reaching a length of 80 inches, and weighing 135 lbs. Females reach sexual maturity at 3 years while males mature at 2 years. Spawning occurs May through August in Atlantic waters off the southeastern U.S. and the spawning frequency is approximately once every 4 to 12 days and can occur as many as 15 to 36 times during the season. Inshore spawning of Cobia has been documented in some regions along Atlantic waters off the southeastern U.S. In the Western Central Atlantic, the Cobia population is divided into 2 regional stocks (Gulf and Atlantic). Mixing of the two stocks has been documented through tagging studies, and early genetic studies indicated that the 2 stocks were genetically similar . The Gulf of Mexico stock extends around the tip of Florida up to Brevard County, where some degree of overlap occurs with the Atlantic stock. The Atlantic stock ranges from the GA/FL border through New York. Currently, there is not enough resolution in the genetic or tagging studies to indicate exactly where the 2 stocks split. Genetic analysis indicates a mixing zone occurs somewhere to the north of the Brevard County Line . Due to the uncertainty regarding the boundaries of the mixing zone, it was decided for management purposes, that the stocks would be separated at the FL/GA line.

In the Atlantic waters off the southeastern U.S. Cobia is managed under the Coastal Migratory Pelagics FMP. It is mostly caught by recreational fishers using hook and line gear.

Dolphin/Wahoo

Wahoo

Acanthocybium solandri - Wahoo

Wahoo is a steel blue fish above and pale blue below. The body is slender and the elongate jaws form a pointed beak. It has a series of 25 to 30 irregular blackish-blue vertical bars on the sides. A distinguishing characteristic is that protrusions on the gills (gill rakers) are absent.

Wahoo is an oceanic pelagic fish found worldwide in tropical and subtropical waters. In the western Atlantic wahoo are found from New York through Colombia including Bermuda, the Bahamas, the Gulf of Mexico, and the Caribbean. Wahoo are present throughout the Caribbean area, especially along the north coast of western Cuba where it is abundant during the winter. There is pronounced seasonal variation in abundance. They are caught off North and South Carolina primarily during the spring and summer (April-June and July-September), off Florida's east coast year-round, off Puerto Rico and the U.S. Virgin Islands year-round with peak catches between September and March, in the Gulf of Mexico year-round, in the eastern Caribbean between December and June, and in Bermuda between April and September. Adult Wahoo in the Atlantic are pelagic in nature and generally associated with Sargassum. It is assumed that juveniles inhabit waters with temperatures of 72° to 86° F and are associated with Sargassum. Juvenile Wahoo are reported to travel in small schools.

Wahoo are short-lived fish (5 years) and grow rapidly, reaching lengths of up to 60.1 inches and weights of up to 45 pounds. Both sexes are capable of reproducing during the first year of life, with males maturing at 34 inches and females at 40 inches. Spawning in the United States takes place from June to August. Wahoo are voracious predators that feed primarily on fishes such as mackerels, butterfishes, porcupine fishes, round herrings, scads, jacks, pompanos, and flying fishes.

Wahoo are managed by the South Atlantic Fishery Management Council in the Atlantic waters from the Florida Keys to New York. They are primarily taken by trolling with hook and line gear.

Dolphin

Coryphaena hippurus - Dolphin, Dolphinfish, Mahi Mahi.

Dolphin has bright turquoise, green and yellow patterns, which fade almost immediately upon death. This species may be distinguished from the pompano dolphin by its 55-66 dorsal fin rays, and a very wide and square tooth patch on the tongue. The body tapers sharply from head to tail; irregular blue or golden blotches scattered over sides; anterior profile of head on adult males is nearly vertical; head of females more sloping; the single dark dorsal fin extends from just behind the head to the tail; anal fin margin concave and extending to tail.

Dolphin is an oceanic pelagic fish found worldwide in tropical and subtropical waters. The range for dolphin in the western Atlantic is from Georges Bank, Nova Scotia to Rio de Janeiro, Brazil. They are also found seasonally throughout the Caribbean Sea and the Gulf of Mexico, and they are generally restricted to waters warmer than 68°F. There is pronounced seasonal variation in abundance. Dolphin are caught off North and South Carolina from May through July. Dolphin off Florida‘s East Coast are caught mainly between April and June. February and March are the peak months off Puerto Rico‘s coast. Dolphin are caught in the Gulf of Mexico from April to September with peak catches in May through August. e pelagic often associated with structure such as Sargassum. Dolphin are fast growing, prolific and have a short lifespan (< 5 years). Average fork lengths for males and females ranges from 34 to 55 inches. Males grow faster and usually live longer than females. Dolphin are batch spawners and have a protracted spawning season. The spawning season varies with latitude. Dolphin collected in the Florida Current spawned from November through July, and those collected from the Gulf Stream near North Carolina were reproductively active during June and July. Evidence for a continuous spawning season is attributed to the presence of several size classes of eggs found in the ovaries. Size at first maturity ranges from 14 inches in length in Florida to 21 inches in length (Gulf of Mexico) for sexes combined. Males first mature at a larger size than females. Females size at full maturity ranges from 20 inches in Florida, to 24 inches in Puerto Rico.

They eat a wide variety of fish species including: small oceanic pelagic species (e.g., Flying Fish, Halfbeaks, Man-o-war Fish, Sargassum Fish, and Rough Triggerfish); juveniles of large oceanic pelagic species (e.g., tunas, billfish, jacks, and dolphin); and pelagic larvae of neritic, benthic species (e.g., Flying Gurnards, triggerfish, pufferfish, and grunts). They also eat invertebrates (e.g., cephalopods, mysids, and scyphozoans) suggesting that they are essentially non-selective, opportunistic foragers. Dolphin are managed by the South Atlantic Council Atlantic waters from the Florida Keys to New York. They are primarily taken with hook and line, and longline gear.

Pompano Dolphin

Corypheana equiselis - Pompano Dolphin

Pompano Dolphin (*Coryphaena equiselis*), have been recorded off North Carolina, Florida, Bermuda, and in the central Atlantic, Gulf of Mexico, and Caribbean including off Puerto Rico. It is considered to be more of an open ocean species than the larger common Dolphin (*Coryphaena hippurus*), with Pompano Dolphin being found in water temperatures that exceed 75˚F. Pompano Dolphin have been shown to be common in the waters around Bermuda. The species appears to be more abundant in the Florida Straits than anywhere else in United States territorial waters. Fishermen in the Florida Straits have documented pompano dolphin occurring in the same school with common Dolphin. The Pompano Dolphin's body coloration tends to be more silver and blue but can exhibit a somewhat muted green-yellow color pattern. Greatest body depth of Pompano Dolphin occurs just behind the head; whereas, greatest body depth of common Dolphin is mid-body. Pompano Dolphin has 55 to 65 dorsal rays compared to 48 to 55 dorsal rays for Dolphin. The pectoral fin of Pompano Dolphin is more than half the head length compared to being less than half the head length in Dolphin.

The Pompano Dolphin is small seldom reaching 30 inches and 9 lbs in weight while the common Dolphin can reach lengths in excess of 60 inches and weights of 80 lbs. Little is known about the life history of Pompano Dolphin; however ripe Pompano Dolphin have been collected in the Atlantic at 8 inches SL.

The South Atlantic Fishery Management Council manages Pompano Dolphin from the east coast of Florida to Maine in the Dolphin Wahoo FMP. The Dolphin-Wahoo FMP refers to the common Dolphin (*Coryphaena hippurus*) and Pompano Dolphin (*Coryphaena equiselis*) as "dolphin." There are not separate management measures for the two species. Annual catch limits, minimum size limits, bag limits, and apply to both dolphin species.

Shrimp

The shrimp fishery in the South Atlantic includes six species: Brown Shrimp (*Farfantepeneaus aztecus*), Pink Shrimp (*Farfantepenaeus duorarum*), White Shrimp (*Litopenaeus setiferus*), Seabob Shrimp (*Xiphopenaeus kroyeri*), Rock Shrimp (*Sicyonia brevirostris*), and Royal Red Shrimp (*Pleoticus robustus*). The shrimp species in the Atlantic waters off the southeastern U.S. occupy similar habitats with the greatest differences being in optimal substrate and salinity.

The penaeid shrimps (White, Brown, and Pink) can be identified by examining the groove along either side of the rostrum. The groove extends less than half the length of the carapace in White Shrimp, and the entire length in Browns and Pinks. Pink Shrimp can be discerned from Browns by a light purplish-blue tail and usually a dark red spot on the side of the abdomen. Both Brown and Pink Shrimp have a groove on the top of the next to last tail segment: this grove is nearly closed in Pink Shrimp. Seabob Shrimp can be identified by the lack of spines, or teeth, on the lower side of the rostrum which is long and recurved. Males can be identified in all species by the presence of a petasma (male reproductive organ) clearly recognizable between the first set of walking legs on the abdomen.

Juvenile and adult penaeids are omnivores bottom feeders with food items consisting of polychaetes, amphipods, nematodes, caridean shrimps, mysids, copepods, isopods, amphipods, ostracods, mollusks, foraminiferans, chironomid larvae, and various types of organic debris. Shrimp are preyed on by a wide variety of species at virtually all stages in their life history. Grass Shrimp, killifishes, and Blue Crab prey on young penaeid shrimp, and a wide variety of finfish are known to prey heavily on juvenile and adult penaeid shrimp.

White Shrimp

Litopenaeus setiferus – White Shrimp (Gray Shrimp, Lake Shrimp, Green Shrimp, Green-tailed Shrimp, Blue Tailed Shrimp, Rainbow Shrimp, Daytona Shrimp, Common Shrimp, and Southern Shrimp).

White Shrimp range from Fire Island, New York to St. Lucie Inlet on the Atlantic Coast of Florida. Along the Atlantic Coast of the U.S., the White Shrimp has centers of abundance in South Carolina, Georgia, and northeast Florida. White Shrimp are generally found on muddy bottoms concentrated in waters < 89 feet (27 meters). White Shrimp are more active during daylight hours.

All penaeid shrimp undergo 11 larval stages in coastal waters with the period for White Shrimp being 10 to 12 days. The mechanism for larval recruitment to the estuaries is not fully understood, but most likely involves nearshore tidal currents as early as April to July. Juveniles are typically found in small creeks of the estuaries with growth rates of up to 0.09 inches per day (South Atlantic Fishery Management Council 1996b). Sub-adults migrate to the sounds, with an offshore migration of mature adults (> 4.7 inches, 120 millimeters) typically occurring between April and June, with spawning occurring within a few miles of the coast at temperatures above 72^{o}F.

All penaeid shrimp have an annual life cycle. Their abundance is driven primarily by environmental conditions (water temperature) and can fluctuate seasonal. White Shrimp is the largest shrimp fishery in Atlantic waters off the southeastern U.S., with a roe season in the spring, the bulk of the harvest in the fall, and an overwintering fishery (usually in federal waters > 3nm). It is managed under the South Atlantic Fishery Management Council's Shrimp FMP as an annual crop. As such standard procedures to establish an overfishing threshold are difficult. Instead, the Council establishes targets and thresholds based on annual landings and CPUE data from the Southeast Area Monitoring and Assessment Program – South Atlantic (SEAMAP-SA) to indicate relative abundance (health) of the stock.

Vulnerabilities and sources of mortality include predation, decline in estuarine water quality, environmental conditions (winter freeze kills, coastal flooding, etc.), and disease (black gill).

Brown Shrimp

*Farfantepeneaus aztecus – Brown Shrimp (B*rownie, Green Lake Shrimp, Red Shrimp, Redtail Shrimp, Golden Shrimp, Native Shrimp, and also the Summer Shrimp in North Carolina).

Brown Shrimp occur on the Atlantic Coast from Martha's Vineyard, Massachusetts to the Florida Keys. Breeding populations apparently do not range north of North Carolina. The species may occur in commercial quantities in waters as deep as 361 feet (110 meters), but they are most abundant in water less than 180 feet (55 meters), in areas of mud, sand, and shell bottom. Brown Shrimp burrow into the sediment and are most active at night.

All penaeid shrimp undergo 11 larval stages in coastal waters with the period for Brown Shrimp being 11 to 17 days. Postlarvae overwintering in offshore bottom sediments. The mechanism for larval recruitment to the estuaries is not fully understood with an influx of postlarvae reported during February and March. Juveniles are typically found in small creeks of the estuaries with growth rates of up to 0.098 inches (2.5 millimeters) per day. Sub-adults migrate to the sounds, with an offshore migration of mature adults (> 5.5 inches, 140 millimeters) being reported off South Carolina during October and November. The precise spawning area is uncertain but believed to be further offshore (> 9nm).

All penaeid shrimp have an annual life cycle. Brown Shrimp is driven primarily by environmental conditions (water temperature and salinity) and can fluctuate seasonal. Brown Shrimp are primarily a summer (June to August) fishery in Atlantic waters off the southeastern U.S.. It is managed under the South Atlantic Fishery Management Council's Shrimp FMP as an annual crop. As such standard procedures to establish an overfishing threshold are difficult. Instead, the Council establishes targets and thresholds based on annual landings and CPUE data from the Southeast Area Monitoring and Assessment Program – South Atlantic (SEAMAP-SA) to indicate relative abundance (health) of the stock.

Vulnerabilities and sources of mortality include predation, decline in estuarine water quality, environmental conditions (coastal flooding), and disease (black gill).

Pink Shrimp

*Farfantepenaeus duorarum – Pink Shrimp (*Spotted Shrimp, Hopper, Pink Spotted Shrimp, Brown Spotted Shrimp, Grooved Shrimp, Green Shrimp, Pink Night Shrimp, Red Shrimp, Skipper, and Pushed Shrimp).

Along the Atlantic waters off the southeastern U.S., Pink Shrimp occur from southern Chesapeake Bay to the Florida Keys but are most common in Florida and North Carolina. Pink shrimp are most abundant in waters of 36 to 121 feet. They are common in the estuaries surrounding southern Florida and into deep water (approximately 328 ft) southeast of the Keys, and are the dominant species within the Dry Tortugas shrimping grounds and Florida Bay. Pink Shrimp prefer hard sand and calcareous shell bottom (Williams 1955, 1984). They burrow into the sediment by day and are most active at night.

All penaeid shrimp undergo 11 larval stages in coastal waters with the period for Pink Shrimp being 15 to 25 days. The larval transport mechanism for Pink Shrimp larvae to enter the estuaries is not well known but shoreward counter currents and favorable winds may enhance movement to the northeast Florida coast . Florida Pink Shrimp typically leave the estuaries two to six months after recruitment. Growth varies by region and season with a range of 0.010 to 0.067 inches per day (0.25 to 1.7 millimeters) . In Florida, shrimp growth faster in the winter than in the spring, while North Carolina growth rates peak during the summer. Offshore migration of mature adults (> 3.35 inches, 85 millimeters) occurs in April and May, and again during October and November in Florida, while small Pink Shrimp first occur in North Carolina commercial catches in August.

All penaeid shrimp have an annual life cycle. Their abundance is driven primarily by environmental conditions (water temperature) and can fluctuate seasonal. Pink Shrimp harvest occurs nearly exclusively in Florida - 67% and North Carolina - 33%. The fishery is managed under the South Atlantic Fishery Management Council's Shrimp FMP as an annual crop. As such standard procedures to establish an overfishing threshold are difficult. Instead, the Council establishes targets and thresholds based on annual landings and CPUE data from the Southeast Area Monitoring and Assessment Program – South Atlantic (SEAMAP-SA) to indicate relative abundance (health) of the stock.

Vulnerabilities and sources of mortality include predation, decline in estuarine water quality, environmental conditions (cold water kills).

Sea Bob Shrimp

Xiphopenaeus kroyeri – Seabob Shrimp *(*Atlantic Seabob).

Seabob Shrimp range from North Carolina to Brazil, but it is not a common commercial species in the Atlantic waters off the southeastern U.S., with no reported landings the past ten years (2006 to 2015). Louisiana dominates the Gulf of Mexico commercial harvest with 90% of the report landing the past ten years. Seabobs inhabit offshore waters up to 230 ft, but are most common in depth less than 89 ft over mud or sand bottom across a large salinity gradient. Abundance is highest from October to December in the Gulf.

All penaeid shrimp undergo 11 larval stages. Seabob shrimp are not estuarine dependent, spending their entire life in a narrow area along the coastline. Little is known of their life history but is it believed they can grow to 5.51 inches (140 millimeters) and ripe females have been found in Louisiana waters in July and August at 2.48 inches (63 millimeters).

Rock Shrimp

Sicyonia brevirostris – Rock Shrimp (Brown Rock Shrimp, Atlantic Rock Shrimp).

Rock Shrimp are very different in appearance from U.S. South Atlantic penaeid species. Their exoskeleton is thick, rigid, and stony, covered with short hair. The abdomen has deep transverse grooves and numerous tubercles.

Rock Shrimp are found in the Gulf of Mexico, Cuba, the Bahamas, and the Atlantic waters off the southeastern U.S. to Virginia. The center of abundance and the concentrated commercial fishery for Rock Shrimp in the south Atlantic region occurs off northeast Florida south to Jupiter Inlet. Their habitat is limited, usually associated with terrigenous and biogenic sand substrates and only sporadically on mud. Rock Shrimp also utilize hard-bottom and coral, more specifically Oculina, habitat areas. The largest concentrations are found between 82 to 213 feet (25 - 65 meters) but have been found to depths of 656 feet (200 meters).

Female Rock Shrimp attain sexual maturity at about 0.669 inches (17 millimeters) carapace length (CL), and all males are mature by 0.945 inches CL (24 millimeter). The spawning season for Rock Shrimp is variable with a peak beginning between November and January and lasting 3 months. Individual females may spawn three or more times in one season.

The development from egg to postlarvae takes approximately one month, with subsequent development to the smallest mode of recruits occurring in two to three months. The major larval transport mechanism is the shelf current systems near Cape Canaveral, Florida with recruitment to the offshore waters of Cape Canaveral between April and August.

Rates of growth in Rock Shrimp are variable and depend on factors such as season, water temperature, shrimp density, size, and sex. Rock Shrimp grow between 0.079 and 0.118 inches CL per month (2 to 3 millimeters) as juveniles and 0.020 - 0.024 inches CL per month as adults (0.5 - 0.6 millimeters).

Rock Shrimp are bottom feeders, most active at night, with a diet primarily of mollusks, crustaceans, and polychaete worms .

Although Rock Shrimp are also found off North Carolina, South Carolina, and Georgia and are occasionally landed in these states, no sustainable commercially harvestable quantities comparable to the fishery prosecuted in the EEZ off Florida are being exploited. Rock Shrimp are included in the fishery management unit (FMU) of the Shrimp FMP of the South Atlantic Region.

Vulnerabilities and sources of mortality include fishing mortality in combination with high natural mortality and possibly poor environmental conditions.

Royal Red Shrimp

Pleoticus robustus – Royal Red Shrimp

Royal Red Shrimp are characterized by a body covered with short hair and a rostrum with the ventral margin toothless. A post-orbital spine is evident on the side of the carapace. Color can range from orange to milky white.

Royal Red Shrimp are found on the continental slope throughout the Gulf of Mexico and South Atlantic area from Cape Cod to French Guiana. In the Atlantic waters off the southeastern U.S. they are found in large concentrations primarily off northeast Florida. They inhabit the upper regions of the continental slope from 591 to 2395 ft, but concentrations are usually found at depths > 820 feet.

Males mature at 5 inches (127 millimeters) in length, while females mature at 7 inches (178 millimeters) in length. Spawning peaks off the east coast of Florida during winter and spring, although some spawning occurs throughout the year. Larval development of this species is unknown, but research suggests recruitment to the fishery at age two and they may live up to five years. Little is known on their growth rates and habitat preferences other than depth as described above.

The South Atlantic commercially fishery is almost exclusively in the EEZ off Florida with harvest averaging just over 100,000 lbs the past ten years (2006 - 2015). Overfishing has been a concern given the long-lived nature of the species. Royal Red Shrimp are not included in the Fishery Management Unit for the Shrimp FMP of the South Atlantic because no management measures were being proposed for the species when the FMP was developed.

Vulnerabilities and sources of mortality include fishing mortality and loss of habitat.

Golden Crab

Chaceon fenneri - Golden Crab

The golden crab is a large gold or buff colored species with a hexagonal carapace. The carapace has five anterolateral teeth on each side, large well-developed frontal teeth, and shallow, rounded orbits. The chelipeds (claws) are unequal and the dactyli of the walking legs are laterally compressed.

Golden crab inhabit the continental slope of Bermuda and the southeastern United States from the Chesapeake Bay through the Straits of Florida and into the eastern Gulf of Mexico. It is a deep water species reported from depths from 200 to 1000 meters. Maximum abundances occurs between 350 and 550 meters off the southeastern U.S. in areas with a bottom of silt-clay and foraminiferan shell. Feeding habits are poorly known, but they are assumed to be opportunistically scavengers, feeding on dead carcasses from the water column.

Males can grow larger than female and can measure a maximum of 6 inches in carapace length (CL), while the females can measure a maximum of 5 inches CL. Egg carrying females have been reported during September, October and November. They usually release larvae in depths less than 500 m from February to March. Females may undergo long-distance movements during their lifetimes.

Golden Crab is managed by the South Atlantic Fishery Management Council in the Golden Crab FMP. It is mostly caught by the commercial sector using crab traps.

Given the deep water habitat in which the Golden Crabs occur, the primary non-fisheries threat may come from threats to these offshore areas such as disposal of materials and potential oil and other exploitation.

Lobsters

Spiny Lobster

Panulirus argus - Caribbean Spiny Lobster (crayfish, crawfish, langosta, and Florida lobster)

Caribbean Spiny Lobsters are by far the most abundant lobster off of the Atlantic waters off the southeast U.S. They vary from whitish to a dark red-orange. The two large, cream-colored spots on the top of the second segment of the tail. There are also two smaller cream-colored spots adjacent to the tail fan. Spiny lobsters lack the large, distinctive, crushing claws of their northern cousins, the American Lobster.

Caribbean Spiny Lobster occurs throughout the Caribbean Sea, along the shelf waters of the southeastern United States north to North Carolina, in Bermuda, and south to Brazil and the Gulf of Mexico. The origins of the Florida stock remain unknown as information on larval recruitment remains scarce. However, given the constant recruitment to the fishery despite the reduction in spawning potential of the Florida stock, recruitment is probably in large part exogenous. Caribbean Spiny Lobster is a highly migratory species with a complex life cycle in which distinctly different habitat types are occupied during ontogeny. There are both oceanic and inshore stages with preferential environments including open ocean during planktonic stages, stages utilizing dense vegetation such as seagrass meadows as juveniles, and crevice shelters provided by live and hard-bottom habitat as larger juveniles and adults . Large juvenile and adult lobsters are very mobile and capable of moving several miles during nocturnal foraging. They are nocturnal feeders and predominantly prey upon live molluscs and crustacea, including hermit crabs and conch.

Mating and spawning of eggs in Caribbean spiny lobster can occur throughout the range of mature adults. Spiny Lobster releases eggs principally from April through September. Mating and spawning behavior appear, in part, controlled by environmental factors, including day length and water temperatures. The onset of population-wide reproductive maturation of female lobsters occurs at about 3 inches carapace length (CL), though females as small as 2 inches. CL have been observed bearing eggs, with larger females spawning earlier in the reproductive season than smaller females. The onset of population-wide functional maturity in males has been estimated to occur at 4 inches CL. Growth rates are fastest at smallest sizes and decrease dramatically as lobsters attain sexual maturity.

In the Atlantic waters off the southeast U.S., Caribbean Spiny Lobster is managed by the South Atlantic Fishery Management Council and is subject to size and bag limits, gear restrictions, and fishing seasons. They are caught by both commercial and recreational fishers, with traps being the most commonly used gear along with diver harvest.

Coral

Corals are an important habitat for many species managed by the South Atlantic Fishery Management Council and are defined as essential fish habitat. Coral species in Atlantic waters off the southeast United States include but are not limited to fire coral and hydrocorals (Class Hydrozoa), stony corals (Order Scleractinai), black corals (Order Antipatharia), and octocoral (Subclass Octocorallia). Shallow-water corals are found typically in depths less than 160 ft and deep-water corals are defined as those found in depths greater than 160 ft. The shallow-water corals use symbiotic algae as an energy and nutrient source. The deep-water corals lack symbiotic algae and must extract nutrients and food from the water column. In addition to depth stratification, corals can be either reef forming (hermatypic) or non-reef forming (ahermatypic). Shallow-water hermatypic species typically are found south of St. Lucie Inlet but can be found as far north as St. John's Inlet. Deep-water hermatypic species can be found throughout the Atlantic waters off the southeast United States and Coral Habitat Areas of Particular Concern have been established to protect habitats for *Oculina varicosa* and *Lophelia pertusa*, two common hermatypic species.

Sargassum

Sargassum natans and *S. fluitans* - Pelagic brown algae (

The pelagic species are golden to brownish in color and typically 8 to 31 in diameter. Perhaps the most conspicuous features are the pneumatocysts. These small vesicles function as floats and keep the plants positively buoyant.

Most pelagic Sargassum circulates between 20°N and 40°N latitudes and 30°W longitude and the western edge of the Florida Current/Gulf Stream. The greatest concentrations are found within the North Atlantic Central Gyre in the Sargasso Sea. Pelagic Sargassum contributes a small fraction to total primary production in the North Atlantic. However, within the oligotrophic waters of the Sargasso Sea it may constitute as much as 60% of total production in the upper meter of the water column. Large quantities of Sargassum frequently occur on the continental shelf off the southeastern United States. Depending on prevailing surface currents, this material may remain on the shelf for extended periods, be entrained into the Gulf Stream, or be cast ashore. Langmuir circulations, internal waves, and convergence zones along fronts aggregate the algae along with other flotsam into long linear or meandering rows collectively termed "windrows". The algae sink in these convergence zones when downwelling velocities are high. If buoyancy is lost, plants slowly sink to the sea floor and can reach 16,000 ft in about 2 days. Such sinking events contribute to the flux of carbon and other nutrients from the surface to the benthos.

Both species are sterile and propagation is by vegetative fragmentation and exhibit complex branching, lush foliage to linear serrate phylloids and numerous berry-like pneumatocysts. Sargassum is concentrated as small patches, large rafts, or weedlines at the convergence of water masses in the coastal ocean, such as those found along tide lines near coastal inlets. The greatest concentrations of Sargassum patches are found in the Sargasso Sea and on the outer continental shelf of the South Atlantic, although they can be pushed into nearshore waters by winds and currents. Large pelagic adult fish such as dolphin and sailfish feed on the small prey in and around Sargassum. This behavior prompts sport fishermen to target Sargassum patches.

Pelagic brown algae form a dynamic structural habitat in the South Atlantic Region. Sargassum natans is much more abundant than S. fluitans, comprising up to 90% of the total drift macroalgae in the Sargasso Sea. Pelagic Sargassum supports a diverse assemblage of marine organisms including fungi, micro-and macro-epiphytes, at least 145 species of invertebrates over 100 species of fishes, four species of sea turtles, and numerous marine birds. Many of the organisms most closely associated with Sargassum have evolved adaptive coloration or mimic the algae in appearance.

In the Atlantic waters off the southeastern U.S., Pelagic Sargassum Habitat is managed by the South Atlantic Fishery Management Council under the Pelagic Sargassum FMP.

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