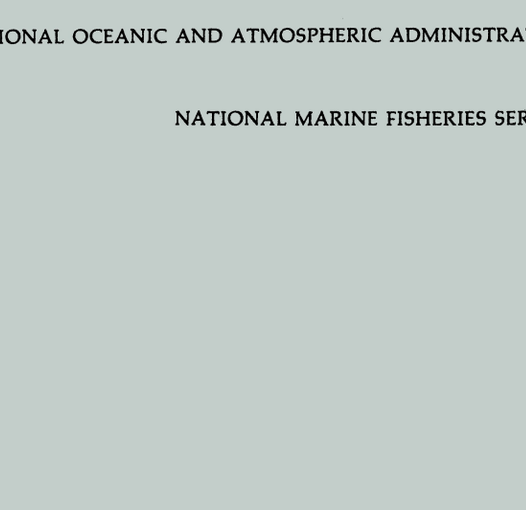
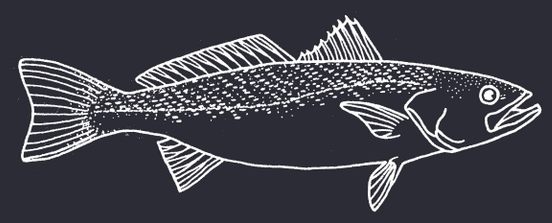
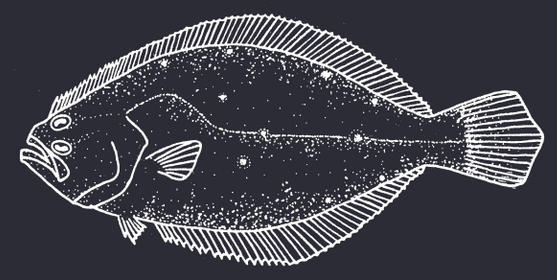
UNITED STATES DEPARTMENT OF COMMERCE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

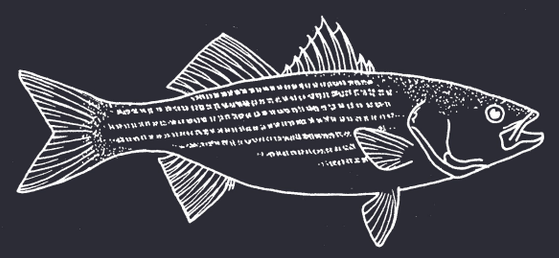
NATIONAL MARINE FISHERIES SERVICE

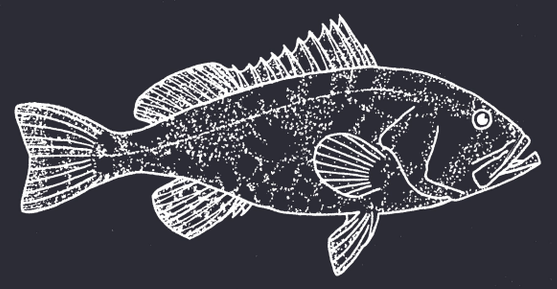






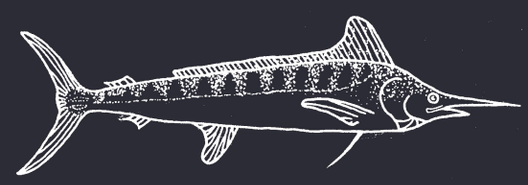
Anglers' Guide TO THE *United States Atlantic Coast*





SECTION VIII

St. Lucie Inlet, Florida to the Dry Tortugas

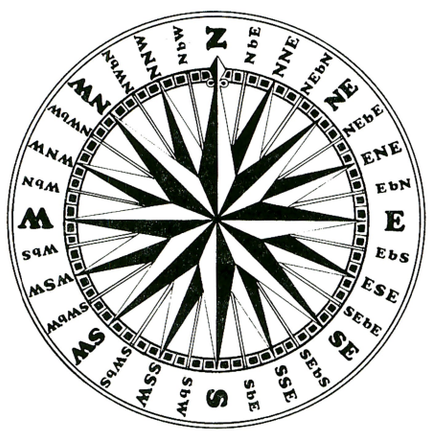


Anglers' Guide

TO THE

United States Atlantic Coast

FISH, FISHING GROUNDS & FISHING FACILITIES



BRUCE L. FREEMAN AND LIONEL A. WALFORD

SECTION VIII

St. Lucie Inlet, Florida to the Dry Tortugas

JULY 1976
SEATTLE, WASH.

For Sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402 Stock No. 003-020-00099

This publication is a geographical study of marine recreational fishing. It is one of eight sections which together cover the east coast of the United States from Maine to Florida and from the innermost reaches of the estuarine zone seaward to the edge of the continental shelf. Begun several years ago, this study was planned towards two types of publications. The first type, of which this is an example, is an atlas dealing with the location of the fishing grounds, the various fishing and boating facilities, local conditions, and characteristics of fishing, as well as the diagnostic features, life habits, and environmental requirements of fishes that are of particular interest to anglers. The second type of publication in the original plan, for which much of the data have been gathered, is to be an assessment of our knowledge about marine fishes which anglers catch, including their life conditions, and the status of those fishes in the 1970's. The aim of the whole study is to compare conditions now with those a century ago when a similar effort was carried through as the first major work of the United States Commission of Fish and Fisheries, the forerunner of the National Marine Fisheries Service.

In gathering information along the coast, we have questioned hundreds of fishermen — operators of charter boats, party boats, draggers, gill net boats, longline boats, snapper and grouper boats, shrimp boats, sea bass pots, beach seines, and bait seines; also, anglers, outdoor writers, and operators of boat liveries, bait and tackle stores, fishing piers, and marinas. We have questioned scores of biologists of the various state and federal laboratories, especially the staff at Sandy Hook. State agencies for parks, forests, and recreational lands, as well as the National Park Service and the United States Bureau of Sport Fisheries and Wildlife, generously supplied us with information. Throughout our task, we had the prompt cooperation of university, state, and federal librarians. Several graphic artists and printers gave us technical advice about the production of this publication. Joseph Giacalone and Barry Martin designed the publication and did the cartography. Susan Smith at the Sandy Hook Laboratory made the fish drawings. People who have given information, or have been otherwise helpful in preparing this particular section are listed alphabetically below. Without their help, this work would not have been possible.

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Florida

Fort Pierce Inlet

ST. LUCIE INLET

Lake Worth Inlet

West Palm Beach

BOYNTON BEACH INLET

Fort Lauderdale

Miami Beach

GOVERNMENT CUT

Biscayne Bay

Gulf of Mexico

EAST CAPE

KEY LARGO

Florida Bay

Craig

VACA KEY

Marathon

DRY TORTUGAS

MARQUESAS KEYS

KEY WEST

Atlantic Ocean

SCALE

0 20 40 60

NAUTICAL MILES

The section of coast in Florida from St. Lucie Inlet to the Dry Tortugas is the southernmost in the United States. Two small islands just off Key West, Woman Key and Man Key, are the extreme southern land points and lie only 60 miles from the geographical boundary of the tropics, the tropic of Cancer.

A remarkable feature of the land along this section is its flatness, elevations within a 10-mile-wide strip bordering the coast rarely rising more than 25 feet. Throughout the Everglades which covers practically the southern third of the Florida peninsula, few points rise higher than 18 or 19 feet. Even these heights seem lower than they actually are for they occur far inland within this nearly flat, frequently flooded region and they slope almost imperceptibly seaward at the rate of only 2 inches per mile.

From St. Lucie Inlet south to Miami Beach, a distance of 85 miles, the mainland is bordered by long, straight, narrow, sandy barrier islands behind which are narrow lagoons. Although many of these lagoons were formerly unconnected, they have been made continuous by construction of the Intracoastal or Inland Waterway. This waterway connects with the sea by narrow inlets which occur at intervals of a dozen miles or so. Skirting the lagoons are dense stands of mangroves, at least along those areas that have not yet been filled or bulkheaded for real estate development. Although there are only a few small rivers and streams of fresh water in this section, there are over a half dozen large, man-made canals draining large areas of the interior. During rainy periods, especially when hurricanes strike, these canals empty huge volumes of sediment-laden fresh water into the lagoons, thus changing them from salt water to nearly fresh and blanketing the bottom with a mucky silt.

South and west of Miami Beach, the coast is characterized by a narrow chain of low, mostly rocky islands, which begins at Virginia Key and ends 190 miles away at the Dry Tortugas. These islands are the Florida Keys. They are basically remnants of a once living coral reef formed many thousands of years ago when the level of the sea was much higher than it is today. A series of shallow, semi-enclosed bays and sounds, nearly all of them bordered by mangroves, lies between the Florida Keys and the mainland. The largest of these, Florida Bay, is a broad expanse of water over which are scattered some 150 mangrove-covered islands.

The continental shelf in southern Florida is narrower than anywhere else on our eastern seaboard. Between Palm Beach and Miami Beach, the 600-foot contour lies only 3 to 4 miles from the beach; and even along the Florida Keys where the shelf is broader, it is only 10 miles away. An important feature of this narrow shelf is a series of submerged reefs paralleling the ocean beach. Although remnants of these reefs can be traced along most of Florida's east coast and as far north as Cape Hatteras, North Carolina, they are most sharply defined and best known from about Palm Beach to Key West. Like the foundation material of the Florida Keys, these reefs are the remains of massive coral growths that once flourished thousands of years ago. Three distinct series of reefs are recognizable; and they are believed formed in response to changes in sea level caused by the periodic growth and decay of continental glaciers. The shallowest, which fishermen call the First Reef or Inside Reef, runs close along the beach in about 10 to 20 feet of water. The next, called the Second Reef or Outer Reef, runs along the 60-foot contour. And the last one, called the Third Reef or Deep Reef, runs along about the 120-foot contour. From St. Lucie Inlet to about Fowey Rocks, a shoal area just south of Miami Beach, the reefs are rocky structures, many of them covered with encrusting corals, sea fans, sponges, and a few with reef-building corals. Beginning at about Fowey Rocks and continuing all the way to the Dry Tortugas, the reefs are composed mostly of living, reef-building corals. These are most abundant along the Second or Outer Reef, which is in fact a barrier reef, of the same type as the Great Barrier Reef in Australia, the greatest living coral structure in the world.

The structure of a coral reef consists of a calcareous frame of interlocking skeletons of animals, most of them belonging to a class of invertebrates, the corals, which are related to jellyfishes and anemones, and of plants belonging to an order of calcareous red algae. The calcareous algae, the corals and some invertebrate animals other than the corals, such as bryozoa, secrete lime which provides their framework and cements the reef, holding it together and protecting it from destruction by wave action. Coral reefs develop where water temperatures during the year usually do not go below 64°F, and they flourish where the average annual water temperature ranges between 72°F, and 75°F. The most highly developed coral reefs of the Atlantic occur in southern Florida, around the islands of the Caribbean and the West Indies, Bermuda, along the coast of South America to about Rio de Janeiro, and in the Gulf of Guinea off West Africa.

A large variety of marine organisms are called corals. Some are soft bodied with little evidence of skeletal material. Others, such as the sea fans and sea feathers, have horny axial skeletons which often branch into slender stems. Still others are the stony or true corals which have skeletons of calcareous or stony material. These include the builders of coral reefs. A typical coral reef colony is composed of myriad individuals interconnected by a network of nerve and nutritive canals and existing in a calcareous matrix which provides protection and support. While the individuals, called polyps, are usually minute, the colonial masses they form may be quite large, some reaching several feet in diameter and weighing thousands of pounds.

If examined closely at night when fully expanded and feeding, an individual polyp is seen to have a cylindrical body which is attached to its limestone shelter at one end and free at the other. The free end has a mouth surrounded by tentacles armed with stinging cells, called nematocysts. These capture its food consisting of minute animals of the plankton community, called zooplankton.

The great masses of coral seen growing on the bottom develop chiefly by division of the polyps. A coral colony may enlarge into a great mass by branching and budding, grow out sideways into convoluted and flower-shaped lobes, or grow upward into tubular spires. Colonies originating by this asexual method form a single sexually produced polyp consisting largely of calcareous secretions of which only the surface is occupied by living substance. The growth of corals varies by species and is greatly influenced by environmental conditions. For the massive, slow-growing types, it may be only about one-fourth inch each year; with the faster growing, branching types, it may be as much as 4 to 8 inches.

Single-celled algae grow within nearly all reef-building corals. Although their function has been much debated by scientists, the algae are never used as food by the corals. These two dissimilar organisms are probably mutually benefited by their close association. The algae benefit by utilizing the carbon dioxide as well as by the nitrogenous and phosphorous wastes given off by the corals. The corals benefit by receiving oxygen which the algae produce during the day and by having their waste products removed.

From off the Dry Tortugas to St. Lucie Inlet, the Gulf Stream flows northward at 3 to 5 knots. Its width is 40 to 70 miles, its depth half a mile. This great ocean current forms the boundary between the relatively cool, somewhat low salinity water lying alongshore and the warmer, saltier water of the Sargasso Sea. It was originally believed that the rivers flowing into the Gulf of Mexico, especially the Mississippi, combined to form the source of the Gulf Stream, which was often analogized to a river or stream in the ocean. Actually, the Gulf Stream

does not originate at a point but is part of the general circulation of surface water in the North Atlantic Ocean.

The Indians living along this stretch of coast took advantage of the Gulf Stream in navigating their canoes, some of which were large enough to carry 30 persons. However, the European credited with *discovering* the Gulf Stream was the Spaniard, Juan Ponce de León. He did this while exploring along the east coast of Florida. In sailing southward, he had extreme difficulty for several days to pass a sandy cape, probably what is today called Cape Canaveral. Even with all sails set and a good wind, his ships were pushed backwards. Antón de Alaminos, one of Ponce de León's pilots, understood the significance of the Gulf Stream and in 1519 utilized its prevailing current to his advantage when he sailed within the Stream to save time in carrying a cargo of gold and a message from Mexico to Charles V of Spain. The gold and his message had important bearings on the future conquests of Alaminos' commander in *New Spain,* Hernańdo Cortés, whose most important conquest was to be *Tenochtitlán,* the center of the Aztec empire, today called Mexico City. So successful was Alaminos' voyage and so advantageous was the Gulf Stream to Spanish shipping that the route through the Old Bahama Channel along Cuba was abandoned for this much superior one.

Beginning in the 1500's and for two-and-a-half centuries, Spanish vessels plied the sea off Florida. Sea lanes were the only avenues whereby people and manufactured goods could reach the New World and the silver and gold transported back to Europe. Throughout this period, crossings to and from the New World were a hazardous undertaking. At least a half dozen ships were lost each year. Some capsized due to overloading, others caught fire; still others were destroyed by gunfire of pirates or national enemies. The great majority, however, were lost due to storms and navigational errors.

The signs feared most by sailors then as well as now were several days of calm seas but with heavy swells, accompanied by little or no wind; also, exceptionally clear water and increased feeding activity of fishes at the surface; finally, the appearance of high, thin, feathery white clouds converging towards a point on the horizon. These were sure signs of an approaching hurricane. When the strong and furious winds caught a vessel on the sea, they would often cause it to break apart, founder, or strand on a shoal or beach. Often entire fleets of ships, many of them carrying cargos of silver and gold from Peru and Mexico and pearls from Venezuela, would be heavily damaged or wrecked by one of these tempests.

The voyage to the New World was considered much less hazardous than the return. The winds during the crossing were almost always favorable and there was little danger either of violent storms in the latitudes these ships sailed, or of grounding. The return from the New World, however, often took twice as long and was much more dangerous. While the ships lay in tropical water for at least a year, shipworms ate into their wooden hulls and weakened their structure. At the same time barnacles and other encrusting organisms produced heavy growths below the waterline, which slowed the speed of the ships considerably. The homeward crossing put the ships uncomfortably close to many dangerous shoals and reefs. Moreover, ships were often undercrewed because of sickness, death, and desertion to the New World.

From the sixteenth through the eighteenth centuries, the system of navigation used by the Spaniards required sighting as many known land points as possible to establish a ship's true position. Since instruments had not yet been invented to plot a ship's position accurately, a great deal of skill and local knowledge was needed by a navigator. He knew his course and could determine his latitude at midday, but for the longitude he would have to estimate the ship's speed as well as its drift and any magnetic variation of the compass. Often, navigators relied on their own experience rather than trust charts which at best were of doubtful accuracy. The method which the Spaniards used was to set a course directly for reef or landforms so they could know when they reached a dangerous area by seeing it. After sighting the obstruction they were sailing for, they would bear off and set a course for another such point. As would be expected if the lookouts did not sight the known danger, such as during stormy weather or a dark night, ships would run aground, or worse, pile up and break apart. The belief of sighting these known land points was so strong that even the loss of many ships was not enough to alter this practice.

After loading their cargos at various ports in Mexico, Panama, and Venezuela, the ships would rendezvous in Havana to take on food and water and to form fleets before continuing to Spain. The practice of sailing in fleets served not only as protection against pirates and for mutual aid in case of foundering, but because navigators were so scarce, it was virtually impossible to put one on each ship. Thus, it was necessary for them to guide several ships at a time. Upon leaving Havana the fleet set course directly for the Florida Keys, where more Spanish ships were lost than anywhere else in the New World. With the Keys in sight the ships would first bear easterly and then parallel the Florida coast, taking advantage of the Gulf Stream, until reaching Cape Canaveral. Then, they would change course again and head for Bermuda, thence to the Azores, and on to Spain.

Along the east coast of this section, i.e., between St. Lucie Inlet and Key Largo, the two successive daily tidal cycles are of equal amplitude. Here the difference between high and low water is about 2½ feet. Along the rest of the Florida Keys, at the entrance to the Gulf of Mexico, there is a flood and an ebb of tide twice daily, as along the east coast, but they are peculiar in being markedly unequal. During most of the time, one of the daily high tides is twice as high as the other and one of the low tides twice as low as the other. This phenomenon is especially characteristic of the tides at Key West, where the tidal range varies between ½ and 2½ feet.

Tidal ranges in the lagoons, sounds, and bays vary between a few feet and a few inches depending on their distance from the influence of the sea. The tidal range is usually about a foot near inlets; it may be only a few inches in lagoons located midway between the various inlets and in northeastern Florida Bay where the tidal flow is hampered by the shallowness of the bottom and aquatic vegetation. In parts of Florida Bay the wind direction and velocity often have more influence than the tide on the rise and fall of the water level.

The climate along this stretch of coast is subtropical to tropical. The temperatures are warm almost throughout the year and the humidity high. This part of Florida is in the belt of the Northeast Trade Winds, the dependability of which made this a popular route for sailing vessels. These winds are interrupted only during the short winter season as occasional cold waves accompanied by northwest winds push down from the Arctic. Then, air temperatures plummet to about 40°F and soon afterward they rise to their normal winter level in the low 70's. Throughout the rest of the year, daytime air temperatures normally range from the high 70's to the low 90's. The rainy season occurs over a 6 month period from May to October. Then, squalls and thunderstorms are frequent, sometimes with gale-force winds, and occasionally hurricanes strike. These severe tropical cyclonic storms, most frequent and intense from August to October, produce huge tides and waves, and what with the floods which these cause and the heavy winds, hurricanes can do terrible damage to boats and docks as well as to shore settlements.

The marine life occurring along southern Florida is remarkable for the diversity of species and the brilliance of their color such as is characteristic of tropical seas around the world. The marine fauna living here includes over 500 species of

fishes, the most found anywhere in the United States. Nearly all of them can be seen at one time or another swimming along or above the coral reefs, and some 400 of them reside there during most of their lives. Indeed, coral reefs are believed to contain the richest of all sea-fish communities. However, although the number of species of fishes in the tropics is much greater than that in temperate and boreal waters, the numbers of individuals within each species are usually much less.

Reefs provide shelter to fishes of differing habits—those that hunt during the day and come in to the reef at night to rest, others that rest during the day and go out at night to hunt, and still others, notably groupers, which for the most part stay close to the reef and feed whenever food is available, but occasionally leave the reef for this purpose. Both diurnal and nocturnal groups feed along or above the reef, the smallest ones remaining close to the reef, the larger ones higher in the water column. Towards evening as the light diminishes, the day feeders descend and take shelter during the half hour before sunset. Surgeonfishes, parrotfishes, and other small herbivorous species tend to gather in congregations during sunset and early twilight. Gradually they take cover. Early in the evening, the first of the night feeders emerge. These stay quietly close to shelter for awhile before rising to higher levels. Among night feeders are squirrelfishes, soldierfishes, bigeyes, scorpionfishes, and morays as well as gray and yellowtail snappers, which generally rest during the day in the shelter of the reef and do most of their foraging at night. About an hour after sunset, the day feeders have all retired and the nocturnal fishes are busy with their night's work. They remain active until shortly before sunrise when they gradually take shelter as the daylight hunters emerge.

Some of the large predatory fishes, among them barracudas and little tuna, feed primarily early in the morning and at twilight during the periods when the small reef dwellers are shifting between resting and activity phases. After these predators have taken their toll, they withdraw, and the small fishes go on about their business for the day or night.

Not all of the fishes found along coral reefs are permanent residents, for many migrate seasonally. Some bottom dwellers, among them red grouper and red snapper, move towards shore into shoal water during summer and offshore to deeper water during winter. Their movements, however, are not extensive. In the spring, tropical fishes move northward as far as the temperatures which are optimal to them expand northward, and they return as the chill of the fall season approaches their tolerance limits. The surprising numbers of tropicals, many being juveniles, that occur along the middle Atlantic states and in New England are not seasonal migrants but rather strays probably carried there by the Gulf Stream. Presumably they perish during winter as the water temperature drops to their lethal limits.

Attached to rocky substrate along this stretch of the coast as well as in the Gulf of Mexico and around the Caribbean Islands live the parent stock of the sargassum weeds which are commonly seen drifting at the ocean surface. These plants reproduce as many other brown algae do, with alternating generations developing either by spores or by eggs and sperm which unite in the water. Parts of the attached adult plants become torn away by storms, especially hurricanes, and because of their berrylike air bladders, these fragments float at the surface. Carried by winds and current, they often drift into long windrows. They continue to grow as long as they remain in water warmer than about 64°F. Many of these fragments are commonly found drifting in the Gulf Stream in what fishermen call tide lines or weed lines. Those that are carried north of Bermuda are likely to get into areas where the fall and winter temperatures are lethal to them. Those that are carried eastward into the quiet, warm, eddy area known as the Sargasso Sea are believed to survive for tens, hundreds, or perhaps even thousands of years. The floating weeds are the home of many small fishes and a great number of invertebrates, including crabs, shrimps, and mollusks. This ecosystem is referred to as the sargassum community. The colors and body forms of the resident species mimic their home plant, even to developing appendages suggestive of the fronds and berries of the plant. The sargassum weeds drifting at the inner edge of the Gulf Stream provide shelter for young flyingfish, jacks, tunas, sailfish, marlins, swordfish, dolphins, triggerfishes, and filefishes.

When the first Europeans, Spaniards, landed along the coast of Florida, they found no precious metals or gems such as they had farther south in what is today Mexico, Central America, and South America. Finding little of value, they failed to take advantage of this new land for nearly half a century. Not until after they discovered that the Gulf Stream could be used to great advantage in speeding sailing ships from the New World to Spain did they attach any value to Florida. Thereafter, the volume of their shipping along Florida's east coast grew. This route, however, was frought with danger. Although the greatest loss of Spanish ships was due to storms and navigational errors, pirates nonetheless took a heavy toll so that the Spaniards were forced to build shore bases along the Florida coast from which to defend their ships, salvage those that were sunk, and rescue the shipwrecked mariners. What with the immense quantities of silver, gold, pearls, precious stones, and other articles of value being sent from the New World to Spain, piracy became increasingly lucrative, drawing to its ranks all sorts of men and women—jobless soldiers from the long series of European wars, smugglers, murderers, thieves, escaped convicts, debtors, religious cranks, and even persons from upstanding families who craved excitement. Banded together in a quasi, almost religious fraternity, these marauders were known by various names: *sea rovers,* from their constant plying of the Spanish Main looking for a likely victim; *freebooters,* a corruption of the Dutch, *vrijbuiter,* or free booty; and *buccaneers,* a word originating from a process of curing meat by smoking or boucanning. Some marauders, mostly French, found havens among the Caribbean islands having large herds of wild livestock and set about curing the meat which they bartered for goods. At first, the name applied to those living on shore who smoked beef, but as many individuals passed back and forth from being a *boucanier* to being a pirate, the name came to be applied indiscriminately. Of all sobriquets, pirates preferred being called Brethren of the Coast, i.e., friends and allies against the universal enemy, the Spanish. Between 1650 and 1750, the business of raiding, plundering, and killing thrived and this period became known as the Golden Age of Pirates.

What is now Key West as well as nearby Keys were favorite refuges for pirates. These islands give a commanding view of the Florida Straits, and for marauders knowing the various shoals and intricate channels, they offered a wide variety of escape routes if challenged by a superior force. It took until the early 1800's before the last of the pirates were captured or run off. Within a decade, settlements were established in the Keys and along the southeastern mainland. In this seaside setting it became natural for the settlers to owe their livelihood directly or indirectly to the sea. While some cleared the land along the shore and planted groves of coconuts and fields of pineapples, most of the people depended on *wrecking,* i.e., salvaging ships wrecked on the reef between Lake Worth and the Dry Tortugas. This was a respectable and often lucrative business. The first person to reach a wreck could claim a high percentage of its worth, both the salvage value of the hull and rigging and the cargo it carried. Throughout the mid-1800's, Key West was the commercial and population center of South Florida. It was an important crossroad, connecting ports of the Gulf Coast, Cuba, Mexico, Central and South America with Boston, New York, Baltimore, Charleston and Savannah.

By the latter third of the 1800's small Indian trading posts became settlements, two of which are now Miami and Fort Lauderdale. And there were other settlements along the shore, eventually known as Coconut Grove, Lemon City, and Cutler. It was only a short time after the establishment of these settlements

that tourist houses were built. Attracted by a few prominent authors writing about the frontier paradise, many wealthy sportsmen began coming here.

Fishing was of primary interest to many of these sportsmen. Towards the end of the century, it became fashionable to organize elaborate excursions to southeastern Florida. Large, lavishly appointed yachts, fully staffed with servants as well as crew would sail out of Miami and down along the Keys, usually for a month or two. In tow were one or two 30- to 40-foot motor launches and three or four smaller fishing dories. Each of the launches usually had two fishing guides. The yachts served as the main base and were anchored in pleasant, protected spots. Each day the small boats would leave either for the back country to catch tarpon or for the Outer Reef to catch sailfish or marlin. By the early 1900's the settlement of Craig, located about halfway along the Keys, became a major supply point for these yachts and as many as a dozen or more could be seen tied up there at one time. Later a few prestigious fishing camps were built, such as the one on Long Key, popularized by Ernest Hemmingway, which served a rather exclusive clientele. Fishing increased as more and more people began arriving in southeastern Florida during the various land booms which took place during the first third of the 1900's. The greatest increase in fishing, however, started during the mid-1900's and continues today.

As more and more people moved to southern Florida, the development of seashore resorts mushroomed until the demand for waterside residential property could be met only by filling low areas, tidal and submerged land, and by dredging shallow estuaries to make them suitable for navigation. From Lake Worth south to Biscayne Bay there has been so much dredging and bulkheading that the native plants along the shore and the bottom vegetation of the shallow water have almost completely disappeared. The dense growth of mangroves that once formed the perimeter of these coastal lagoons is gone, as is the maze of stiltlike mangrove prop roots that had provided nursery areas and shelter for a considerable assemblage of young fishes, including jacks, grunts, snappers, pinfishes, drums, barracudas and a host of invertebrate animals, including spiny lobsters and shrimps. Terrible though the destruction of mangroves has been, doing it by filling them with material dredged from the bottom of the lagoons has compounded the devastation; for this practice eliminates the shallow water turtle-grass beds and other aquatic plants that also harbor young fishes, shrimps, and other aquatic organisms.

The present condition of Lake Worth is an example of what happens when the effects of land development and urbanization are concentrated in a narrow, shallow, constricted body of brackish and salt water. In its primeval state, Lake Worth provided habitat for many species of fishes. Although sheepshead, bluefish, pompano, Spanish mackerel, spotted sea trout, red drum, gray snapper, and tarpon were all seasonally numerous here, their abundance has declined seriously with modifications of Lake Worth's physical properties. The first to be affected was pompano, a species which had been particularly abundant in the southern half of Lake Worth. Its diminution progressed northward with the extension of building construction along the shore. Dredging of waterways for navigation not only reduced the amount of living space for many fishes, but the silting of the water which it caused inhibited the growth of aquatic plants, in turn further reducing the amount of living space for fishes. The water from drainage canals, constructed as conduits for freshwater runoff, increased the turbidity and lowered the salinity of the water, at times very rapidly, over nearly the whole of Lake Worth. The increased tempo of building within the last two decades has led to further diminution of fishes. For example, in the 7 years following 1950 the commercial catch of redfish, sea trout, and snook along this stretch of coast fell from about 400,000 pounds to 4,000 pounds, a decrease of 99 percent. These are primarily inshore species that were commonly caught in Lake Worth before its aquatic life became so diminished. Although spotted sea trout, a particular favorite of Florida anglers, occur in Lake Worth, they are certainly not as abundant there as they are in Jupiter and Hobe Sounds which still maintain most of their natural aquatic vegetation. Unfortunately during the 15-year period ending in 1968, 35,000 acres of Florida's east coast shoal water habitat and over 25,000 acres of saltmarshes and mangroves have been destroyed. Ironically, the tragic damage which man's various activities in the estuaries do to the organisms living there could have been avoided with proper land use planning. It is not too late to save what remains, but any hope of doing so depends upon effective action now!

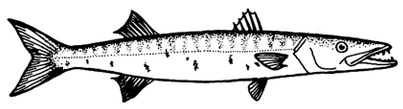
Among ubiquitous estuarine organisms are shrimps of the family Penaeidae. These are the most valuable of all seafoods in the United States and are among the most popular of natural baits which anglers use. Being near the bottom of the food pyramid, these shrimps are a principal prey for all sorts of carnivorous sea fishes, including snook, sea trouts, red and black drums, snappers, groupers, king and Spanish mackerels, tarpon, ladyfish, jacks, dolphins, and even marlins—in short, everything large enough to eat them, and not only fishes but birds, mammals, reptiles, and large invertebrates.

Three species of shrimps are the most valuable and important in estuaries of the south Atlantic and Gulf states and their offshore water. These are the brown, white, and pink shrimps, all of which belong to the same genus, *Penaeus*. Although all three species occur along Florida's coast, pink shrimps are the most important. The adults spawn offshore, many near the Dry Tortugas in depths of around 45 to 145 feet. The center of spawning varies seasonally, and it occurs at one place or another throughout the year. After passing through a series of larval stages, young pink shrimps enter estuaries, mostly from spring through autumn, though a few during winter. Moving far into the upper reaches of the estuaries, the youngest ones concentrate in the shallow protected areas nearshore. They live among sea grasses, smaller ones in shoal-grass beds and larger ones in somewhat deeper water in turtle-grass beds. Seldom are they found near areas where sea grasses are absent or rare. Unfavorable changes in the estuary kill the young shrimp outright or force them offshore where they are more vulnerable to predation. As they grow, the shrimp move gradually into deeper water, and in about 4 months they reach adulthood; and though a few remain in the estuary, most of them move offshore into depths which increase as they grow larger. Although in Florida they tolerate temperatures between 50° and 96°F, they go into a stupor when the water goes below 60°F. Pink shrimp prefer sand, shelly sand, and coral mud, such as found in Florida Bay.

An angler in Florida does not need a license to fish in salt or brackish water. There are, however, some saltwater regulations. There are minimum size limits for bluefish, pompano, fluke (locally called flounder), Spanish mackerel, spotted and gray sea trouts, red drum (locally called redfish), and snook. Also, there are possession limits or catch limits for snook, sailfish, tarpon, and striped bass. Florida regulates the season, type of gear, method of capture, and catch limits of shrimps, spiny lobsters (locally called crawfish), stone crabs, oysters, and clams. Local regulations may exist for spearfishing and for netting mullet. For a copy of the fishing and shellfishing regulations, write to the Florida Department of Natural Resources, Division of Marine Resources, Crown Building, Blount Street, Tallahassee, 32304.

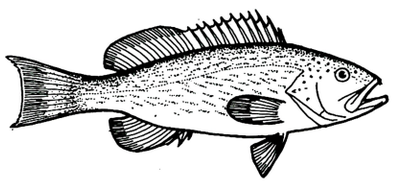
Most Commonly Caught Fish

BARRACUDAS

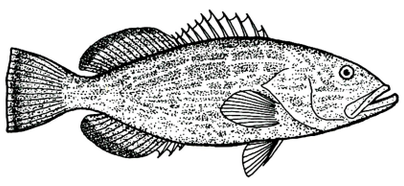


GREAT BARRACUDA, *Sphyraena barracuda*. Barracuda, cuda. SIZE: Largest recorded 106 lbs; tackle record 83 lbs; avg. 7-13 lbs; over 40 lbs unusual. HABITS: Pelagic and migratory. Occur both offshore and inshore over any type of bottom. Barracuda often concentrate around wrecks or rock and coral bottom with high relief. SEASON: All year; best fishing May—September or early October. Most are caught near the surface in water from near shore to about 100 ft deep and temperatures warmer than 70°F. FISHING METHODS: Live lining, chumming, and casting from shore; these methods plus trolling from boats. Usually taken incidentally while fishing for other species. BAITS: Stripbait and cut fish or live shrimp, pinfish, ballyhoo, mullet and snapper; also spoons, plugs, jigs and weighted bucktails.

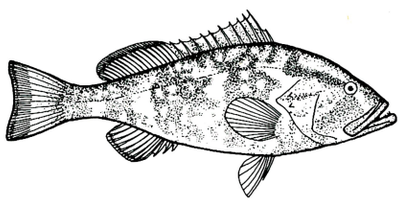
BASSES, SEA AND GROUPERS



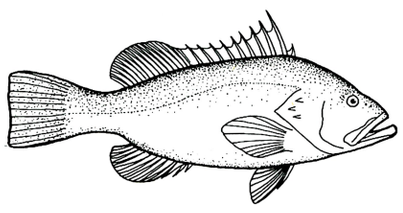
GAG GROUPER, *Mycteroperca microlepis*. Grouper, gray grouper. Small ones caught in shallow water are called grass grouper. Sometimes miscalled black grouper. Usually distinguished from other groupers by the more or less plain coloration and the crescent-shaped edge of the tail. SIZE: To 51 lbs; avg. 2-6 lbs; over 20 lbs unusual. HABITS: Occur to depths of 400 ft or more, especially on high relief bottom consisting of rock or coral and around wrecks. During winter and spring occur in shallow water; during summer and fall in deeper water. Small fish occur both inshore and offshore. As they grow larger, they tend to remain offshore. SEASON: All year; best fishing March—April and July—August. FISHING METHODS: Bottom fishing, live lining, jigging and casting from shore; these methods plus trolling near bottom from boats. BAITS: Shrimp, squid, cut fish, and live pinfish or grunts; also weighted bucktails, jigs, spoons and feathers.



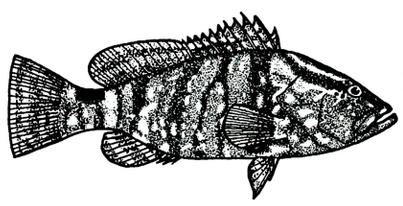
BLACK GROUPER, *Mycteroperca bonaci*. Blackfin grouper. Sometimes miscalled gag grouper. Usually distinguished from other groupers by the large, dark rectangular-shaped blotches arranged in rows on the body. SIZE: To over 100 lbs; avg. 3-7 lbs; over 30 lbs unusual. HABITS: Occur to depths of 400 ft or more on high relief bottom of coral and rocks encrusted with living organisms, or around wrecks. Small fish occur both inshore and offshore. As they grow larger, they tend to remain offshore. SEASON: All year; best fishing December—April. FISHING METHODS: Bottom fishing, live lining, jigging or trolling near bottom from boats. BAITS: Whole or cut fish, crabs, spiny lobsters, shrimp and live pinfish, grunt or snapper; also stripbait, feather-stripbait combination, spoons, plugs, jigs and weighted bucktails.



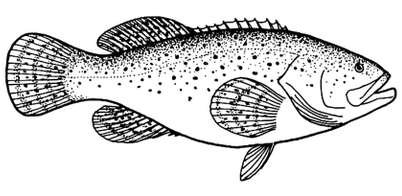
RED GROUPER, *Epinephelus morio*. Grouper. Distinguished from most other groupers by the edges of the membranes between the dorsal spines being slightly curved or nearly straight. In most other groupers they are deeply notched. SIZE: To 50 lbs; avg. 4-6 lbs; over 25 lbs unusual. HABITS: Occur from shore to depths of at least 900 ft, sometimes on smooth sand or mud, but most frequently around wrecks or on high relief bottom of coral and rocks encrusted with living organisms. SEASON: All year. Fishing is fairly uniform throughout the year. FISHING METHODS: Bottom fishing from anchored or drifting boats. Some caught by jigging or trolling near bottom. BAITS: Squid, shrimp, cut fish and live fish; also stripbait, weighted bucktails, jigs and feathers.



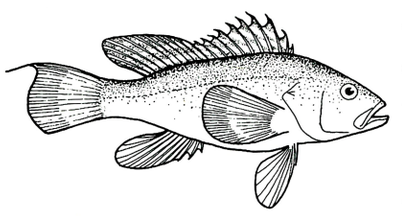
WARSAW GROUPER, *Epinephelus nigritus*. Grouper, warsaw, black jewfish, giant sea bass. Miscalled jewfish and black grouper. Distinguished from most other groupers by having 10 dorsal spines, and the edge of the tail being nearly straight. SIZE: To 500 lbs; avg. 15-25 lbs; over 150 lbs unusual. HABITS: Occur from shore to depths of 600 ft or more, especially around wrecks or on high relief bottom consisting of coral and rocks. Although usually near bottom, they may swim into mid water in pursuit of prey. SEASON: All year; best fishing November—April. FISHING METHODS: Bottom fishing, jigging or deep trolling from boats. BAITS: Squid, shrimp, crabs, spiny lobster, cut fish, whole ballyhoo, mullet or little tuna, and live pinfish or grunt; also stripbait, feather-stripbait combination, spoons, jigs and plugs.



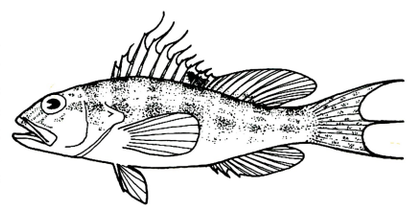
NASSAU GROUPER, *Epinephelus striatus*. Grouper. Distinguished from other groupers by the dark blotch on the narrow part of the tail, and the dark bars on the head and body. SIZE: To 55 lbs; avg. 2-4 lbs; over 20 lbs unusual. HABITS: Occur from the shore to depths of at least 200 ft on high relief bottom of coral and rocks or around wrecks. Small fish occur from shallow to deep water. As they grow larger, they tend to remain in deep water. SEASON: All year. FISHING METHODS: Bottom fishing from shore or boats. Small fish are caught by casting, jigging or trolling near bottom. BAITS: Cut fish, squid, shrimp, spiny lobster and live fish; also weighted bucktails and feathers.



JEWFISH, *Epinephelus itajara*. Spotted jewfish, spotted grouper. Distinguished from other groupers by the short dorsal spines, dark spots, and rounded tail. The young have 5 dark bars on each side which disappear with age. SIZE: To over 800 lbs; tackle record 680 lbs; avg. 30-60 lbs; over 250 lbs unusual. HABITS: Although some occur in depths of 100 ft or more, most are inshore of the 70 ft bottom contour. Favor wrecks, ledges, caves, jetties, and deep holes near bridge abutments. Small ones more active than large ones. SEASON: All year. FISHING METHODS: Bottom fishing from shore or boats. Small ones take artificial lures. BAITS: Crabs, spiny lobster, live or dead fish, and clams; also jigs, plugs and feathers.

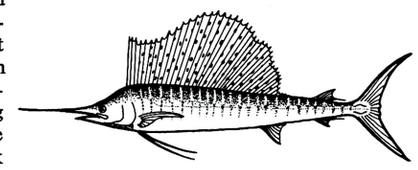


BLACK SEA BASS, *Centropristis striata*. Sea bass, black bass, rock bass. See rock sea bass. SIZE: Largest recorded 8 lbs; tackle record 8 lbs; avg. ⅓-⅔ lb; over 2½ lbs unusual. HABITS: Gregarious, year-round residents occurring on rock, coral or shell bottom and around wrecks, pilings, wharfs, rock jetties or breakwaters. They are common from a few feet below the tide-line to about 180 ft, some to 300 ft or more. They attain their largest size and greatest abundance on offshore grounds. SEASON: All year; best fishing May—June and November—December. Few are caught south of Palm Beach. FISHING METHODS: Most are caught in depths of 45-120 ft by bottom fishing from drifting or anchored boats. Small ones are taken from shore by bottom fishing. BAITS: Squid, clams, crabs, worms, shrimp and cut fish.

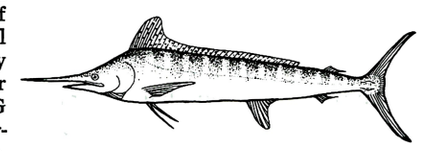


ROCK SEA BASS, *Centropristis philadelphica*. Sea bass, rock bass. Distinguished from back sea bass by having 6 or 7 broad vertical bars or stripes on back and sides, and a distinct black spot at base of last three dorsal spines. Black sea bass have no vertical bars or stripes and no large distinct spot. SIZE: To 1 lb; avg. ¼-⅓ lb; over ¾ lb unusual. Most anglers make no distinction between rock sea bass and black sea bass. HABITS, SEASON, FISHING METHODS and BAITS are the same as for black sea bass.

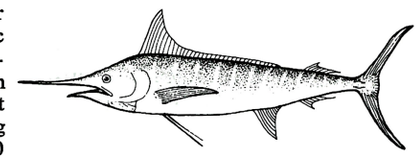
BILLFISHES



ATLANTIC SAILFISH, *Istiophorus platypterus*. Sailfish. SIZE: Maximum size unrecorded; Atlantic tackle record 128 lbs (Pacific tackle record 221 lbs); avg. 30-40 lbs; over 70 lbs unusual. HABITS: Pelagic and migratory. Occur in continental-shelf water usually in depths over 40 ft, but they occasionally venture close enough to shore to be caught from ocean piers. Travel in small groups or singly. Sailfish usually feed more in midwater and near bottom than at the surface. SEASON: All year; best fishing mid-October or November—April. FISHING METHODS: Trolling, live lining and kite fishing from boats. A few are caught from shore. Check state regulation on daily catch limit. BAITS: Stripbait, feather-stripbait or skirt-stripbait combination, whole rigged ballyhoo or mullet, and live blue runner, mullet, goggle-eyed scad, false pilchard, pinfish or bonefish. Some are caught on feathers, spoons, skirts and plugs.

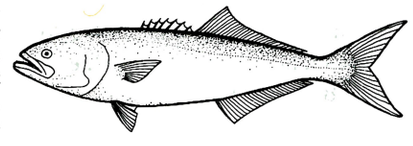


WHITE MARLIN, *Tetrapturus albidus*. See blue marlin. SIZE: Maximum size unrecorded; tackle record 161 lbs; avg. 50-60 lbs; over 90 lbs unusual. HABITS: Pelagic and migratory. Occur in oceanic and continental-shelf water but some come close to shore in depths as shallow as 60 ft. Travel in small groups or singly. SEASON: All year; best fishing late February or March—May or June. Most are caught near the surface in water warmer than 70°F between the 100-600 ft bottom contours. FISHING METHODS: Trolling and live lining from boats. BAITS: Stripbait, feather-stripbait or skirt-stripbait combination, and whole rigged squid, ballyhoo, mullet, Spanish mackerel or bonefish; also live bait. Some are caught on feathers, skirts, rubber squid and plugs.



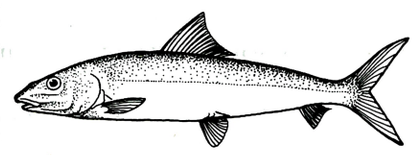
BLUE MARLIN, *Makaira nigricans*. Distinguished from white marlin by having the tips of the dorsal and anal fins pointed, and, except for very small fish, the lateral line is inconspicuous. White marlin have rounded dorsal and anal fin tips and the lateral line is conspicuous. SIZE: To over 1,700 lbs in the Atlantic Ocean; Atlantic tackle record 1,142 lbs (Pacific tackle record 1,153 lbs but fish over 2,000 lbs are reported); avg. 200-300 lbs; over 400 lbs unusual. HABITS: Pelagic and migratory. Occur in oceanic and continental-shelf water from the surface to depths of at least 300 ft. Travel in small groups or singly. SEASON: All year; best fishing January—May or June. Most are taken near the surface between the 300 and 600 ft bottom contours. FISHING METHODS: Trolling, live lining and kite fishing from boats. BAITS: Whole rigged squid, Spanish mackerel, mullet, ballyhoo, bonefish, ladyfish and little tuna; also live fish, stripbait and feather-stripbait combination.

BLUEFISH



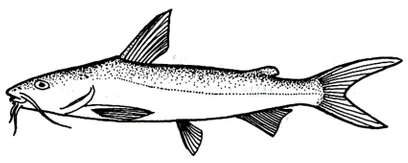
BLUEFISH, *Pomatomus saltatrix*. Blues, rock salmon. Small ones called snapper blues. SIZE: Largest recorded 35 lbs; tackle record 31 lbs 12 oz; avg. 1-2 lbs; over 7 lbs unusual. HABITS: Pelagic, schooling and migratory. Bluefish occur throughout the water column in temperatures warmer than 55°F. They often concentrate around inlets, shoals, wrecks and inshore reefs. Abundance fluctuates from year to year. SEASON: All year; best fishing October or November—April. FISHING METHODS: Casting, bottom fishing, live lining and jigging from shore; these methods plus trolling from boats. Most bluefish are caught within 2 miles of the beach, in estuaries and the intracoastal waterway. Check state regulation on size limit. BAITS: Shrimp, mullet, cut fish and live fish; also spoons, feathers, stripbait, weighted bucktails, jigs, mops and plugs.

BONEFISH

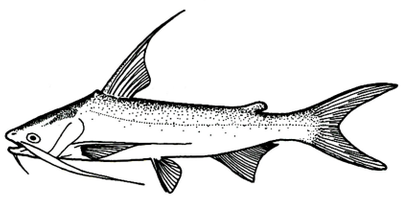


BONEFISH, *Albula vulpes*. Silver ghost, phantom. SIZE: To over 20 lbs; tackle record 19 lbs; avg. 4-6 lbs; over 12 lbs unusual. HABITS: These inshore fish occur singly, in groups or in schools from the tide-line to depths of 40 ft. They often feed by rooting in the bottom of sand and grass flats; this feeding action is called "tailing" or "mudding." SEASON: All year; best fishing is during June. FISHING METHODS: Chumming, live lining and casting from boats or while wading in shallow water. Most bonefish are caught in depths of ½-10 feet. BAITS: Shrimp, crabs, clams, conch, sand bugs and squid; also weighted bucktails, feathers, plugs and streamer flies.

CATFISHES, SEA



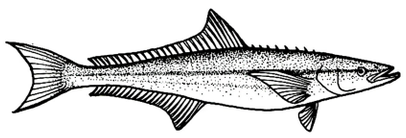
SEA CATFISH, *Galeichthys felis*. Sea cat, catfish. SIZE: To 3 lbs; avg. ⅓—⅔ lb; over 1½ lbs unusual. HABITS: These shallow water shore fish aggregate on any type of bottom. Although small ones occur in both salt and brackish water, large ones are almost always in salt water. More active during night than day. SEASON: All year; best fishing April—November. FISHING METHODS: Bottom fishing from shore or boats. Most are caught incidentally while fishing for other species. BAITS: Shrimp, crabs, cut fish and squid.



GAFFTOPSAIL CATFISH, *Bagre marinus*. Sail cat, top cat, catfish. SIZE: To 6 lbs; avg. ¾—1½ lbs; over 3 lbs unusual. HABITS: These inshore fish occur on any type of bottom in salt and brackish water, some in nearly fresh water. Although primarily bottom feeders, they sometimes pursue prey to the surface. Unlike sea catfish, gafftopsail catfish strike artificial lures. More active during night than day. SEASON: All year; best fishing April—November. FISHING METHODS: Bottom fishing or casting from shore or boats. BAITS: Shrimp, crabs, cut fish and squid; also weighted bucktails, plugs and streamer flies.

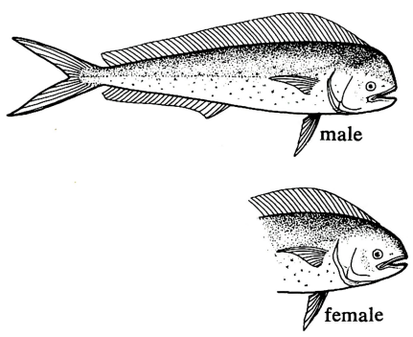
St. Lucie Inlet, Florida to the Dry Tortugas

COBIA



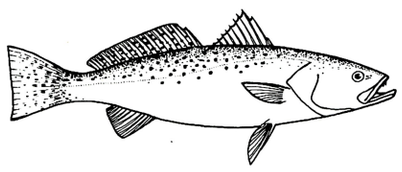
COBIA, *Rachycentron canadum*. Ling, lemonfish, black salmon. SIZE: To 120 lbs; tackle record 110½ lbs; avg. 10-15 lbs; over 50 lbs unusual. HABITS: Occur throughout the water column both inshore, along beaches and around inlets, and offshore, around deep reefs and high relief bottom of coral or rock. They usually occur singly or in small groups and are often around wrecks, buoys, floating debris, and about large sea animals such as turtles and rays; also with schools of other kinds of fishes. SEASON: All year; best fishing October—April. FISHING METHODS: Bottom fishing, chumming, live lining, jigging, or casting from shore; these methods plus trolling from boats. BAITS: Stripbait, ballyhoo, mullet, squid and live fish; also spoons, plugs and weighted bucktails.

DOLPHINS

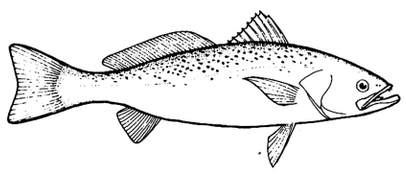


DOLPHIN, *Coryphaena hippurus*. Small ones called school dolphin, feather dolphin and grasshoppers; large males called bulls and large females cows. SIZE: To 85 lbs; tackle record 85 lbs; avg. 3-7 lbs; over 45 lbs unusual. HABITS: Pelagic, schooling and migratory. These rapid swimmers occur near the surface in water warmer than 70°F. Although dolphin occasionally venture close enough to shore to be caught from ocean piers, they usually occur offshore of the 60 ft bottom contour. They often gather under floating debris, seaweed and buoys. SEASON: All year; best fishing April—June. FISHING METHODS: Trolling, casting, live lining, chumming and kite fishing from boats. BAITS: Feathers, spoons, jigs, plugs, weighted bucktails, stripbait, feather-stripbait or skirt-stripbait combination, and whole rigged ballyhoo, mullet, squid or Spanish mackerel; also live fish.

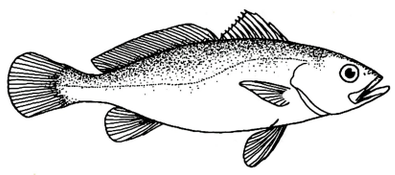
DRUMS



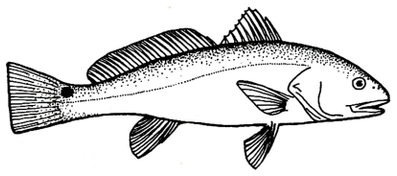
SPOTTED SEA TROUT, *Cynoscion nebulosus*. Trout, speckled trout. Large ones called gator trout. See gray sea trout and silver sea trout. SIZE: Largest recorded 16½ lbs; tackle record 15 lbs 3 oz; avg. 1-3 lbs; over 8 lbs unusual. HABITS: Occur in salt and brackish water, particularly the shallow water of estuaries and the Intracoastal Waterway. Although favoring sandy areas, especially around turtle grass beds, they occur over any type of bottom in water warmer than 54°F. SEASON: All year; best fishing March— May. FISHING METHODS: Bottom fishing, chumming, live lining, jigging and casting from shore; these methods plus trolling from boats. Check state regulation on size limit. BAITS: Shrimp, mullet, soft or shedder crab, and live fish or live fish-popping jig combination (float rig); also plugs, weighted bucktails, jigs, spoons, spinners and streamer flies.



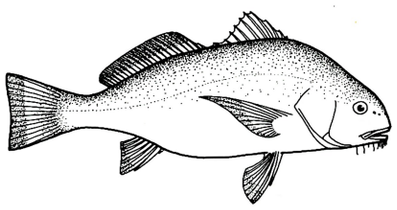
GRAY SEA TROUT, *Cynoscion regalis*. Trout, sea trout, gray trout, yellowmouth trout, weakfish. See silver sea trout. Distinguished from spotted sea trout by having dark blotches on its back often arranged in oblique rows, but no round, dark spots on 2nd dorsal fin and tail. In contrast, spotted sea trout have round, dark spots on the upper half of the body, and on the 2nd dorsal fin and tail. SIZE: Largest recorded 30 lbs; tackle record 19½ lbs; avg. ¾-1¼ lbs; over 4 lbs unusual. HABITS: Occur throughout the water column in salt and brackish water to depths of at least 90 ft. Although found over any type of bottom, they favor sandy areas. Occur more often in ocean water than spotted sea trout. SEASON: All year; best fishing November—April. FISHING METHODS: Bottom fishing, live lining, casting, chumming and jigging from shore; these methods plus trolling from boats. Check state regulation on size limit. BAITS: Shrimp, mullet, soft or shedder crab, worms, squid, clams and cut fish; also weighted bucktail, jigs, plugs, spoons, spinners and streamer flies.



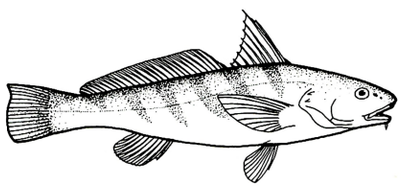
SILVER SEA TROUT, *Cynoscion nothus*. Trout, white trout. Distinguished from gray sea trout by having a rounded tail and usually 9, but sometimes 8 or 10, anal fin rays. Gray sea trout have slightly forked tails and 11 or 12 anal fin rays. Differs from spotted sea trout in having no round, dark spots on the upper half of the body or on the 2nd dorsal fin and tail. Spotted sea trout have these spots. SIZE: To 2 lbs; avg. ⅓ — ⅔ lb; over 1½ lbs unusual. HABITS: Occur in salt and brackish water over any type of bottom to depths of 60 ft. Otherwise, the habits of silver sea trout are similar to those of gray sea trout. SEASON: All year; best fishing March—May. FISHING METHODS: Bottom fishing, jigging, live lining and chumming from shore; these methods plus trolling from boats. Check state regulation on size limit. BAITS: Shrimp, squid, clams and cut fish; also small weighted bucktails, feathers, jigs and streamer flies.



RED DRUM, *Sciaenops ocellata*. Redfish, channel bass, red bass, red horse, spottail bass, sea bass. Small ones are called school bass, large ones big reds or dog bass. SIZE: Largest recorded 90 lbs; tackle record 90 lbs; avg. 4-6 lbs; over 20 lbs unusual. HABITS: Occur in brackish and salt water on mud and sand bottom, especially near shoals and shellfish beds. Small ones occur in shallow estuaries, large ones around inlets and within 6 miles of the coast. SEASON: All year; best fishing for small ones April—August, for large ones August—November. FISHING METHODS: Bottom fishing, live lining, jigging and casting from shore; these methods plus trolling from boats. Check state regulation on size limit. BAITS: Shrimp, mullet, crabs, clams, cut fish, and live fish; also spoons, plugs, weighted bucktails, jigs, stripbait, feathers and streamer flies.

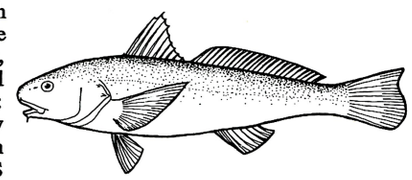


BLACK DRUM, *Pogonias cromis*. Drum. Young ones have 4 to 6 broad, black bars on their sides which disappear with age. SIZE: Largest recorded 146 lbs; tackle record 111 lbs; avg. 1-4 lbs; over 15 lbs unusual. HABITS: These inshore bottom feeders occur on any type of bottom in salt and brackish water, but prefer clam and oyster beds. They also frequent breakwaters, jetties, pilings, bridge abutments and piers. SEASON: All year. Usually taken incidentally while fishing for other species. FISHING METHODS: Bottom fishing, chumming and casting from shore or boats. BAITS: Shrimp, clams, soft or shedder crab, squid and cut fish; also spoons, jigs and weighted bucktails.

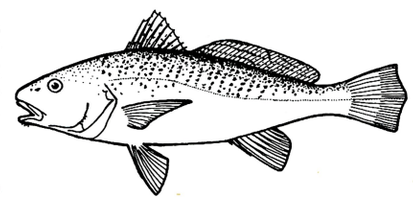


SOUTHERN KINGFISH, *Menticirrhus americanus*. Whiting, king whiting. Large ones called bull whiting. See Gulf kingfish. SIZE: To 3 lbs; avg. ⅓—1 lb; over 2 lbs unusual. HABITS: These bottom feeders aggregate on any type of bottom but adults favor sand or sand-shell along the beaches and around the mouths of inlets. Most occur in salt and brackish water from the tide-line to depths of 40 ft, some to at least 180 ft in the ocean. SEASON: All year; best fishing November—April. FISHING METHODS: Bottom fishing, chumming and jigging from shore and anchored or drifting boats. BAITS: Shrimp, worms, cut fish, squid, clams and small crabs; also small jigs and weighted bucktails.

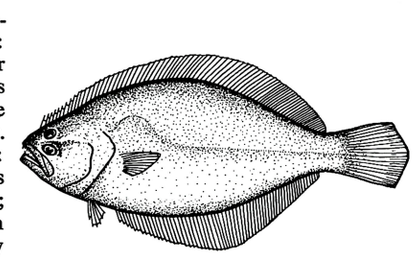
GULF KINGFISH, *Menticirrhus littoralis*. Whiting, king whiting, beach whiting, silver whiting. Distinguished from southern kingfish by the absence of dark markings on its silvery body, and by its pale gill cavity. In contrast, southern kingfish have dusky bars on back and sides, and a dark gill cavity. SIZE: To 3½ lbs; avg. ⅓—1 lb; over 2 lbs unusual. HABITS: Gulf kingfish prefer saltier water than southern kingfish. Although a few occur within estuaries, most remain along sandy beaches of the open ocean and near the outside mouths of inlets. SEASON, FISHING METHODS and BAITS are the same as for southern kingfish.



ATLANTIC CROAKER, *Micropogon undulatus*. Croaker. SIZE: To 5 lbs; avg. ¼—⅓ lb; over 1½ lbs unusual. HABITS: These bottom feeders occur on mud, sand, shell or coral bottom and around rock jetties or wrecks in salt and brackish water, a few in nearly fresh water. Spawned offshore in depths to 300 ft, the young move inshore and spend their first year of life in shallow estuaries. As growth proceeds they gradually move seaward. SEASON: All year; best fishing November—March. FISHING METHODS: Most are caught from a few feet below the tide-line to depths of 30 ft by bottom fishing, chumming, live lining and jigging from shore or boats. BAITS: Shrimp, soft or shedder crab, clams, worms and cut fish. A few are caught on small jigs and weighted bucktails.

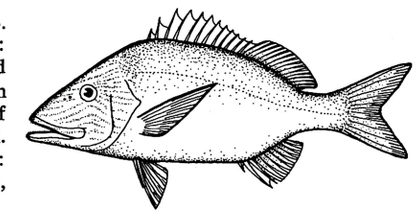


FLOUNDERS

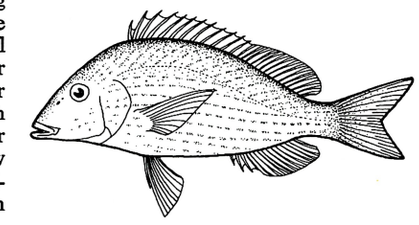


SOUTHERN FLUKE, *Paralichthys lethostigma*. Flounder, southern flounder. SIZE: To over 13 lbs; avg. 1-2 lbs; over 10 lbs unusual. HABITS: These bottom feeders live on mud, sand and sand-shell bottom. They occur in salt and brackish water and often ascend fresh water streams or rivers for a considerable distance. During warm months many occur near the shore in shallow estuaries; during cold months they move into deeper water. Usually feed near bottom but will pursue prey to the surface. SEASON: All year; best fishing June—November. Night spearing on shallow flats is best June—September. FISHING METHODS: Bottom fishing from shore; this method plus chumming, live lining and trolling near bottom from boats. Night spearing, called gigging or floundering, is commonly done either while wading or from boats. Check state regulation on size limit. BAITS: Killifish, squid, mullet, clams, worms and cut fish. A few are caught on jigs, spinners, spoons and weighted bucktails.

GRUNTS

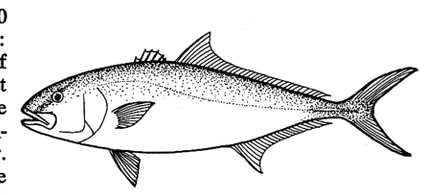


WHITE GRUNT, *Haemulon plumieri*. Grunt, common grunt, ruby red lips. See pigfish. SIZE: To 4 lbs; avg. ⅓ — ⅔ lb; over 2 lbs unusual. HABITS: Occur in salt and brackish water on mud, sand, rock or coral bottom and around wrecks, piers, jetties or bridge abutments. Although common in estuaries, inlets and along ocean beaches, they occur offshore in depths of 100 ft or more. They usually feed within a few feet of the bottom. SEASON: All year; best fishing August—October. FISHING METHODS: Bottom fishing and jigging from shore or boats. BAITS: Shrimp, crabs, worms, clams and cut fish; also small weighted bucktails and jigs.

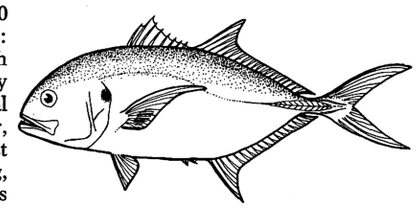


PIGFISH, *Orthopristis chrysoptera*. Grunt. Often miscalled sailors choice and hogfish. Distinguished from white grunt by having a small mouth with no bright color inside, and by its body scales above the lateral line being about the same size as those below. In contrast, white grunt have a large mouth with an orange-red lining, and the body scales above the lateral line are larger than those below. SIZE: To 2 lbs; avg. ¼-½ lb; over 1½ lbs unusual. HABITS: Occur in salt and brackish water on sand or mud bottom and around wrecks, piers, jetties or bridge abutments. Although common in estuaries, inlets and along ocean beaches, they also occur offshore to depths of 100 ft or more. Pigfish usually feed within a few feet of the bottom. SEASON: All year; best fishing April—October. FISHING METHODS: Bottom fishing and jigging from shore or boats. Although pigfish are plentiful, they are not highly sought. Most are caught incidentally with other bottom fishes. BAITS: Shrimp, crabs, squid, worms, clams and cut fish; also small weighted bucktails and jigs. Pigfish are often used as live or cut bait for other species.

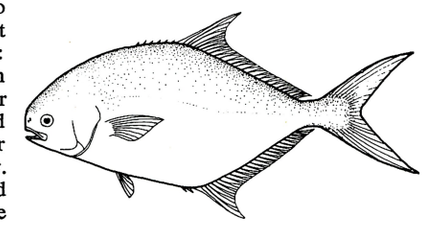
JACKS, SCADS AND POMPANOS



GREAT AMBERJACK, *Seriola dumerili*. Amberjack. SIZE: To over 180 lbs; tackle record 149 lbs; avg. 15-25 lbs; over 95 lbs unusual. HABITS: These fast swimmers occur in schools in oceanic and continental-shelf water from the surface to depths of at least 1,000 ft. Although great amberjack may occur anywhere in the water column, they often concentrate over high relief rock or coral bottom and around wrecks or buoys. SEASON: All year; best fishing February—May and October—December. FISHING METHODS: Trolling, bottom fishing, jigging, chumming and live lining from boats. Anglers catch many large amberjack while fishing for snappers and grouper in depths of 90-300 ft. BAITS: Live and dead fish; also stripbait, plugs, spoons, feathers and jigs.

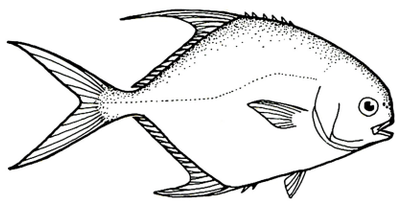


CREVALLE JACK, *Caranx hippos*. Jack, jack crevalle. SIZE: To over 70 lbs; avg. 1-3 lbs inshore, 7-12 lbs offshore; over 25 lbs unusual. HABITS: Pelagic and schooling. These rapid swimmers occur in salt and brackish water; sometimes in coastal rivers to nearly fresh water. Occur over any type of bottom, but congregate over wrecks and high relief rock or coral bottom. Small fish are common in shallow estuaries; as they grow larger, they tend to move offshore into deeper water. SEASON: All year; best fishing mid March—November. FISHING METHODS: Casting, jigging, live lining, chumming and bottom fishing from shore; these methods plus trolling from boats. BAITS: Feathers, spoons, plugs, jigs, weighted bucktails and bucktail flies; also live or cut fish and shrimp.

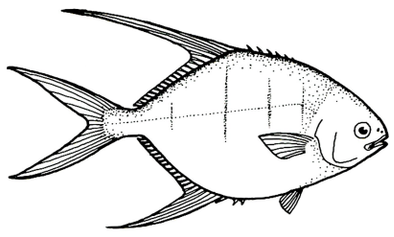


POMPANO, *Trachinotus carolinus*. This fish is more commonly referred to as the pompano than any of its other Atlantic coast relatives. See permit and palometa. SIZE: To 8 lbs; avg. 1-2 lbs; over 5 lbs unusual. HABITS: These schooling fish are caught along ocean beaches, in estuaries and in inlets. Adults leave shallow water seasonally to spawn offshore, some as far as 60 miles from land. Pompano feed on or a few feet off sand and mud bottom in water warmer than 65°F. Many die when trapped in water colder than 60°F. SEASON: All year; best fishing November—May. FISHING METHODS: Bottom fishing, casting, live lining, chumming and jigging from shore; these methods plus trolling from boats. Check state regulation on size limit. BAITS: Shrimp, sand bugs, cut fish and clams; also small weighted bucktails, jigs and feathers.

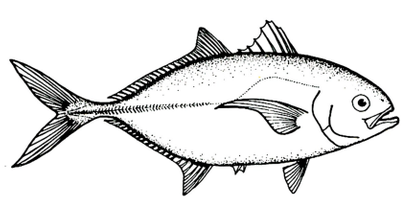
Most Commonly Caught Fish



PERMIT, *Trachinotus falcatus.* Great pompano. Small ones sometimes called round pompano. Distinguished from pompano by having 1 spine and 17-21 soft rays in the 2nd dorsal fin. Pompano have 1 spine and 22-27 soft rays. SIZE: Maximum size unrecorded; tackle record 50½ lbs; avg. 5-10 lbs; over 35 lbs unusual. HABITS: These bottom feeders occur from the tide-line to depths of 100 ft or more. Although they occur on shallow flats and reefs, they frequent holes and cuts along the edges of these shallow areas. Permit sometimes feed near sharks and rays rooting in the bottom. Spawned offshore the young move inshore and subsequently spend most of their lives in shallow water. SEASON: All year; best fishing April—August. FISHING METHODS: Bottom fishing, casting, live lining, chumming and jigging from boats, shore and while wading. Most permit are caught in water warmer than 66°F and depths of 4-12 ft. BAITS: Live crabs, shrimp and bait fish also conch and clams. Some are caught on weighted bucktails, plugs and streamer flies.

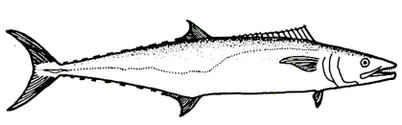


PALOMETA, *Trachinotus goodei.* Gafftopsail pompano, longfin pompano. Distinguished from other Atlantic coast pompanos by having 4 narrow, dark bars on their sides. SIZE: To 3½ lbs; avg. ½-1 lb; over 1¾ lbs unusual. HABITS, SEASON, FISHING METHODS and BAITS are the same as for pompano.

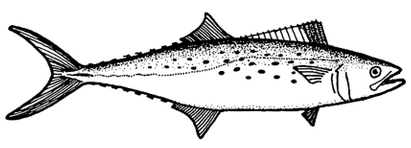


BLUE RUNNER, *Caranx crysos.* Runner, hardtail, jack. SIZE: To over 4 lbs; avg. ⅓—1 lb; over 3 lbs unusual. HABITS: Pelagic and schooling, occurring throughout the water column. Spawned offshore the young move inshore along the beaches into estuaries and over shallow reefs. Adults frequently occur around pilings, bridge abutments and buoys. SEASON: All year. FISHING METHODS: Casting, jigging, live lining, chumming, trolling and bottom fishing from boats or shore. BAITS: Shrimp, cut fish and small live fish; also weighted bucktails, plugs, spoons, jigs and streamer flies. Most blue runners are used as bait for large fish.

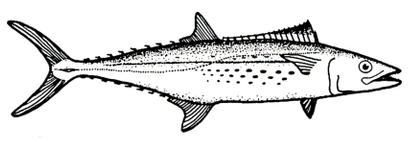
MACKERELS, TUNAS AND BONITOS



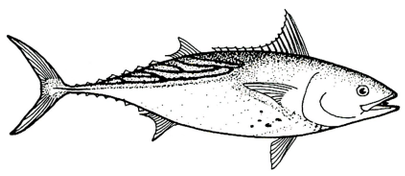
KING MACKEREL, *Scomberomorus cavalla.* Kingfish, kings. Small ones are called snakes, large ones smokers. See Spanish mackerel and cero mackerel. SIZE: Largest recorded 103 lbs; tackle record 78¾ lbs; avg. 6-12 lbs; over 50 lbs unusual. HABITS: Pelagic and schooling. King mackerel occur over any type of bottom in salt water warmer than 67°F. Often congregate over wrecks, high relief rock or coral bottom and around buoys. Although some occasionally venture close enough to shore to be caught from ocean piers, most occur offshore of the 50 ft bottom contour. SEASON: All year; best fishing mid—October—April. FISHING METHODS: Live lining, casting, jigging, chumming and kite fishing from shore; these methods plus trolling from boats. Check state regulation on size limit. BAITS: Spoons, feathers, stripbait, feather-stripbait or skirt-stripbait combination, weighted bucktails, jigs and plugs; also shrimp, whole rigged mullet or ballyhoo, and live fish.



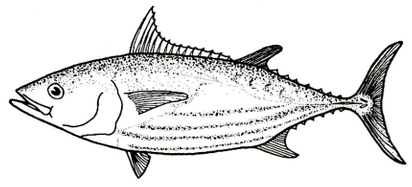
SPANISH MACKEREL, *Scomberomorus maculatus.* Mackerel. Distinguished from king mackerel by the scaleless pectoral fins and the lateral line sloping downward gradually under the 2nd dorsal fin. King mackerel have scaled pectoral fins and the lateral line dips downward abruptly under the 2nd dorsal fin. See cero mackerel. SIZE: To 12 lbs; avg. ½-1½ lbs; over 5 lbs unusual. HABITS: Pelagic and schooling. Occur throughout the water column to depths of 80 ft in water warmer than 67°F. Spanish mackerel will pursue bait fish through inlets into estuaries. SEASON: All year; best fishing October—April. FISHING METHODS: Casting, live lining, bottom fishing, jigging and chumming from shore; these methods plus trolling from boats. Most fish are caught within 2 miles of the beach and in or around inlets. Check state regulation on size limit. BAITS: Spoons, feathers, stripbait, weighted bucktails, plugs and jigs; also live shrimp or live fish and cut fish.



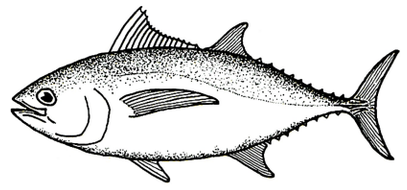
CERO MACKEREL, *Scomberomorus regalis.* Mackerel. Often miscalled Spanish mackerel. Distinguished from Spanish mackerel by having scaled pectoral fins, and their sides marked with stripes and spots, the spots being mostly below the lateral line and in rows. Spanish mackerel have scaleless pectoral fins, and the spots on their sides are irregularly distributed. Distinguished from king mackerel by the lateral line sloping downward gradually under the 2nd dorsal fin. In the king mackerel the lateral line slopes downward abruptly under the 2nd dorsal fin. SIZE: To over 25 lbs; avg. 2-4 lbs; over 13 lbs unusual. HABITS: These pelagic fish occur along ocean beaches and the Keys from shore to depths of 100 ft or more in water warmer than 67°F. More solitary than Spanish mackerel, cero usually do not form large schools. SEASON: All year; best fishing November—April. Most and caught between the 20 and 60 ft bottom contours in water of 70°-80°F. FISHING METHODS: Live lining, casting, trolling, jigging and bottom fishing from boats. Some are caught from shore by casting, live lining and bottom fishing. BAITS: The same as for Spanish mackerel.



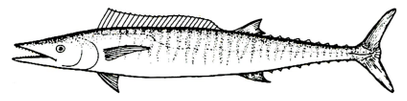
LITTLE TUNA, *Euthynnus alletteratus.* Bonito, false albacore. SIZE: To 26 lbs; avg. 6-10 lbs; over 20 lbs unusual. HABITS: Pelagic and schooling. These rapid swimmers usually occur from the surface to depths of 120 ft. They travel in aggregations varying from three or four fish to schools of many thousands. Although they occasionally venture close enough to shore to be caught from ocean piers, little tuna usually occur between the 30 and 600 ft bottom contours. SEASON: All year; best fishing April—August. FISHING METHODS: Most are caught by trolling and casting from boats between the 60 and 200 ft bottom contours. Some are caught by casting and live lining from shore. BAITS: Feathers, stripbait, feather-stripbait or skirt-stripbait combination, spoons, jigs and plugs; also rigged ballyhoo and mullet, or small live fish.



SKIPJACK TUNA, *Katsuwonus pelamis.* Oceanic bonito, arctic bonito, watermelon tuna. SIZE: To 45 lbs; tackle record 39 lbs 15 oz; avg. 3-5 lbs; over 15 lbs unusual. HABITS: Pelagic, schooling and migratory. These rapid swimmers usually occur near the surface in continental-shelf and oceanic water warmer than 63°F, but offshore of the 90 ft bottom contour. SEASON: All year; best fishing December—May. FISHING METHODS: Most are caught offshore by trolling near the surface in water of 68°-74°F. Also caught by casting from boats. BAITS: Feathers, stripbait, feather-stripbait or skirt-stripbait combination, spoons, jigs and plugs.

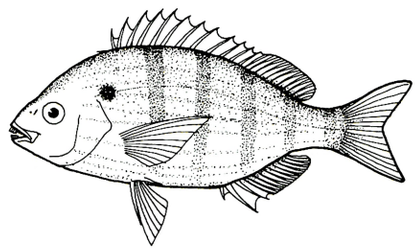


BLACKFIN TUNA, *Thunnus atlanticus.* Tuna. SIZE: To over 40 lbs; tackle record 38 lbs; avg. 7-10 lbs; over 22 lbs unusual. HABITS: These rapid, pelagic swimmers occur usually near the surface between the 100 and 600 ft bottom contours. They often form large, dense schools with many thousands of individuals. SEASON: All year; best fishing mid February—May. FISHING METHODS: Trolling, casting and live lining from boats. BAITS: Feathers, stripbait, feather-stripbait or skirt-stripbait combination, spoons, jigs and plugs; also rigged ballyhoo and mullet, or small live fish.

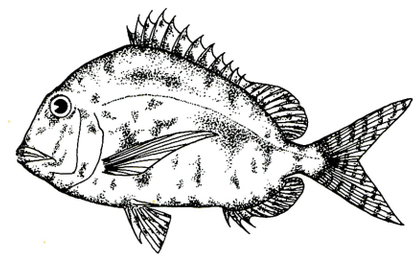


WAHOO, *Acanthocybium solanderi.* The movable upper jaw, the large number of dorsal fin spines (21-27), and the nearly straight edge of the tail are characteristics which distinguish the wahoo from other mackerel-like fishes. SIZE: Maximum size unrecorded; tackle record 149 lbs; avg. 20-30 lbs; over 65 lbs unusual. HABITS: These rapid, pelagic swimmers occur in oceanic and continental-shelf water offshore of the 100 ft bottom contour. They usually swim in small groups or singly. Often concentrate over high relief rock or coral bottom and wrecks. SEASON: All year; best fishing December—February. FISHING METHODS: Trolling, live lining and kite fishing from boats. Never abundant, wahoo are taken incidentally with other pelagic fishes. BAITS: Whole rigged Spanish mackerel, squid, mullet and ballyhoo; also live fish, spoons, feathers and stripbait.

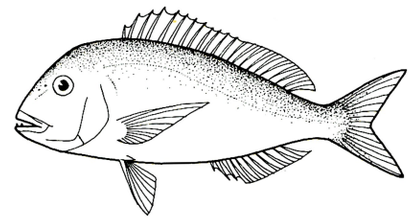
PORGIES



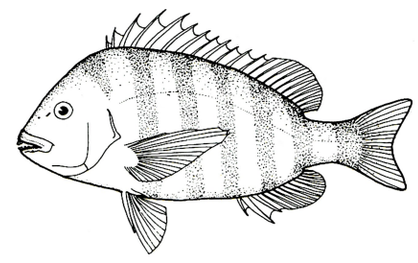
PINFISH, *Lagodon rhomboides.* Miscalled sailors choice. SIZE: To 1 lb; avg. ¼-⅓ lb; over ¾ lb unusual. HABITS: Occur in salt, brackish and a few in nearly fresh water. Small fish remain year-round in shallow estuaries, especially those abounding with sea grasses. Large fish spend the warm months in shallow estuaries but move offshore during cold months to spawn. Feed on or near bottom. SEASON: All year. FISHING METHODS: Bottom fishing from shore or boat. Usually sought only as bait. Pinfish are proficient bait stealers. BAITS: Small pieces of fish, worm, clam and shrimp.



WHITEBONE PORGY, *Calamus leucosteus.* Porgy. Miscalled silver snapper. SIZE: To over 5 lbs; avg. 1½ lbs; over 3½ lbs unusual. HABITS: These bottom feeders occur on mud, sand and rock bottom, especially those with high relief, and around wrecks in depths of 30-300 ft. Small ones sometimes found inshore of the 30 ft bottom contour. SEASON: All year. FISHING METHODS: Bottom fishing from anchored or drifting boats. Most are caught in depths of 90-150 ft. BAITS: Shrimp, cut fish, squid, and clams.

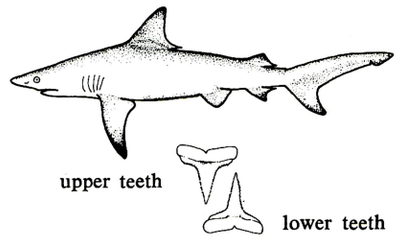


RED PORGY, *Pagrus sedecim.* Rose porgy, strawberry porgy, pink porgy. SIZE: To over 13 lbs; avg. 2-5 lbs; over 8 lbs unusual. HABITS: These bottom feeders occur on high relief rock or coral bottom in depths of 30-400 ft. SEASON: All year. FISHING METHODS: Bottom fishing from anchored or drifting boats. BAITS: Cut fish, squid, clams and worms.

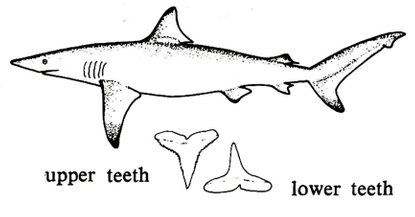


SHEEPSHEAD, *Archosargus probatocephalus.* Sheephead. SIZE: To 30 lbs; avg. 1-2 lbs; over 8 lbs unusual. HABITS: Aggregate in salt and brackish water on sand, shell, gravel or rock bottom and around bridge abutments, jetties, breakwaters, rock piles and wrecks. Feed on or near bottom from a few feet below the tide-line to depths of 100 ft or more. SEASON: All year; best fishing March—April and October—December. FISHING METHODS: Many are caught by bottom fishing and chumming, some by jigging, from boats or shore. BAITS: Crabs, clams, shrimp, sand bugs and cut fish; also small jigs and weighted bucktails.

SHARKS

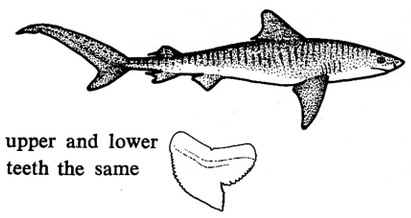


BLACKTIP SHARK, *Carcharhinus limbatus.* Shark, small blacktipped shark. Often mistaken for the spinner shark. See spinner shark. SIZE: To 100 lbs; avg. 20-40 lbs; over 85 lbs unusual. HABITS: This pelagic swift swimming shark occurs both inshore and offshore often traveling in schools near the surface. Like the spinner shark, it frequently jumps clear of the water sometimes spinning as many as three times before falling back into the sea. One of the few sharks which consistently takes artificial lures. SEASON: All year; best fishing November—April. FISHING METHODS: Trolling, live lining, chumming and casting from boats or shore. Most are caught incidentally with other fishes. BAITS: Whole or cut fish and squid; also weighted bucktails, plugs and streamer flies.



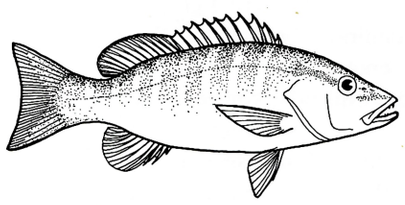
SPINNER SHARK, *Carcharhinus maculipinnis.* Shark, spinner, large blacktipped shark, great blacktipped shark. Distinguished from the blacktip shark by a more pointed snout and the smooth edges of its lower teeth. Blacktipped sharks have a rounder snout and both upper and lower teeth have finely serrated edges. SIZE: To 120 lbs; avg. 20-40 lbs; over 90 lbs unusual. HABITS, SEASON, FISHING METHODS and BAITS are similar to those of the blacktip shark.

St. Lucie Inlet, Florida to the Dry Tortugas

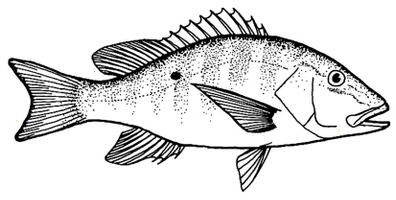


TIGER SHARK, *Galeocerdo cuvier*. Shark, leopard shark. The notched teeth, short blunt snout and the sharp-pointed tail distinguish this species from other sharks. SIZE: To over 2,500 lbs; tackle record 1,780 lbs; avg. 200-500 lbs; over 1,000 lbs unusual. HABITS: This pelagic shark occurs from far out in the ocean to along ocean beaches and in estuaries and river mouths. Encountered more in shallow water at night than during daytime. Usually seen swimming sluggishly near the surface; however, when feeding it becomes very active and a vigorous swimmer. SEASON: All year; best fishing November—April. FISHING METHODS: Most are caught by live lining and chumming from boats, some from shore. They often strike a hooked fish which the angler is fighting. BAITS: Whole or cut fish and scrap meat.

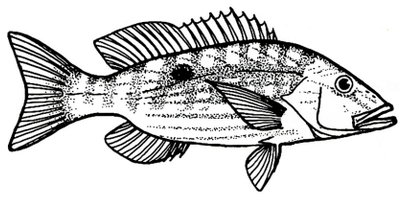
SNAPPERS



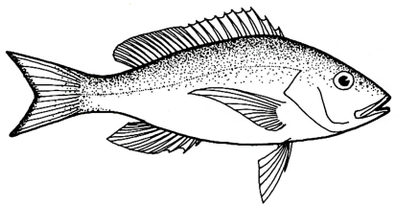
GRAY SNAPPER, *Lutjanus griseus*. Snapper, mangrove snapper, mango snapper. SIZE: To 20 lbs; avg. 1-2 lbs; over 7 lbs unusual. HABITS: These bottom feeders aggregate on or a few feet above mud, sand, gravel, coral or rock bottom in salt and brackish water; sometimes in fresh water. Although abundant in shallow water, especially around mangrove roots, they also occur in channels, cuts or holes and on high relief rock or coral outcrops and wrecks in depths to 120 ft. SEASON: All year, best fishing during May and June. FISHING METHODS: Bottom fishing, live lining, chumming and casting from shore; these methods plus trolling near bottom from boats. BAITS: Cut fish, shrimp, clams, conch, crabs and live fish; also weighed bucktails, jigs, plugs, feathers, stripbait and streamer flies.



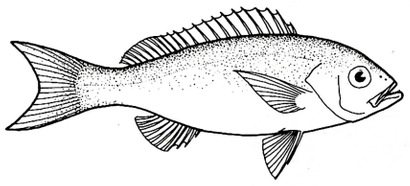
MUTTON SNAPPER, *Lutjanus analis*. Snapper, muttonfish. SIZE: To 25 lbs; avg. 4-8 lbs; over 15 lbs unusual. HABITS: Occur from a few feet below the tide-line to depths of 300 ft or more on mud, sand, coral or rock bottom, favoring rock or coral outcrops encrusted with live organisms. Although usually bottom feeders, they sometimes pursue prey into mid water. SEASON: All year; best fishing October—November and April—June. FISHING METHODS: Bottom fishing, chumming, live lining and jigging from boats. A few caught by slow trolling near bottom. BAITS: Cut fish, squid, shrimp and live fish; also weighted bucktails, jigs and plugs.



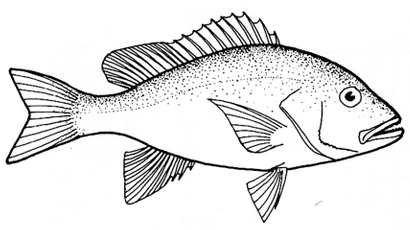
LANE SNAPPER, *Lutjanus synagris*. Snapper, spot snapper, redtail snapper. SIZE: To 3 lbs; avg. ⅓-⅔ lb; over 1½ lbs unusual. HABITS: These bottom feeders occur on mud, sand, coral or rock bottom. Although reported to depths of 1,300 ft, they are abundant over shallow reefs and in estuaries, especially in cuts and passes and around bridges abutments, piers and pilings. SEASON: All year; best fishing May and October—November. FISHING METHODS: Bottom fishing, chumming and live lining from boats and shore. BAITS: Shrimp, cut fish, and squid; also small weighted bucktails.



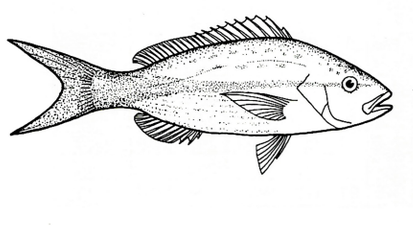
SILK SNAPPER, *Lutjanus vivanus*. Snapper, yellow-eyed snapper, silky snapper, golden-eyed snapper, chicken snapper. SIZE: To over 15 lbs; avg. 1-3 lbs; over 6 lbs unusual. HABITS: These deep water bottom feeders usually occur in depths of 200-800 ft. SEASON: All year. FISHING METHODS: Bottom fishing from drifting or anchored boats. BAITS: Shrimp, cut fish, squid and live fish.



VERMILION SNAPPER, *Rhomboplites aurorubens*. Snapper, beeline snapper. SIZE: To over 9 lbs; avg. ¾-1½ lbs; over 4 lbs unusual. HABITS: These bottom feeders aggregate on mud, sand, gravel, coral or rock bottom in depths of 90-350 ft. They often concentrate on high relief rock or coral outcrops and wrecks, favoring those encrusted with living organisms. SEASON: All year; best fishing November—April. FISHING METHODS: Bottom fishing from anchored or drifting boats. BAITS: Squid, cut fish, shrimp and clams.

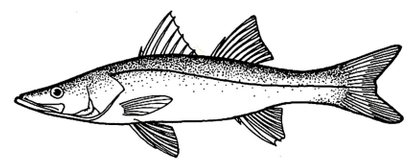


RED SNAPPER, *Lutjanus aya*. Snapper, Daytona red snapper, American red snapper. Common names vary with size. Starting with the smallest size and progressing to the largest, they are called: spot snappers or rats, chicken snappers, snappers, sow snappers, and mules. SIZE: To 40 lbs; avg. 5-8 lbs; over 25 lbs unusual. HABITS: These bottom feeders aggregate on or a few feet above mud, sand, gravel, coral or rock bottom to depths of 800 ft or more. They often congregate in bottom depressions, known locally as gullies, or on high relief rock or coral outcrops encrusted with living organisms. Although a few occur close enough to shore to be caught from ocean piers, most are beyond the 120 ft bottom contour. As they grow larger they tend to remain in deep water. SEASON: All year; best fishing April—May and October—November. FISHING METHODS: Bottom fishing from anchored or drifting boats. BAITS: Squid, cut fish, shrimp and crabs.



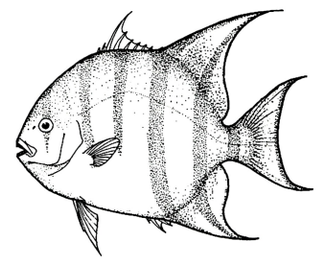
YELLOWTAIL SNAPPER, *Ocyurus chrysurus*. Yellowtail. SIZE: To 6 lbs; avg. ¾-1¼ lbs; over 3½ lbs unusual. HABITS: These schooling fish occur in mid water from a few feet below the tide-line to depths of 150 ft or more. Although in the Keys they sometimes occur in the back country on shallow flats, most remain over ocean reefs. SEASON: All year; best fishing April—June and October—November. FISHING METHODS: Live lining, chumming, casting and jigging from boats. Some are caught by these methods from shore or by trolling from boats. Most are caught by chumming and live lining at night. BAITS: Shrimp, crabs and cut fish; also small jigs, weighted bucktails and plugs.

SNOOK



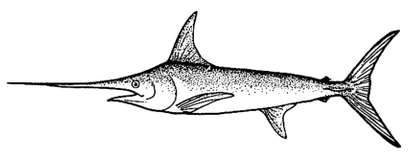
SNOOK, *Centropomus undecimalis*. SIZE: To over 55 lbs; tackle record 52 lbs 6 oz; avg. 3-7 lbs; over 30 lbs unusual. HABITS: Occur throughout the water column in salt, brackish and fresh water from a few feet below the tide-line to depths of 60 ft or more. They often congregate around inlets and passes, favoring those with rock jetties, pilings and bridge abutments. In the back country of the Keys, they favor holes, channels and cuts. SEASON: All year; best fishing mid June—September. FISHING METHODS: Most are caught in estuaries and within ¼ mile of the coast by casting, live lining and bottom fishing from shore; these methods plus trolling from boats. Check state regulation on size and daily limit. BAITS: Live shrimp, mullet, pinfish, croaker, pigfish and crabs; also plugs, feathers, spoons, weighted bucktails, jigs, spinners and streamer flies.

SPADEFISHES



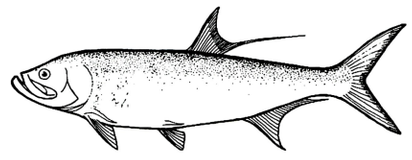
ATLANTIC SPADEFISH, *Chaetodipterus faber*. Spadefish, angelfish. SIZE: To 16 lbs; avg. ⅓-1 lb; over 5 lbs unusual. HABITS: Aggregate in salt water on sand, shell, coral or rock bottom and around buoys, wrecks, rock piles, bridge abutments, pilings, jetties and breakwaters. They usually occur inshore of the 90 ft bottom contour. SEASON: All year. FISHING METHODS: Bottom fishing from boats or shore. BAITS: Clams, worms, shrimp, crabs and cut fish.

SWORDFISH

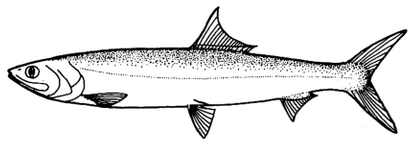


SWORDFISH, *Xiphias gladius*. Broadbill swordfish. SIZE: Largest recorded in Atlantic Ocean 1,100 lbs; largest taken on tackle in western North Atlantic 602 lbs (world tackle record 1,182 lbs caught in Pacific Ocean off Chile); avg. 125-225 lbs; over 300 lbs unusual. HABITS: Pelagic and migratory. Occur in oceanic and continental-shelf water from the surface to depths of 2,100 ft or more. They often congregate over high relief rock and coral outcrops beyond the 600 ft bottom contour. SEASON: All year; best fishing March—May. FISHING METHODS: Most are caught incidentally while fishing for groupers or snappers. A few are caught while surface trolling and live lining. BAITS: Live grouper or snapper and whole squid, Spanish mackerel or eel.

TARPON AND LADYFISH

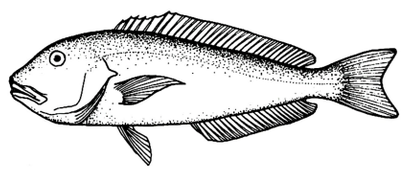


TARPON, *Megalops atlanticus*. Silver king. SIZE: To over 350 lbs; tackle record 283 lbs; avg. 30-70 lbs; over 130 lbs unusual. HABITS: These pelagic fish occur over any type of bottom in salt and brackish water, sometimes in fresh water. Although during migrations some range 10 or more miles offshore, they usually occur in estuaries, inlets, passes and within 2 miles of ocean beaches in depths of 120 ft or more. Tarpon feed mainly at night in water warmer than 66°F. SEASON: All year; best fishing north of Miami, June—September; south of Miami, March—June. FISHING METHODS: Live lining, chumming and casting from shore; these methods plus trolling from boats. Most are caught in water of 72° to 84°F. Check state regulation on daily limit. BAITS: Live mullet, pinfish, croaker, shrimp and crabs; also spoons, plugs, weighted bucktails and bucktail flies.

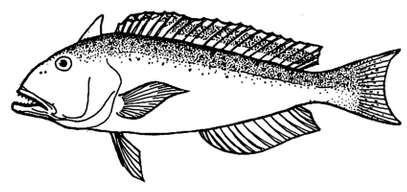


LADYFISH, *Elops saurus*. Tenpounder. SIZE: To 9 lbs; avg. 1-2 lbs; over 4 lbs unusual. HABITS: These schooling fish occur throughout the water column over any type of bottom in salt and brackish water, some in fresh water. They often congregate along the edges of deep holes or channels within shallow estuaries; also in inlets. SEASON: All year. FISHING METHODS: Bottom fishing, casting, jigging, live lining and chumming from shore; these methods plus trolling from boats. Most are caught within a mile of ocean beaches, and in inlets and estuaries. BAITS: Shrimp, small crabs and cut fish; also weighted bucktails, jigs, plugs, spoons, spinners, streamer flies and feathers. Used as bait for large ocean fishes.

TILEFISHES

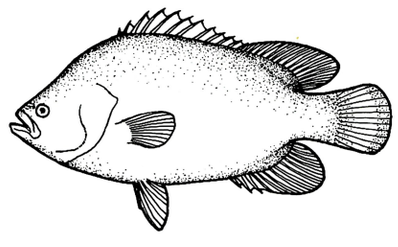


BLACKLINE TILEFISH, *Caulolatilus cyanops*. Tilefish, gray tilefish. See tilefish. SIZE: To 35 lbs; avg. 5-12 lbs; over 25 lbs unusual. HABITS: These bottom dwellers occur in depths of 200-1,000 ft or more, on mud, sand, shell, or rock bottom favoring areas with high relief. At times they will swim a short distance off the bottom to feed. SEASON: All year. FISHING METHODS: Most are caught from boats by bottom fishing with wireline in depths of 450-750 ft. BAITS: Whole or cut fish, squid, clams, shrimp and crabs.



TILEFISH, *Lopholatilus chamaeleonticeps*. Colorful tilefish. Distinguished from the blackline tilefish by having a fleshy, finlike flap in front of the dorsal fin. Blackline tilefish lack this flap. SIZE: To 50 lbs; avg. 8-15 lbs; over 30 lbs unusual. HABITS, SEASON, FISHING METHODS and BAITS are the same as for blackline tilefish.

TRIPLETAIL



TRIPLETAIL, *Lobotes surinamensis*. Chobie, buoyfish, buoy tender. SIZE: To over 30 lbs; avg. 4-8 lbs; over 20 lbs unusual. HABITS: Occur from the surface to the bottom in depths of a few to 200 ft or more. Small fish enter inlets and estuaries; large ones tend to remain in the ocean. They usually are found singly or in small groups, but sometimes in compact aggregations along ocean beaches. Tripletail frequent buoys, floating debris, wrecks and underwater obstructions. SEASON: All year; best fishing October—December or mid January. FISHING METHODS: Bottom fishing, jigging, casting, and live lining from boats or shore. BAITS: Shrimp, cut fish, clams, crabs, squid and live fish; also weighted bucktails, jigs and plugs.

St. Lucie Inlet to Boynton Beach Inlet

LAND CONFIGURATION AND WATER DEPTH

The land along this section, like that of all Florida's east coast, is uniformly low and flat. Within 2 dozen miles of the sea, few landforms rise more than 25 feet. Indeed, it is mostly man-made structures jutting above the otherwise low, tree-lined horizon that arrests our attention as we view the coast from a boat offshore.

Indian River, a narrow, shallow, coastal lagoon, ends along this section. It began over 100 miles up the coast behind Cape Canaveral and now terminates where the North Fork and South Fork of St. Lucie River connect to the sea by way of St. Lucie Inlet. Until about the middle of the 1800's, Indian River south of Cape Canaveral was connected to the sea in only two places. One, which no longer exists, was Indian River Inlet, located about a mile north of Fort Pierce; the other was Jupiter Inlet which was the southern end of Indian River. During the second half of the 1800's, St. Lucie Inlet was blasted and dug through a narrow point of the beach. This passage eventually captured most of the flow of water between the sea and the lagoon and, as St. Lucie Inlet became a larger and more important passage for boats, people gradually came to think of it as being the southern end of Indian River.

THE GULF STREAM

The dominant current off here is the Gulf Stream, flowing northward at 1 to 5 knots. Off Palm Beach the western edge of its tropical blue water, locally called the inside edge, ordinarily sweeps along the 120-foot contour, the location of the outermost reef. But because of the Gulf Stream's undulating course off here, it may even touch the beaches at times. The inside edge of the Gulf Stream follows closely the 120-foot contour along southeastern Florida, and, as the continental shelf broadens north of Palm Beach, the Gulf Stream gradually moves farther away from land.

FISH AND FISHING

For many years, anglers have been coming to Florida to try their luck and skill at catching sailfish. Although the first one was taken by rod and reel off Florida's coast in 1898, it was not until the 1920's that sailfish became appreciated enough to rank as the most popular of Florida's big game fishes.

Sailfish are active swimmers, spending most of their time within 400 feet of the surface. Though they occur scattered throughout the open sea, they concentrate close to land masses and island chains. In fact, along eastern Florida, most sailfish are found along the inside edge of the Gulf Stream, over depths of 60 to 250 feet, where the clear, deep blue stream water meets the somewhat turbid, green coastal water. Even though sailfish are present along Florida's southeast coast the year round, there is a concentration of them between about the end of November and the beginning of February along the 35-mile stretch of coast from Fort Pierce to Jupiter. This coincides with a similar concentration of several small fishes belonging to the herring family of the genus *Harengula,* variously called pilchards and sardines. Perhaps it is these small fishes that attract the sailfish to this area, but it is more likely that the sailfish and the *Harengula* gather here in 68° to 73°F water which seems to be optimal for both as well as for the production of the tiny organisms which nourish the herrings. During the winter months, *Harengula* constitute a large part of the sailfish diet.

Sailfish are often observed balling these small fishes. Balling is a term fishermen use to describe the herding of small fishes into compact schools by predators. Sailfish do this by swimming slowly around and around the bait in ever smaller circles, their dorsal fins often partially raised. A single sailfish or as many as 20 or 30 may combine to encircle a school. As the school of small fish becomes densely compacted, one of the sailfish breaks away from the circling formation and swims directly through the balled school thrashing sideways with its bill, killing or stunning many. After passing through the school, the sailfish turns and swims back, picking up the dead and injured fish. This behaviorism is also characteristic of marlins, some of the tunas, bluefish, and other pelagic fishes.

The stomach contents from nearly 250 sailfish taken at different times off southeast Florida reveal that the fish had fed mostly on the young of little tuna and jacks as well as squid, paper nautilus, ballyhoo, halfbeaks, cutlassfish, pinfish, and herrings. They had also eaten small quantities of triggerfish, filefish, searobins, puffers, octopuses, anchovies, mullets, flyingfish, dolphins, bluefish, and needlefish. This array of food indicates that although some of their prey species, among them ballyhoo and flyingfish, occur at or close to the surface, many of them occur most frequently at middepths or even close to the bottom. As anglers come to realize the practical importance of this fact, they troll baits more deeply. This technique is especially productive with live baits during the warm months when sailfish tend to frequent middepths, apparently to avoid water warmer than about 81°F prevailing near the surface. Sailfish, however, are not excluded from such warm water, for they commonly swim from middepths to take bait trolled near the surface. This is borne out by the thousands of sailfish taken each year with surface-trolled baits. Even so, trolling at depths of 60 feet or more puts the bait closer to where the fish are living and yields higher catches.

It is the current opinion of most leading ichthyologists that all sailfish in the world are of the same species. This is a revision of a previous opinion held until a few years ago that sailfish living in various oceans or even in different parts of one ocean were different species. As many as four were described from the Atlantic Ocean alone. Anatomical investigations based on a few specimens from various parts of the world, however, have failed to reveal any significant differences between sailfish from different sections of the Atlantic or between those of the Atlantic and those living in other oceans. Nonetheless, while sailfish of the Atlantic Ocean and Pacific Ocean have external characters which are essentially identical, the fish of the Pacific grow over half again as large as those of the Atlantic, i.e., 221 pounds as compared with 141 pounds.

Starting in early spring sailfish make extensive migrations, the patterns of which are only beginning to emerge from tagging studies. These migrations cover hundreds or even thousands of miles and extend far offshore. It appears that within each ocean there may be several groups of sailfish, each having its own migratory routes; and except for a small amount of interchange between groups, enough at least to prevent each from becoming genetically distinct, they remain essentially separated.

The sailfish of interest to Florida anglers are those occurring along our Atlantic and Gulf coasts, and throughout the northern Caribbean. Whether these belong to one or several races remains to be determined.

In mid-February or March many of the sailfish that have wintered off the stretch of coast covered by this map section migrate to their summering grounds. Some move northward where they will find suitable conditions between northern Florida and Virginia. Others move southward slightly, enough to clear the Keys, then northward and westward into the Gulf of Mexico. Still others move southward to Cuba and eastward to other Caribbean islands; and others remain along this section of the coast throughout the year. Late in the fall sailfish that have migrated to their summering areas return here where they again gather in large numbers.

Sailfish spawn the year round at one place or another in the Atlantic Ocean, usually in continental shelf water. In southwest Florida spawning takes place from about April to September with a peak during June and July. Some sailfish have been observed spawning in the shallow water of the First Reef; others over the edge of the shelf along the inside margin of the Gulf Stream. At spawning time a female and one or two males swim closely side by side near the surface each with their dorsal fin and upper lobe of the tail fin protruding above the surface. They move slowly about in circles while extruding their eggs and sperm. Sailfish are believed to spawn intermittently, perhaps as many as a dozen times during the season. The eggs, which are very small, measuring less than one-sixteenth of an inch, float on the surface and are transported by currents. Almost as soon as the infant sailfish hatches, it begins feeding, principally on small crustaceans. In a week or so, when about an inch long, the sailfish changes its diet to larval fishes and for the rest of its life preys mostly upon fishes.

A sailfish evidently grows fast during its first year of life, reaching a length of about 6 feet and a weight of 20 pounds. During the second year, it grows more slowly in length but more rapidly in weight. Thus at 2 years, it is only about 7 feet long but weighs 45 pounds. After 2 years of age, both length and weight increase more slowly. At 3 years it is about 7½ feet long and weighs 60 pounds. As sailfish become older they tend to become more oceanic, swimming farther from shore and usually at greater depths. Commercial longliners, normally fishing some distance from shore, take very few sailfish less than about 25 pounds, the size at which they become mature. On the other hand, anglers, fishing mostly along the shore, often catch fish of this size. The average sailfish taken by anglers off southeast Florida is about 6½ to 7 feet long and weighs 30 to 40 pounds. The average longline sailfish is about 7¼ to 8¼ feet long and weighs 50 to 95 pounds. Judging from the numbers of large offshore specimens, sailfish probably live at least to 10 years, though more studies are required to confirm this.

RECREATIONAL AREAS						ACTIVITIES				
No.	Location	County – City – Town: Park	State: Park-Wildl. Area – Forest	Natl.: Park-Wildl. Area – Forest	National Seashore	Use: Day-Wknd-Vacation	Fishing	Boating	Picnicking	Camping
10SP	Jonathan Dickinson			SP		DWV	F	B	P	C

		BOAT RENTALS			LAUNCH'G			DEPTH			SUPPLIES					SERVICES						
No.	Location	Boating Facilities Per Location	Rowboat – Outboard	Charter Boat	Party Boat	Runabout – Skiff	Ramp: Surfaced – Natural	Hoist: Fixed – Portable	Marine Railway	Tidal Range – Ft.	Approach – Ft.	Alongside – Ft.	Bait – Tackle	Fuel: Gasoline – Diesel	Water – Ice – Grocery	Moorings – Berths – Elec.	Repair: Motor – Hull	Food – Lodging	Toilet – Shower			
1	Jensen Beach	6	RO	C						S	FP	R	0.5	4	3	BT	GD	WIG		BE	MH	FL	TS
2	Sewalls Pt.-Baker Pt.	2								S													
3	Rio	2								S		R	0.8	8	3		GD	WIG		MBE	MH	FL	TS
4	Britt Point	4	RO							S	P		0.8	6	5		GD	WI		BE	M	FL	TS
5	Greenridge Point	1	RO							S						BT	GD	WIG		MBE	MH	FL	TS
6	Stuart	4	RO	C						S	F	R	0.8	6	0	BT	G	WIG		BE	MH	FL	TS
7	Port Sewall	3	RO	C						S	F	R	0.5	3	4	BT	GD	WI		MBE	MH	FL	TS
8	Salerno	10	RO	C						S	FP	R	0.8	5	3	BT	GD	WIG		MBE	MH	FL	TS
9	St. Lucie Canal	3								S							G	W		E		L	TS
10	Hobe Sound	1								S													
11	Jupiter Sound	4		C						S	P	R	1.3	10	8		GD	WIG		MBE	M	FL	TS
12	Jupiter	5	RO	C						S	FP	R	1.3	6	3	BT	GD	WIG		MBE	MH	FL	TS
13	North Palm Beach	6	RO	C						S	FP	R	0	8	5	BT	GD	WIG		MBE	MH	FL	TS
14	Lake Park	4	RO							S	P		1.3	5	5	BT	G	WI		BE	MH	FL	TS
15	Palm Beach Shores	6	RO	C						S	F		1.7	14	12	BT	GD	WIG		MBE	M	FL	TS
16	Riviera Beach	7	RO	C	P					S	FP	R	1.7	5	4	BT	GD	WIG		MBE	MH	FL	TS
17	Lake Worth Inlet	1											1.8	26		BT	GD	WIG		E		F	T
18	West Palm Beach	7	RO	C						S	FP	R	0.8	6	5	B	GD	WIG		BE	MH	FL	TS
19	W. Palm Beach Canal	1									P	R		6	6	T	G	WIG		BE	MH	FL	TS
20	Lake Worth	1								S								W					T
21	Lantana-Boynton Bch.	8	RO	C						SN	FP	R		6	6	BT	GD	WIG		BE	MH	FL	TS

80°20′ 80°10′ 80°00′ 79°50′ 79°40′

27°20′ 27°10′ 27°00′ 26°50′ 26°40′

Florida

Atlantic Ocean

Sunshine State Parkway

Indian River

Walton

Jensen Beach

NORTH FORK

COCONUT PT.

St. Lucie River

Fishing Pier

DYER PT.

SOUTH FORK

SEWALL PT.

Pierce Shoal

St. Lucie Shoal

Gilbert Shoal

"12" Buoy (Red whistle)

"14" Buoy (Red nun)

12-A Buoy ("WR12A" red)

6-Mile Reef

8-Mile Reef

Peanut Bottom

St. Lucie Sea Buoy ("2" red whistle)

St. Lucie Inlet

The Hole

Salerno

ROCKY PT.

GREAT POCKET

Long I.

PECK LAKE

A1A

ST. LUCIE CANAL

S. JUPITER NARROWS

Jupiter Island

Gomez

Hobe Sound

10 SP

HOBE SOUND

LOXAHATCHEE R.

NORTH FORK

SOUTHWEST FORK

Jupiter

Jupiter Wreck Buoy ("WR16" red)

20-Foot Ledge

80-Foot Ledge

Jupiter Light

Jupiter Inlet

LAKE WORTH CR.

Sunshine State Parkway

Fishing Pier

Golf Ball (off Juno)

LITTLE LAKE WORTH

Riviera Beach

Lake Worth (Palm Beach) Sea Buoy ("2LW" red bell)

Lake Worth Inlet

LAKE MANGONIA

Lake Worth

West Palm Beach

CLEAR LAKE

LAKE CLARKE

Lake Worth

Fishing Pier

LAKE OSBORNE

Hypoluxo I.

Lantana

Boynton Beach

Boynton Beach Inlet (South Lake Worth Inlet)

0 90 180 270 N NE E SE S SW W NW

LEGEND

Barracuda
Gag grouper
Black grouper
Red grouper
Warsaw grouper
Nassau grouper
Jewfish
Sea bass
Sailfish
White marlin
Blue marlin
Bluefish
Bonefish
Sea catfish and Gafftopsail catfish
Cobia
Dolphin
Sea trout
Red drum
Black drum
Kingfish
Croaker
Fluke
Grunt
Pigfish
Amberjack
Crevalle jack
Pompano
Permit

Palometa
Blue runner
King mackerel
Spanish mackerel and Cero mackerel
Little tuna
Skipjack tuna
Blackfin tuna
Wahoo
Pinfish
Porgy
Sheepshead
Shark
Gray snapper
Mutton snapper
Lane snapper
Silk snapper
Vermilion snapper
Red snapper
Yellowtail snapper
Snook
Spadefish
Swordfish
Tarpon
Ladyfish
Tilefish
Tripletail

This map not to be used for navigation.
See National Ocean Survey Chart Nos.
845-SC, 847-SC, 1247, 1248 and 1112.
Depths in feet at mean low water

LEGEND

Dry Land
Wet Land
Recreational Area
Wreck
Artificial Fishing Reef
Interstate and U. S. Highways
State Highway

SCALE
0 5 10
NAUTICAL MILES

Boynton Beach Inlet to Government Cut, Miami Beach

LAND CONFIGURATION

A chain of long, low barrier sandbars which separate the open ocean from the shallow tidal lagoons and the mainland begins near the mouth of the St. Johns River and ends 300 miles to the south at Miami Beach. Most of the sand composing these barrier bars has come from farther north. Since far back in geological time, sediments have been carried down the various rivers of what we know as Georgia, South Carolina, and North Carolina, and have become deposited in the sea. Although a large amount of quartz sand, among the most resistant of the accumulating sediments and also the heaviest, has remained close to shore, prevailing nearshore currents have been strong enough to transport it southward. In northeastern Florida continuous addition of sand from the north makes ocean beaches wide and the dunes behind them relatively high. But in southeastern Florida the continental shelf is very narrow. There the sand that might otherwise be used in building the beaches becomes lost as it continually slips away into the abyss of the ocean so that the beaches are at most only a few hundred feet wide, and, in the few places where dunes exist, they are very small.

Behind the barrier bars lies a narrow, semienclosed waterway. What was formerly a series of unconnected lagoons, rivers, lakes, and creeks bordered by mangroves has been blasted, dug, and dredged into a continuous brackish-water canal which serves as a passage for boats. This is the Intracoastal or Inland Waterway. Bulkheading and building along this part of the waterway is so extensive that most of the shallow flats and aquatic vegetation that had formerly provided habitat required by many shore fishes has become greatly reduced. Consequently, very few fishes are able to live in this waterway.

REEFS

The most striking feature of this narrow shelf is a series of three rocky reefs paralleling the ocean beach. The shallowest, called the First Reef by fishermen, runs close along the beach in about 10 to 20 feet of water. The next, called the Second Reef, is ½ to 1½ miles from shore in about 60 feet of water; and the deepest, called the Third Reef, is ½ to 2½ miles farther in about 120 feet. Although remnants of these reefs, especially the Third Reef, can be traced along most of Florida's east coast and as far north as Cape Hatteras, North Carolina, they are most sharply defined and are best known by fishermen from about West Palm Beach to Key West.

These reefs are the remains of massive ancient coral growths that once flourished here. With the melting of the great ice sheets that covered much of the world some 12,000 to 15,000 years ago, an enormous volume of water gradually became liberated, causing the sea level to rise. It rose for a few thousand years at a rate of about 10 feet a century. Then about 10,000 years ago, the melting stopped, so that the sea level remained stationary at about 120 feet below its present level. This pause lasted for perhaps a thousand years. During that period, a large tract of coral reef, which fishermen today call the Third Reef, became established off the east coast where tropical water touched the shore. Then, the ice sheets resumed melting and the sea level rose rapidly at a rate outpacing the growth of the coral reef. A decrease in water temperature or an increase in the turbidity of the sea may further have depressed the reef's growth. Some 7,000 years ago the melting stopped and evidently the climate once more became favorable to colonization of corals so that another large tract of coral reef began to flourish about 60 feet below present sea level. This is the one fishermen call the Second Reef. After some 500 years of stationary or very slow rise, sea level again rose rapidly for about 1,500 years. Subsequently, and for the past 5,000 years or so, it has risen rather slowly, but intermittently, leaving several vestiges of shallow reefs to mark brief stationary periods. Although actually composed of several reefs, any one of the individual shallow reefs cannot be separated by eye from any other. Collectively, they are called the First Reef.

FISH AND FISHING

A large variety of fishes reside among the coral heads, shelves and ledges of eroded coral rock, and coral rubble strewn over the bottom. Many of these species find shelter and food among the communities growing on the ancient reefs, including calcareous algae, sponges, sea fans, seaweeds, and sea grasses. The Gulf Stream's western edge sweeps past the Third Reef, affording favorable conditions for many species of pelagic fishes. By knowing the habits of each species and the depth of water it prefers, an angler can vary his fishing location and technique and be able to determine fairly accurately what he will catch.

A diverse array of fishes occurs along the ocean beaches and the First Reef. Among these are a number of species which are often referred to as shore fishes. These include members of the drum family, especially the sea trouts and kingfishes, locally called king whitings. In general, these species are not as abundant along here as in more northern areas where the continental shelf is broader. Nevertheless, sea trouts and king whitings as well as other members of their family are quite common among the sea grasses growing in shallow sandy places protected from the waves by outcroppings of the reef. Other shore fishes, including pompano and ladyfish, migrate seasonally along the coast feeding as they move. Tarpon occur mostly in the shallow water along the ocean beaches and the First Reef, except during their seasonal migrations out beyond the Third Reef. Snook occur in the surf along this stretch of coast, especially during summer. Many young of deep-dwelling groupers and snappers are also common in this shallow water as are the young of grunts, crevalle jack, and blue runner. Barracuda, cobia, and at times even large sharks are common just off the First Reef. One of the common fishes occurring in shallow water here is the Spanish mackerel. While some are as far off as the outside edge of the Second Reef, by far the great majority stay inshore of the Second Reef within the coastal water, which fishermen call green water.

The principal habitat of many adult groupers and snappers begins along the edge of the Second Reef, usually in depths of 60 to 90 feet. Here are found the large gag, black, red, and Nassau groupers and the mutton and gray snappers. Even though these species, like most other reef dwellers, are relatively stationary, many move into shallower water during warm months and back into deeper water during the cold months. Warsaw groupers occur in the shallow water along the First Reef but reach their largest sizes in the deep water about the Third Reef. Here, too, in the deep water of the Third Reef occur the vermilion, red, and silk snappers, as well as the largest size crevalle jacks, blue runners, and great amberjacks.

Large king mackerel often occur near the bottom of the Third Reef, sometimes even in depths of 300 feet or more. Like many other members of the mackerel and tuna family, large individuals remain in deeper water and closer to the bottom and are more solitary than the smaller ones. While most of the king mackerel concentrate between the offshore edge of the Second Reef and the western edge of the Gulf Stream, small individuals sometimes school with Spanish mackerel of similar size, usually in the shallow water of the First Reef.

Most of the sailfish concentrate in the same general area as king mackerel. Some of the sailfish are in the Gulf Stream or oceanic water, which fishermen call the blue water, but most seem to concentrate along the boundary where the green inshore water meets and mixes with the blue offshore water. And although sailfish venture far offshore during their seasonal migrations, especially in the fall, they generally remain relatively close to land and are certainly less oceanic than their relatives, the white and blue marlins. White marlin occur most often between the Third Reef and the Gulf Stream edge. They are usually more concentrated closer to the Third Reef in fall and winter and somewhat farther offshore in the spring and summer. Blue marlin occur over deeper water than do white marlin. It is unusual to find them in as close as the Third Reef, most being offshore in the Gulf Stream beyond the 300-foot contour.

Dolphins are other oceanic species occurring commonly in the blue water. Even though they are closely associated with warm ocean currents, dolphins often concentrate along the interface of the Gulf Stream and the green coastal water. At the surface along this convergence of water masses are long windrows of drifting seaweed, principally sargassum. Fishermen call these weed lines. Animal life, notable both for the numbers of organisms as well as the diversity of species, thrives about this floating weed. It includes pelagic crabs, shrimps, and sea slugs, as well as young triggerfishes, filefishes, puffers, flyingfishes, jacks, and scads. Large pelagic fishes, especially dolphins but also white marlin, little tuna, and king mackerel, gather about this drifting sargassum community to feed.

		RECREATIONAL AREAS				ACTIVITIES			
		COUNTY – CITY – TOWN: PARK	STATE: PARK-WILDL. AREA–FOREST	NATL.: PARK-WILDL. AREA–FOREST	USE: DAY-WKND-VACATION NATIONAL SEASHORE	FISHING	BOATING	PICNICKING	CAMPING
NO.	LOCATION								
8SP	Hugh Taylor Birch		SP			D	F		P
19CoP	Haulover	CoP				D	F	B	P

		BOAT RENTALS			LAUNCH'G		DEPTH			SUPPLIES			SERVICES							
		ROWBOAT – OUTBOARD	CHARTER BOAT	PARTY BOAT	RUNABOUT – SKIFF	RAMP: SURFACED – NATURAL	HOIST: FIXED – PORTABLE	MARINE RAILWAY	TIDAL RANGE – FT.	APPROACH – FT.	ALONGSIDE – FT.	BAIT – TACKLE	FUEL: GASOLINE – DIESEL	WATER – ICE – GROCERY	MOORINGS – BERTHS – ELEC.	REPAIR: MOTOR – HULL	FOOD – LODGING	TOILET – SHOWER		
NO.	LOCATION	BOATING FACILITIES PER LOCATION																		
1	Boynton Beach	1		C	P		S			1.0	8	8	BT	GD	WI		BE	M	F	T
2	Boynton Beach	6		C	P	R	S	F			5	5	BT	GD	WIG		MBE	MH	FL	TS
3	Delray Beach	4	RO	C			SN	FP		0	4	4	B	GD	WIG		MBE	MH	FL	TS
4	Boca Raton	3		C			S			1.0	4	10		GD	WIG		MBE		FL	TS
5	Deerfield Beach	5		C			S	P		0	10	5	BT	GD	WIG		MBE	MH	FL	TS
6	Hillsboro Inlet	5	RO	C	P		S	FP		1.0	10	6	BT	GD	WIG		MBE	MH	FL	TS
7	Pompano Beach	8	RO	C			S	FP	R		4	4	BT	GD	WIG		MBE	MH	FL	TS
8	Cypress Creek	5	RO	C			S	FP	R		8	5	BT	GD	WI		BE	MH	F	T
9	Oakland Pk-Ft. Laud.	5	RO	C			S	FP	R	2.0	6	6	BT	G	WIG		BE	MH	FL	TS
10	Fort Lauderdale	8	RO	C			S	FP	R	2.5	8	10	BT	GD	WIG		MBE	MH	FL	TS
11	New River	6					S	FP	R	2.4	10	5		GD	WIG		MBE	MH	FL	TS
12	New R.-South Fork	8	RO	C			S	FP	R		6	6	B	GD	WIG		MBE	MH	FL	TS
13	Dania Canal	5	RO				SN	FP	R		9	3	BT	GD	WIG		BE	MH	F	TS
14	Dania Canal	6	RO	C			S	FP	R		8	5	BT	GD	WIG		MBE	MH	FL	TS
15	Dania	5	RO	C			SN		R		10	6	BT	GD	WI		BE	MH	F	TS
16	Hollywood	5	RO	C			S				10	4	BT	GD	WIG		BE		FL	TS
17	Golden Beach	2	RO	C				P			8	5	BT	GD	WIG		BE	MH	FL	TS
18	Maule Lake	3	RO	C			S	F	R		10	10	BT	GD	WI		BE	MH	F	TS
19	Sunny I.-Bakers Haul.	5	RO	C	P		SN	FP	R	2.0	5	4	BT	GD	WIG		BE	MH	FL	TS
20	North Miami	4	R	C			S	FP		2.0	4	5	BT	GD	WIG		BE	MH	L	TS
21	Little River	2	R					FP	R	2.0	5	5	BT	GD	WI		BE	MH	F	TS
22	79th St. Causeway	4	RO				S	F		2.0	4	4	BT	G	WI		BE	M	FL	T
23	Harbor-Treasure I.	2		C						2.0	6	5	BT	GD	WIG		MBE	M	FL	TS
24	Miami Beach	5	RO	C	P			FP	R	2.0	7	8	BT	GD	WI		BE	MH	F	TS
25	MacArthur Cswy.	2					N	F		2.0	6	6		GD	WI		BE	MH		TS
26	Bay Front Pk-Dodge I.	4	RO	C	P		S	FP		2.0	15	10	BT	GD	WI		BE	MH	F	TS
27	Miami River	9					S	FP	R	2.0	13	12	BT	GD	WIG		BE	MH	FL	TS
28	Miami River	11		C			S	FP	R	2.0	14	14		GD	WIG		BE	MH		TS
29	Miami River	7		C			S	FP	R	2.0	8	8		GD	WIG		BE	MH		TS
30	Miami R.-South Fk.	2					S	F	R	2.0	4	4		GD	W		BE	MH		TS
31	Miami-Tamiami Canal	4		C				FP	R	2.0	7	8	T	GD	WIG		BE	MH	FL	TS

80°10′ 80°00′ 79°50′ 79°40′

26°30′ 26°20′ 26°10′ 26°00′ 25°50′

LEGEND

Barracuda
Gag grouper
Black grouper
Red grouper
Warsaw grouper
Nassau grouper
Jewfish
Sea bass
Sailfish
White marlin
Blue marlin
Bluefish
Bonefish
Sea catfish and Gafftopsail catfish
Cobia
Dolphin
Sea trout
Red drum
Black drum
Kingfish
Croaker
Fluke
Grunt
Pigfish
Amberjack
Crevalle jack
Pompano
Permit
Palometa
Blue runner
King mackerel
Spanish mackerel and Cero mackerel
Little tuna
Skipjack tuna
Blackfin tuna
Wahoo
Pinfish
Porgy
Sheepshead
Shark
Gray snapper
Mutton snapper
Lane snapper
Silk snapper
Vermilion snapper
Red snapper
Yellowtail snapper
Snook
Spadefish
Swordfish
Tarpon
Ladyfish
Tilefish
Tripletail

Florida

LAKE OSBORNE
Lantana
Hypoluxo I.
Boynton Beach Inlet (South Lake Worth Inlet)
Boynton Beach
LAKE IDA
Kingfish Hole (Cuda Hole)
Delray Beach
DRAINAGE CANAL
LAKE WYMAN
Northeast Hole
Boca Raton
Boca Raton Inlet
HILLSBORO DRAINAGE CANAL
Fishing Pier
Snapper Hole
Deerfield Beach
Hillsboro Light
Hillsboro Inlet
Pompano Beach
Sailfish Alley
CYPRESS CR.
Oakland Park
8 SP
Two Tank Range
Fort Lauderdale
TARPON R.
Fort Lauderdale Sea Buoy (“1” red whistle) or Port Everglades Sea Buoy
Fort Lauderdale Cut (Inlet)
LAKE MABEL
Grouper Hole
DANIA CUTOFF CANAL
Dania
Hollywood
Hallandale
DUMFOUNDLING BAY
“4” Buoy (Red)
North Miami Beach
19 CoP
Bakers Haulover Cut (Inlet)
BISCAYNE CANAL
Amberjack Hole
LITTLE R. CANAL
Little River
Normandy Isle
BAY
“A” Buoy (White nun)
Sunset Is.
Venetian Is.
Miami Beach
“B” Buoy (White nun)
Miami Sea Buoy (“2” red whistle)
Fishing Pier
Dodge I.
Government Cut (Inlet)
MIAMI R.
TAMIAMI CANAL
Miami

Sunshine State Parkway

95 Interstate and U. S. Highways
A1A State Highway

0 90 180 270

1200 1800 2400

Atlantic Ocean

LEGEND

Wreck
Artificial Fishing Reef
Interstate and U. S. Highways
State Highway
Dry Land
Wet Land
Recreational Area

SCALE
0 5 10
NAUTICAL MILES

This map not to be used for navigation.
See National Ocean Survey Chart Nos. 847-SC, 1248 and 1112.
Depths in feet at mean low water

Government Cut, Miami Beach to Key Largo

LAND CONFIGURATION AND WATER DEPTH

Like the rest of Florida's coast, the mainland here is monotonously low. From Miami to Homestead, for example, only a narrow limestone ridge rising slightly more than 10 feet above sea level separates the coast from the nearly 50 miles of extremely flat, wet prairie, vegetated largely by sawgrass and stunted trees which make up a large part of the Everglades.

Dense stands of mangroves line most of the mainland shore here except in places where people have filled them for housing lots, businesses, boat docks, or have otherwise destroyed them to gain easy access to the water. The mangroves growing in dense, low forests thrive on the salt-impregnated soil in areas often flooded by tide, and they extend into the shallow bays and sounds.

The Florida Keys, which begin in this section at Virginia Key, separate Biscayne Bay and the other shallow bays and sounds, including Florida Bay, from the sea. Locally called the Keys, they are a rather narrow chain of low, rocky islands that extend southwestward in a sweeping, 190-mile arch from Miami Beach to Loggerhead Key in the Dry Tortugas. The Upper Keys, i.e., from Virginia Key to about Big Pine Key, consist of an ancient coral reef formed many thousands of years ago when a warm sea covered this entire area to a depth of 60 to 120 feet. The rise of these Keys above the water resulted from changes in sea level and by the natural upward growth of coral. Tidal currents over the years have cut narrow passageways between them. The shores of the Upper Keys are mostly of sharp, craggy coral and limestone or of dense mangrove stands which are especially abundant along the protected Florida Bay side. Few sandy beaches exist along here except at Virginia Key and Key Biscayne.

The series of rocky reefs that began near Sebastian Inlet, 120 miles farther north, continues off here. The distance these reefs extend seaward increases progressively from 3 miles off Miami Beach to 6 miles off Plantation Key. The reefs form the continental shelf along this part of the coast.

Starting from the Keys and proceeding seaward, the sea floor gradually dips to 20 feet in about a mile and a half. A mile farther out it rises to a depth of about 6 feet in a series of rocky and coral reefs, which is locally called the Second or Outer Reef. Southward of about Fowey Rocks to the Dry Tortugas, this reef consists largely of living corals that are arranged in such a way as to form a barrier reef. It is a miniature of the Great Barrier Reef which extends for over a thousand miles along the Australian coast. The area between the Keys and the Outer Reef is a more or less protected lagoon, called Hawk Channel, which extends all the way to Key West. Because of various rocky and sandy shoals, Hawk Channel is clearly defined only by aids to navigation. On its floor, large beds of turtle grass alternate with rocky areas rich in growths of corals, sponges, anemones, sea fans, and the attached stages of sargassum weed. These rocky areas are called patch reefs or patches and are favorite gathering places for fishes. A mile or two beyond the Outer Reef, the sea floor slopes abruptly to about 120 feet, the Third or Deep Reef. This reef consists of rocky outcroppings with growths of live corals, sponges, sea fans, and other attached forms. Seaward from here the sea floor, which consists of silt, sand, and rock rubble, descends down to a depth of half a mile. This is the bottom of the Florida Straits.

FISH AND FISHING

Snappers are among the most familiar of the fishes anglers catch along the southeast coast and the Florida Keys. They belong to a large and important family of marine fishes distributed throughout the tropics of the world. Snappers are usually benthic, carnivorous, and nocturnal. Most of the members belong to a single genus, *Lutjanus,* which includes among others, the gray or mangrove, mutton, lane, silk, and red snappers. Of the 70 or more known species of *Lutjanus* in the world, only about 10 have been taken in waters off eastern North America. In fact, over three-quarters of the members of this family do not occur in the Atlantic at all, but in the Indian and Pacific Oceans.

Probably the most widely distributed of our snappers and among the most abundant in southern Florida is the gray snapper. Although young specimens have been taken occasionally as far north as Massachusetts, these are summer strays that probably perish as the sea temperature drops in the fall to between 52° and 57°F, the lower limit of temperature tolerance for the species. The abundance of gray snapper increases southward along the Florida coast; it occurs in the Gulf of Mexico, about the Caribbean islands, and perhaps as far south as Brazil. It is abundant about Bermuda and has been reported in West Africa.

The life history of the gray snapper is characteristic of a fish changing habitat with age, presumably to satisfy differing life requirements. Gray snapper reach maturity when 3 years old and about 7 inches long. Between early June and early September, ripe fish gather in certain locations, generally along the Outer Reef. While milling about, they extrude their ripe eggs and sperm, and the fertilized eggs sink to the bottom. Individuals spawn more than once during a season. Incubation and larvae development proceed rapidly, and the juvenile fish find their way into shallow protected areas such as estuaries, mangrove swamps, and turtlegrass beds where there is an abundance of small shrimps, crabs, and other crustaceans, which collectively make up their principal diet. Many of these juveniles go far up tidal rivers into nearly fresh water, as do older ones from time to time. As they grow larger, they move into somewhat deeper water. When about 2½ to 3½ inches long they congregate about places that provide cover, such as logs, brush, debris, ledges along channels and the passageways between the Keys, and along mangrove shorelines. Indeed, it is their frequency of occurrence about mangroves that causes them to be called mangrove snappers. By the time they are 7 or 8 inches long and about 3 years old, they have moved into the deeper channels, gathering around obstructions such as wrecks, corals, and rock outcroppings. Although some larger and older fish, which may be as much as 14 inches long and 7 years old, occur in these channels too, many of them move offshore to discontinuities along the bottom such as patch reefs, wrecks, and the Third or Deep Reef that parallels the shore.

Among the species of fishes occurring offshore, dolphin is perhaps the most eagerly sought after by anglers. This is a pelagic species which is associated with warm ocean currents. While it is distributed around the world in fertile parts of all oceans where surface temperatures are at least 70°F, it occurs regularly and abundantly nearshore only along those stretches of coast touched by warm oceanic currents. Because the Gulf Stream runs so close along the coast here, the dolphin is very common.

Dolphin are taken off southeastern Florida the year round, though their proximity to shore as well as their concentration varies seasonally. Large individuals which usually occur singly or in pairs are about evenly distributed throughout the year. The smaller size dolphin, though they too occur throughout the year, are most abundant during spring and summer. The schools in which they appear are made up of like-sized fish, the largest schools usually being composed of the smallest fish.

Dolphin along southern Florida spawn from fall through early summer. Like many other marine fishes, female dolphin produce ripe eggs in batches, of which there are at least two or three in a single season. The young grow incredibly fast. Some spawned early in the season reach maturity and spawn within their first year. Among specimens reared in tanks, one grew from about a pound to over 35 pounds in less than 8 months, and another to over 60 pounds in a little less than a year. In the more rigorous natural environment, where they must hunt their own food, they grow more slowly. From the time dolphin are hatched, they must compete with their own kind as well as other species, first for copepods, tiny shrimplike organisms, then as they grow older, for juvenile pelagic fishes, and then as they reach maturity, for adult pelagic fishes. Throughout their lives, dolphin prey mostly upon the fishes and invertebrates associated with drifting sargassum weed, including jacks, triggerfishes, filefishes, small mackerels and tunas, squids, as well as pelagic crabs and shrimps.

Beginning early in life, males weigh more than females, length for length, and this difference becomes more pronounced as they get older. For example, during the first year of life when about 2 feet long, females average 6 pounds, males 8 pounds. During the second year when about 3 feet, the females weigh about 25 pounds, the males 35 pounds. According to studies of scales, few dolphins of the western Atlantic live beyond 3 years, and the ones that do are mostly males. One of the largest dolphin recorded, a 60-inch male weighing over 75 pounds, was estimated to be in its fourth year of life. Although the age of the world's tackle record is not known, its 69-inch length and 85-pound weight is about the theoretical maximum size for this species.

Dolphin are much more active in the day than at night. Like a number of other pelagic fishes, they have the habit of gathering under floating objects, such as patches of sargassum weeds, planks, boxes, boards, and other flotsam. Fishermen of Japan, Indonesia, and Malta take advantage of this behaviorism by setting out rafts to take what has gathered there with purse seine or hook-and-line. A typical Japanese dolphin raft measures about 25 by 10 feet and a single catch from under one of these has been over 1,000 dolphin.

No.	Location	RECREATIONAL AREAS: County – City – Town – Park	State: Park-Wildl. Area–Forest	Natl.: Park-Wildl. Area–Forest	National Seashore	Use: Day-Wknd-Vacation	ACTIVITIES: Fishing	Boating	Picnicking	Camping	
1CoP	Crandon	CoP				DW	F	B	P		
1SP	Cape Florida		SP			DW	F		P		
3CoP	Matheson Hammock	CoP				DW	F	B	P		
6CoP	Homestead Bayfront	CoP				DW	F	B	P		
7NM	Biscayne			NM*			F				
8SP	Pennekamp Coral Reef		SP			DWV	F	B	P	C	
8NP	Everglades			NP		DWV	F	B	P	C	
18CoP	Harry Harris	CoP				DW	F		P		

*National Monument

No.	Location	Boating Facilities Per Location	BOAT RENTALS: Rowboat – Outboard	Charter Boat	Party Boat	Runabout – Skiff	LAUNCH'G: Ramp: Surfaced – Natural	Hoist: Fixed – Portable	DEPTH: Marine Railway	Tidal Range – Ft.	Approach – Ft.	SUPPLIES: Alongside – Ft.	Bait – Tackle	Fuel: Gasoline – Diesel	SERVICES: Water – Ice – Grocery	Moorings – Berths – Elec.	Repair: Motor – Hull	Food – Lodging	Toilet – Shower	
1	Key Biscayne	1	R	C						S	F		1.7	14	8	BT	GD	WI	BE	F	TS
2	Coconut Grove	9	RO	C						SN	FP		1.7	7	3	BT	GD	WIG	BE	MH	FL	TS
3	South Miami	2								S	F		1.7	6	4	BT	GD	WI	BE		F	TS
4	Cutler	1								S			1.6	10	12	B	G	WI	BE			
5	Goulds Canal	2	RO	C						N	F		1.5	4	6	BT	GD	WI	BE			T
6	North Canal	1	R							S	F	R	1.5	3	4	BT	G	WI	BE		F	TS
7	Elliott Key	1								S				4	6				BE			TS
8	Key Largo	2	R	C						S			2.4	5	5	BT	GD	WIG	MBE		FL	TS
9	Little Card Point	2	RO	C						N			0.5	6	6	BT	G	WI	BE		F	T
10	Glades Canal	1	RO							N				1	1						FL	T
11	Little Blackwater Sd.	3	RO	C						SN			0.2	4	5	BT	GD	WI	BE		F	TS
12	Key Largo	4	RO	C						SN	FP		2.2	2	9	BT	GD	WIG	BE	M	FL	TS
13	Anglers Park	3	RO	C						S	FP	R		4	4	BT	GD	WI	BE	MH	FL	TS
14	Largo Sound	3	RO	C						SN	FP		1.1	4	4	BT	GD	WIG	BE	MH	F	TS
15	Tarpon Basin	1	RO							S		R		6	5	T	G	W	BE		FL	TS
16	Newport	3	RO	C						SN	F	R	2.2	4	3	BT	GD	WIG	BE	MH	FL	TS
17	Rock Harbor	3	RO	C	P	S				S	F	R	2.2	2	8	BT	GD	WI	BE	MH	FL	TS
18	Tavernier	6	RO	C						S	FP		2.2	2	5	BT	GD	WIG	BE	MH	FL	TS

80°30′ 80°20′ 80°10′ 80°00′ 79°50′

25°50′ 25°40′ 25°30′ 25°20′ 25°10′ 25°00′

SCALE
0 5 10
NAUTICAL MILES

LEGEND
Wreck
Artificial Fishing Reef
Interstate and U. S. Highways
State Highway
Dry Land
Wet Land
Recreational Area

Florida Bay
Florida
Atlantic Ocean

Miami
Coral Gables
South Miami
Cutler
Goulds
Homestead
Key Biscayne
Virginia Key
Fisher I.
Dodge I.
Fair Isle
WEST PT.
SHOAL PT.
BRICKELL PT.
Fishing Pier
"B" Buoy (White nun)
Miami Sea Buoy ("2" red whistle)
Government Cut (Inlet)
Norris Cut (Inlet)
Bear Cut (Inlet)
BISCAYNE CHANNEL
CAPE FLORIDA
Sailfish Alley
Fowey Rocks
Fowey Light
Soldier Key
Safety Valve
Black Ledge
Brewster Reef
Ledbury Reef
Star Reef
Ragged Keys
Featherbed Bank
Boca Chita Key
BLACK PT.
Sands Key
Bowles Bank
"8" Buoy (Red nun)
Sands Cut (Inlet)
LEGARE ANCHORAGE
Triumph Reef
"2TR" Buoy (Red nun)
Biscayne Bay
Elliott Key
Margot Fish Shoal
"16" Buoy (Red nun)
Long Reef
Ajax Reef
Pacific Light
Pacific Reef
Hawk Channel
TURKEY PT.
West Arsenicker
Arsenicker Key
Mangrove Key
Long Arsenicker
Totten Key
Old Rhodes Key
CAESAR CR.
MANGROVE PT.
Swan Key
BROAD CR.
ANGELFISH CR.
Angelfish Key
Palo Alto Key
Card Sound
CARD PT.
BARNES PT.
Turtle Reef
TURTLE ROCKS
TURTLE HARBOR
BASIN HILL SHOAL
Carysfort Light
Carysfort Reef
Middle Key
Short Key
Main Key
Barnes Sound
Key Largo
Hawk Channel
MANATEE BAY
JOE BAY
LONG SOUND
LITTLE BLACKWATER SOUND
DIVISION PT.
Cross Key
LARGO PT.
Shell Key
SNIPE PT.
Deer Key
Duck Key
Eagle Key
Tern Keys
Porjoe Key
Blackwater Sound
JEWFISH CK.
BUSH PT.
LITTLE BUTTONWOOD SOUND
TARPON BASIN
LARGO SOUND
El Radabo Key
Pass Key
Lake Key
Nest Keys
Whaleback Key
Park Key
Shell Key
BUTTONWOOD SOUND
Bob Keys
Swash Keys
Baker Cut
Key Largo
Butternut Key
Rock Harbor
PT. CHARLES
ROCK HBR.
Rodriguez Key
Manatee Keys
Bottle Key
Pigeon Key
Stake Key
Low Key
HAMMER PT.
LONG PT.
18 CoP
Triangles
MOLASSES REEF CHANNEL
Molasses Light
Molasses Reef
Captain Key
Cowpen Cut
Crane Keys
Cotton Key Basin
East Key
Tavernier
Tavernier Key
TAVERNIER HBR.
Plantation Key
Mosquito Bank
Mosquito Light
Dry Rocks
Dixie Shoal
French Reef
Elbow Light
The Elbow
WHITE BANK
1 CoP
1 SP
3 CoP
8 SP
2 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

LEGEND
Barracuda
Gag grouper
Black grouper
Red grouper
Warsaw grouper
Nassau grouper
Jewfish
Sea bass
Sailfish
White marlin
Blue marlin
Bluefish
Bonefish
Sea catfish and Gafftopsail catfish
Cobia
Dolphin
Sea trout
Red drum
Black drum
Kingfish
Croaker
Fluke
Grunt
Pigfish
Amberjack
Crevalle jack
Pompano
Permit
Palometa
Blue runner
King mackerel
Spanish mackerel and Cero mackerel
Little tuna
Skipjack tuna
Blackfin tuna
Wahoo
Pinfish
Porgy
Sheepshead
Shark
Gray snapper
Mutton snapper
Lane snapper
Silk snapper
Vermilion snapper
Red snapper
Yellowtail snapper
Snook
Spadefish
Swordfish
Tarpon
Ladyfish
Tilefish
Tripletail

Depths in feet at mean low water
This map not to be used for navigation.
See National Ocean Survey Chart Nos.
141-SC, 1248, 1249 and 1112.

Key Largo to Vaca Key

LAND CONFIGURATION AND WATER DEPTH

The extreme southern tip of the Everglades, which comprises the mainland along this section of coast, is bordered mostly by dense stands and forests of mangroves. These trees commonly grow along low-lying tropical shores washed by the tide. They are supported by stiltlike prop roots which grow out from the main stem above the water and arch downward to the muddy or sandy bottom. There they send runners laterally, whence other stems arise. In this manner, dense mangrove forests progressively extend away from land, sometimes for several hundred yards, making it difficult to determine precisely where the land ends and water begins.

Florida Bay, the broad sheet of shallow water which lies between the mainland and the Florida Keys, is locally called the back country. Scattered throughout the back country are about 150 low islands, most of them covered with mangroves. These are called keys, a word used in this part of Florida to mean islands of any kind. Most of the keys of the back country are located on submerged chains of interconnecting banks of mud or muddy-sand that divide the bay into a series of irregularly shaped, shallow basins, locally called holes and lakes. The banks are usually exposed at low tide and covered with only several inches of water at high tide, so that navigation is unfeasible over much of the area, even in a small boat. At various places, however, there are narrow passes through the mud banks and between the keys. Some are nearly 100 yards wide and as deep as 6 or 8 feet, though many are merely prop-washes, i.e., very shallow passageways opened and kept open by the stirring action of boat propellers. A large part of the back country is only a foot or two deep and nearly level. These areas, called flats, are verdant with sea grasses, of which the commonest, turtle grass, serves to keep the water clear by trapping suspended material. The grasses also restrict the flow of tidal water across the bay in such a way that sometimes the water level differs considerably between adjoining lakes. Also, temperatures and salinities of the water may vary from one lake to another or between lakes and the sea, depending on local rainfall and the amount of evaporation.

The continuing chain of the Florida Keys separates the back country from the ocean reefs. Where the Keys have not been cleared for housing or other development, they are covered in varying degrees of density with mangroves, coconut palms, mahoganies, and many other tropical plants. Waterways and channels between the Keys become wider, more numerous, and easier to navigate south of Upper Matecumbe Key.

The sea floor of this section is much like the adjoining one to the north. Here too, the series of coral reefs abutting the Straits of Florida forms a 6-mile-wide band paralleling the Keys. Turtle-grass beds and patch reefs occur on the floor of Hawk Channel and along the Outer Reef. Large masses of live corals along the Outer Reef, growing up from depths of 60 feet or more, may have their heads partially exposed at low tide. Fishermen take advantage of light towers and other aids to navigation which are placed close to dangerously shoal reefs in locating gathering places for fishes. Two miles beyond the Outer Reef the sea floor slopes to 300 feet and in the next 4 miles more gradually to 600 feet. The surface of the deep sea floor, consisting mostly of fine sand, mud, and shell rubble, is broken by only an occasional rocky area. Off Upper Matecumbe Key along the 600-foot-contour, however, is a 40-square-mile area of high rocky peaks, some of which jut up for 300 feet or more above the bottom. Fishermen call this area the Humps. Gulf Stream water flowing against these peaks at 2 to 5 knots becomes greatly agitated, with resulting turbulences and upwellings. Groupers, snappers, tilefish, and great amberjack gather over the rich growths of organisms living on the rocky peaks. Vast numbers of baitfishes school here at the surface feeding on plankton, and these in turn attract marlins, wahoo, dolphins, little tuna, skipjack tuna, blackfin tuna, and other pelagic species.

FISH AND FISHING

An angler trolling offshore along the coast of southeastern Florida and the Florida Keys stands a fairly good chance of catching a blackfin tuna, especially during the winter months. If he fishes the Humps off this section, his chance of success is much better and his catch will probably be one of large size. The environmental conditions which exist here apparently fit the biological requirements of large blackfin tuna exceptionally well. Indeed, the largest specimens caught along the United States east coast come from this area. Areas having conditions very similar to the Humps, such as Challenger Bank and Argus Bank off Bermuda, are famous for their world-record blackfin tunas.

Among all the species of tunas along our east coast, including the skipjack tuna and the little tuna, the blackfin tuna is the only one limited to the western Atlantic. It is a warm-water fish, the majority being caught in water of 78° to 86°F. The optimal temperature seems to be between 80° and 82°F. Although in this hemisphere it travels northward in summer, the blackfin tuna does not go nearly as far as other tunas, Delaware being about its northernmost limit. It is the most numerous tuna in the coastal waters, not only off southeastern Florida but in the Gulf of Mexico as well; and its range extends southward to southern Brazil. The blackfin tuna is more closely associated with land masses than are any of its congeners, as evidenced by the frequency of its occurrence within a few miles of shore and over reefs, shoals, and around islands.

Schools of blackfin tuna are often seen feeding near the surface; and in inshore water are usually caught by trolling at the surface. They feed extensively on fishes that live about reefs and in rocky areas, such as small goatfishes, squirrelfishes, surgeonfishes, triggerfishes, and jacks, and sometimes on other fishes that live far below the surface.

While blackfin tunas are taken the year round in southern Florida, they are most numerous here during winter and spring. In late spring, they evidently move out on an offshore, northerly migration, during which time they spawn. Larvae tentatively identified as blackfin tunas have been collected during May and June off Palm Beach near the edge of the continental shelf and over the deep water beyond; and also over the outer third of the shelf as far north as Cape Hatteras, North Carolina.

Sharks are often seen with blackfin tuna. Large sharks, such as the dusky and the whitetip, often accompany schools of blackfin tuna and are a nuisance to anglers because they often tear away a large part of a tuna that has been hooked, leaving only the head for the angler.

As abundant as blackfin tuna are in this area, they are not the most popular species during the winter. That honor goes to the king mackerel, locally called kingfish. This is a long, streamlined fish, with a large mouth and sharp teeth, and fins adapted for fast swimming. Two other species, the Spanish mackerel and cero mackerel, closely related fishes belonging to the mackerel family, are similar enough to the king mackerel to be easily confused.

King mackerel, the most desired fish of the group because of its large size, occurs here the year round. However, not until about November are there any appreciable numbers of them. Usually, the small and medium size fish arrive first, though these may be accompanied by a few large ones. Sometimes there is even a good run of *snakes*, a localism used to describe these young king mackerel weighing less than 2 pounds. The name is descriptive of the round, snakelike bodies characteristic of these young fish. They are often taken in Hawk Channel close to shore, usually mixed with schools of Spanish mackerel and cero of similar length. During January more and more large king mackerel begin arriving along here. They tend to stay in depths between 50 and 300 feet, usually from just inshore of the Outer or Second Reef to along the edge of the Gulf Stream.

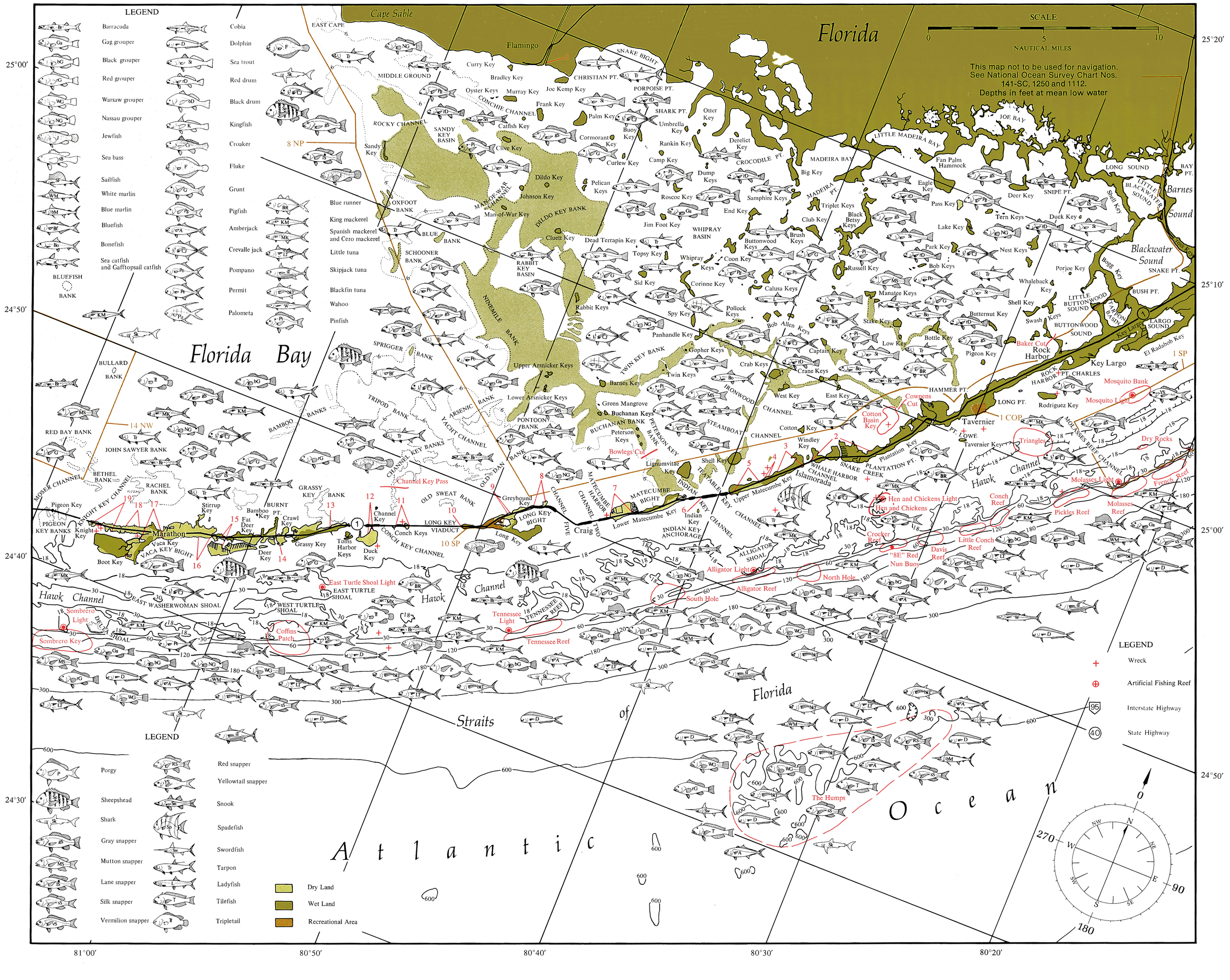
Although described as surface swimmers, king mackerel can be found at any depth in the water column, their preferred level depending largely on temperature. During warm periods as in summer, king mackerel are often taken as deep as 150 feet. When the water becomes cooler as during winter cold spells, they swim close to the surface.

It has been estimated that male king mackerel spawn for the first time in their third year of life, females in their fourth. Nothing is known about reproductive habits except that spawning occurs from May to October. Young males are estimated to reach about 17 inches at 1 year of age, 26 inches at 3, 29 inches at 5, and 31 inches at 7. Females grow faster than males and live longer. Trophy fish are nearly always females. The life span of king mackerel is at least 13 years. They prey on a variety of fishes, including herrings, sardines, jacks, snappers, grunts, porgies, and searobins and on invertebrates, including shrimp and squid. As is true of other species of fishes, among them sailfish, marlins, dolphins, and wahoo, the largest king mackerel are usually taken on live bait.

RECREATIONAL AREAS / **ACTIVITIES**

No.	Location	County – City – Town: Park	State: Park-Wildl. Area–Forest	Natl.: Park-Wildl. Area–Forest	National Seashore	Use: Day-Wknd-Vacation	Fishing	Boating	Picnicking	Camping
1SP	Pennekamp Coral Reef		SP			DWV	F	B	P	C
1CoP	Harry Harris	CoP				DW	F		P	
8NP	Everglades			NP		DWV	F	B	P	C
10SP	Long Key		SP			DWV	F	B	P	C
14NW	Great White Heron			NW		DW	F	B		

No.	Location	Boating Facilities Per Location	Boat Rentals: Rowboat – Outboard	Boat Rentals: Charter Boat	Launch'g: Party Boat	Launch'g: Runabout – Skiff	Ramp: Surfaced – Natural	Hoist: Fixed – Portable	Depth: Marine Railway	Depth: Tidal Range – Ft.	Depth: Approach – Ft.	Supplies: Alongside – Ft.	Supplies: Bait – Tackle	Supplies: Fuel: Gasoline – Diesel	Services: Water – Ice – Grocery	Services: Moorings – Berths – Elec.	Services: Repair: Motor – Hull	Services: Food – Lodging	Services: Toilet – Shower
1	Flamingo	1	RO	C				S	F		2.0	4	4	BT	GD	WIG	BE	M	FL	TS
2	Windley Key	7	RO	C				S			2.1	3	3	BT	GD	WIG	BE	MH	FL	TS
3	Islamorada	2	RO	C	P			S	FP	R	2.1	4	4	BT	GD	WIG	BE	MH	FL	TS
4	Matecumbe	2							FP	R		5	5		GD	WI	BE	MH		TS
5	Matecumbe	2	RO	C				SN	FP		2.0	3	4	BT	GD	WI	BE	MH	FL	T
6	Indian Key Channel	1						S			2.1									
7	Matecumbe Harbor	3	RO	C				S	P		2.1	6	6	BT	GD	WI	BE	MH	FL	TS
8	Greyhound Key	2	RO	C				S	F		1.0	4	4	BT	GD	WIG	BE		FL	TS
9	Long Key	3	RO	C				S			1.8	5	6	BT	G	WIG	BE	MH	FL	TS
10	Long Key Viaduct	1						S			1.9	6	4	BT		WI			L	T
11	Conch Keys	3	O	C				SN			1.6	4	6	BT	GD	WIG	BE		L	TS
12	Duck Key	2	O	C				S			1.6	11	14	BT	GD	WIG	BE	M	FL	T
13	Grassy Key	2	RO	C				S	P		1.0	4	10	BT	GD	WI	BE	MH	FL	TS
14	Crawl Key	1						S	F		1.7				G	WI	BE			T
15	Key Colony	2	RO	C				S			1.5	10	15	BT	GD	WIG	BE	M	FL	TS
16	Vaca Key	4	RO	C	P			S	F		1.5	5	6	BT	GD	WIG	BE	MH	FL	TS
17	Marathon	3		C	P			S			1.5	4	6	B	GD	WIG	E		FL	TS
18	Marathon	3		C					P	R	0.8	5	8		G	WI	BE	MH	FL	TS
19	Marathon	12	RO	C	P			S	FP	R	1.5	2	3	BT	GD	WIG	BE	MH	FL	TS


81°10′
81°00′
80°50′
80°40′
80°30′
80°20′
25°20′
25°10′
25°00′
24°50′
24°40′
24°30′
LEGEND
Barracuda
Gag grouper
Black grouper
Red grouper
Warsaw grouper
Nassau grouper
Jewfish
Sea bass
Sailfish
White marlin
Blue marlin
Bluefish
Bonefish
Sea catfish and Gafftopsail catfish
BLUEFISH BANK
Cobia
Dolphin
Sea trout
Red drum
Black drum
Kingfish
Croaker
Fluke
Grunt
Pigfish
Amberjack
Crevalle jack
Pompano
Permit
Palometa
Blue runner
King mackerel
Spanish mackerel and Cero mackerel
Little tuna
Skipjack tuna
Blackfin tuna
Wahoo
Pinfish
Florida
Cape Sable
Flamingo
Florida Bay
Florida Straits
Atlantic Ocean
SCALE
0
5
10
NAUTICAL MILES
This map not to be used for navigation.
See National Ocean Survey Chart Nos.
141-SC, 1250 and 1112.
Depths in feet at mean low water
EAST CAPE
MIDDLE GROUND
ROCKY CHANNEL
SANDY KEY BASIN
Sandy Key
8 NP
Curry Key
Bradley Key
Oyster Keys
Murray Key
Joe Kemp Key
Frank Key
CONCHIE CHANNEL
Catfish Key
Clive Key
Dildo Key
Johnson Key
MAN-OF-WAR CHANNEL
Man-of-War Key
DILDO KEY BANK
OXFOOT BANK
BLUE BANK
SCHOONER BANK
Cluett Key
RABBIT KEY BASIN
Rabbit Keys
NINEMILE BANK
Upper Arsnicker Keys
Lower Arsnicker Keys
SPRIGGER BANK
TRIPOD BANK
ARSENIC BANK
PONTOON BANK
YACHT CHANNEL
BULLARD BANK
BAMBOO BANKS
CHANNEL KEY BANKS
OLD DAN BANK
OLD SWEAT BANK
RED BAY BANK
14 NW
JOHN SAWYER BANK
BETHEL BANK
RACHEL BANK
MOSER CHANNEL
KNIGHT KEY CHANNEL
PIGEON KEY BANKS
GRASSY KEY BANK
BURNT PT.
Bamboo Key
Crawl Key
Fat Deer Key
Deer Key
Grassy Key
Toms Harbor Keys
Duck Key
Channel Key Pass
Greyhound Key
LONG KEY BIGHT
LONG KEY VIADUCT
10 SP
Long Key
Conch Keys
CONCH KEY CHANNEL
Pigeon Key
Knight Key
Stirrup Key
Marathon
VACA KEY BIGHT
Vaca Key
Boot Key
East Turtle Shoal Light
EAST TURTLE SHOAL
EAST WASHERWOMAN SHOAL
WEST TURTLE SHOAL
Sombrero Light
Sombrero Key
DELTA SHOAL
Coffins Patch
Tennessee Light
TENNESSEE REEF
Tennessee Reef
Craig
Hawk Channel
SNAKE BIGHT
CHRISTIAN PT.
PORPOISE PT.
SHARK PT.
Palm Key
Umbrella Key
Otter Key
Buoy Key
Cormorant Key
Curlew Key
Rankin Key
Derelict Key
CROCODILE PT.
Camp Key
Dump Keys
Pelican Keys
Roscoe Key
Samphire Keys
End Key
Jim Foot Key
WHIPRAY BASIN
Dead Terrapin Key
Topsy Key
Whipray Keys
Coon Key
Sid Key
Corinne Key
Calusa Keys
Spy Key
Pollock Keys
Panhandle Key
TWIN KEY BANK
Gopher Keys
Twin Keys
Barnes Key
Crab Keys
Green Mangrove
Buchanan Keys
BUCHANAN BANK
Peterson Keys
PETERSON KEY BANK
Bowlegs Cut
Lignumvitae Key
Shell Key
TABLE KEY
INDIAN KEY CHANNEL
MATECUMBE HARBOR CHANNEL
MATECUMBE BIGHT
Lower Matecumbe Key
Indian Key
INDIAN KEY ANCHORAGE
ALLIGATOR SHOAL
Alligator Light
Alligator Reef
South Hole
North Hole
"8E" Red Nun Buoy
Upper Matecumbe Key
Islamorada
WHALE HARBOR CHANNEL
SNAKE CREEK
PLANTATION PT.
Plantation Key
Tavernier Key
PT. LOWE
Tavernier
1 COP
LONG PT.
HAMMER PT.
Cowpens Cut
Cotton Basin Key
Cotton Key
Windley Key
West Key
East Key
IRONWOOD CHANNEL
STEAMBOAT CHANNEL
Bottle Key
Low Key
Captain Key
Crane Keys
Bob Allen Keys
Stake Key
Butternut Key
Pigeon Key
Baker Cut
Rock Harbor
ROCK HARBOR
PT. CHARLES
Key Largo
1 SP
El Radabob Key
Mosquito Bank
Mosquito Light
Rodriguez Key
Triangles
Dry Rocks
Molasses Reef Channel
Molasses Light
French Reef
Hen and Chickens Light
Hen and Chickens
Conch Reef
Crocker Reef
Pickles Reef
Davis Reef
Little Conch Reef
Molasses Reef
The Humps
MADEIRA BAY
LITTLE MADEIRA BAY
JOE BAY
Fan Palm Hammock
Big Key
MADEIRA PT.
Triplet Keys
Club Key
Black Betsy Keys
Eagle Key
Pass Key
Lake Key
Park Key
Bob Keys
Russell Key
Buttonwood Keys
Brush Keys
Nest Keys
Tern Keys
Deer Key
SNIPE PT.
Duck Key
LONG SOUND
BAY PT.
LITTLE BLACKWATER SOUND
Shell Key
Barnes Sound
Blackwater Sound
Bogg Key
Porjoe Key
SNAKE PT.
Whaleback Key
Manatee Keys
Shell Key
LITTLE BUTTONWOOD SOUND
BUSH PT.
Swash Keys
BUTTONWOOD SOUND
TARPON BASIN
LARGO SOUND
Key Largo
LEGEND
Porgy
Sheepshead
Shark
Gray snapper
Mutton snapper
Lane snapper
Silk snapper
Vermilion snapper
Red snapper
Yellowtail snapper
Snook
Spadefish
Swordfish
Tarpon
Ladyfish
Tilefish
Tripletail
Dry Land
Wet Land
Recreational Area
Wreck
Artificial Fishing Reef
Interstate Highway
State Highway
95
40
0
90
180
270
N
NE
E
SE
S
SW
W
NW

Vaca Key to Key West

LAND CONFIGURATION AND WATER DEPTH

The long, sweeping chain of the Florida Keys stretching from Biscayne Bay southwestward to Key West and beyond to the Marquesas Keys and Dry Tortugas continues along this section. Though this entire chain may appear to be of the same monotonously low islands, a change in its composition and configuration is evident at about Big Pine Key and divides it into two major island groupings—the Upper and Lower Keys. The Upper Keys, which begin at Virginia Key, end at Loggerhead Key, southeast of Big Pine Key. The Lower Keys, which actually begin northeast of Big Pine Key with the small keys off Bahia Honda Channel in Florida Bay, continue on to Key West, the most populated of all the Florida Keys.

The Upper Keys are remnants of a once living coral reef, while the Lower Keys are a thick limestone deposit overlying a submerged extension of the same reef. Florida Bay is a submerged part of this limestone deposit. Furthermore, while the Upper Keys tend to lie end to end like a long narrow string of beads paralleling the Straits of Florida, the Lower Keys are generally wider, lie parallel to each other and with their main axis at right angles to the arc of the Florida chain. The Lower Keys have a somewhat more luxuriant growth of land plants, as exemplified by the groves of pines on Big Pine Key. Small sink holes or potholes in the limestone here hold fresh water. Such reservoirs do not occur naturally on the Upper Keys.

North and west of the Florida Keys is Florida Bay, locally called the back country, which is principally an embayment of the Gulf of Mexico. The Lower Keys form an offshore bank extending in a north to south direction, some dozen miles wide. Sections of this bank are land, composed of the large islands partly covered with mangroves and the smaller mud islands completely covered with mangroves. Even so, most of the bank is submerged under wide sheets of shallow water. While the water averages only 3 or 4 feet deep here, there are tidal channels as deep as 30 feet that pass between the islands from the Gulf of Mexico to the Straits of Florida. These islands are more or less connected by mud banks covered with sea grasses. The network of mud banks and islands separates the wide sheets of water into semienclosed depressions of various size, which along the Lower Keys are called basins. A rich growth of bottom-living organisms, such as worms, mollusks, crabs, shrimps, and small fishes live the year round among the sea grasses.

FISH AND FISHING

The channels, basins, mud and grass banks, and mangrove roots provide habitats for a rich variety of marine organisms. Tarpon, ladyfish, and bonefish are among the species of fishes finding ideal, year-round conditions here. These three species, with a common ancestry tracing back some 135 million years, are considered to be among the most primitive of living bony fishes. All three species occur in tropical or semitropical water. The ladyfish and probably also the bonefish are circumtropical, and though the tarpon is native only to the Atlantic, enough have made their way through the Panama Canal to become established in a small area of the eastern Pacific.

The usual range of tarpon in the western Atlantic is Virginia to central Brazil, including the Gulf of Mexico and West Indies. In the eastern Atlantic, tarpon occur along central West Africa at least from Senegal to the Republic of Zaire. Along our east coast, they are most numerous in southern Florida, especially so in Florida Bay and about the Keys, and the frequency of their occurrence diminishes progressively northward. Although tarpon do not seem to carry on long annual migrations, there is some movement northward along the east coast during the late spring and summer and southward during the fall. They occasionally stray as far as Massachusetts, and there are even a few records of them from Nova Scotia! Even though young ones live throughout the year in many of the bays and sounds of Florida, Georgia, and probably South Carolina, adults are rarely if ever found during the cold months north of southern Florida.

Tarpon, especially the juveniles, tolerate an astonishingly wide range of environmental conditions, for example, temperatures from 54°F to 104°F and salinities from 0 to 47 parts per thousand. They are found in fresh water, in drainage ditches and shallow creeks, and in tide pools which connect to the sea only during extremely high tides. It seems likely that very small tarpon are driven into such pools during hurricanes and live there until the pools dry up or become connected again to the sea. Thus, some tarpon have been landlocked in inland freshwater lakes. These fish usually do not grow as large as those living in the sea nor do they spawn. Tarpon's ability to use oxygen from the air as well as that dissolved in the water enables them to survive in oxygen-depleted water that would be fatal to other fishes. They often roll at the surface, making a loud popping noise as they gulp air. They hold the air in the swim bladder, which is supplied with a large amount of lunglike tissues, through which the oxygen passes into their bloodstream.

Only a few scraps of information exist about the spawning habits and early development of tarpon, or about their entire life history for that matter. They are believed to spawn from spring through summer along the shores of the mainland and islands, from the Gulf of Mexico eastward through the Florida Keys, West Indies, and Caribbean Sea areas. They are remarkably prolific. For example, a 142-pound female was found to contain over 10 million eggs. Of course, infant mortality is enormous, for on the average only two of the offspring produced during the entire life of a female need to survive to maturity to sustain the numbers in a population at any particular level of abundance.

Little is known about the development of the young until they are found inshore within ditches and creeks when they are about 1½ inches long. Here in the warm, protected estuarine habitat, the very young tarpon feed, first on copepods and then on other small plankters. As they grow, they add shrimps, mosquito larvae, and small fish to their diet. By the time they become adults, at 6 or 7 years, they feed mostly on fishes and invertebrates. Among the fishes found in their stomachs are silversides, catfishes, mullets, anchovies, and cutlassfishes. They eat enough blue crabs to justify the belief that crabs make an ideal bait for tarpon. During their first summer, tarpon grow about 1½ inches a month. Gradually, they move into deeper water and eventually join the ocean population. By 2 years, they are 24 inches long and weigh 4 to 7 pounds. By 5 years, they are about 3 feet long and weigh 20 pounds; by 6 years, when most of them mature, they are 4 feet and as much as 50 pounds; and by 12 years, they are about 5 feet and 70 pounds. The length-weight ratio is quite variable in tarpon. For example, a 3-foot fish can weigh from 13 to 30 pounds; a 6-foot fish, 90 to 120 pounds, depending on its condition. Tarpon attain a maximum length of at least 9 feet and a weight of over 350 pounds. If a 100-pound fish is 13 to 16 years old and a 200 pounder 26 to 31 years, as has been estimated, then a 300 pounder could very well be over 45 years old.

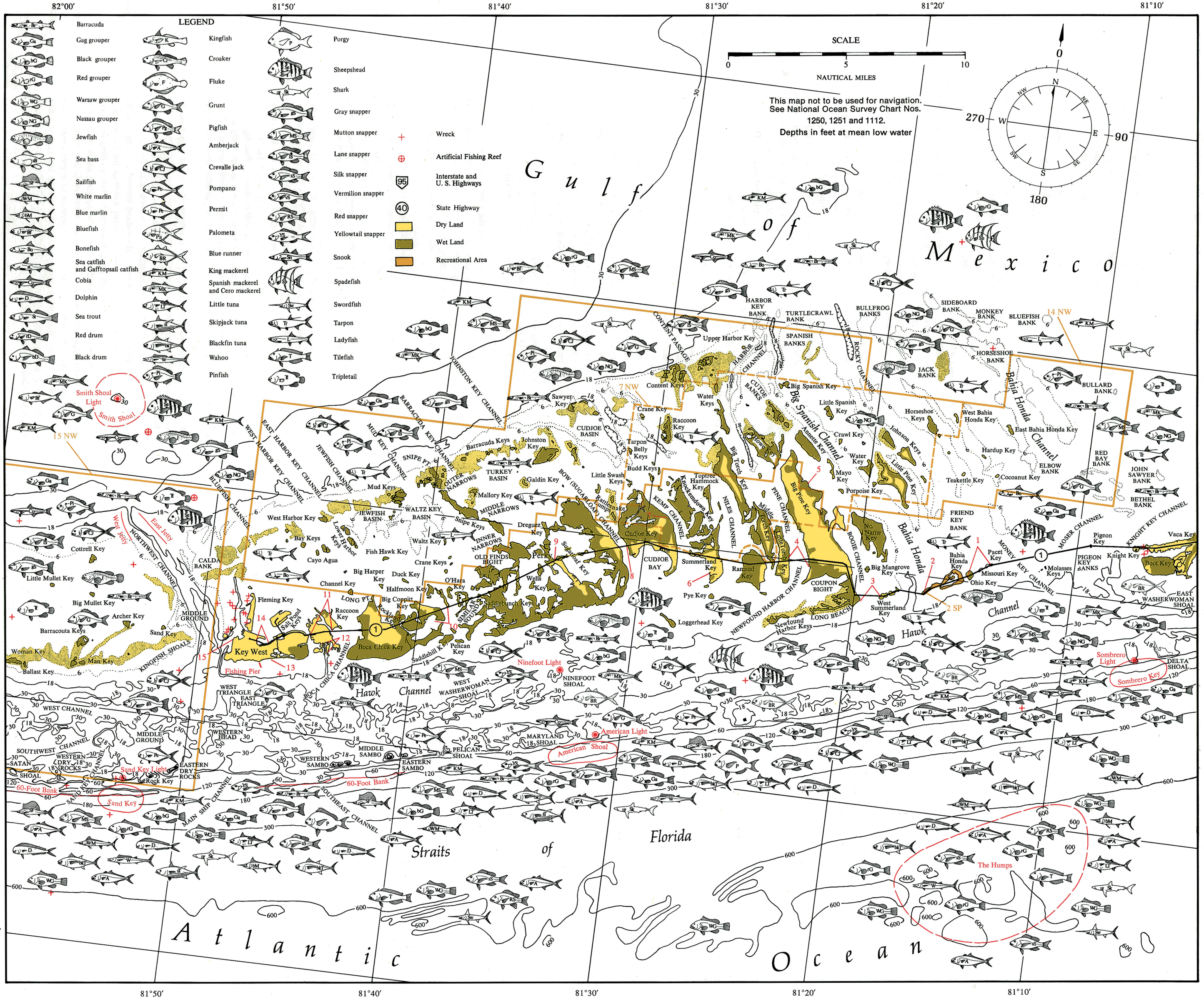
The ladyfish or ten-pounder is much more slender-bodied than its close relative, the tarpon, and it has much smaller scales in proportion to its size. Furthermore, the last ray of the first dorsal fin is not extended in a threadlike filament as it is in the tarpon. The ladyfish occurs from Cape Cod, Massachusetts, to Rio de Janeiro, Brazil, though rather irregularly north of South Carolina. Ladyfish is common in Florida, perhaps living most of its life in semienclosed bays, such as Florida Bay. It often travels in schools, sometimes numbering thousands of individuals. Its habit of skipping at the surface may be a way of escaping enemies attacking from below. Among food items found in the stomachs of ladyfish are shrimps, squids, and small fishes, including young of their own kind. It evidently leaves enclosed waters for the open sea to spawn from fall into spring. It is an excellent game fish on light tackle, but like tarpon, too dry and bony to be interesting as food.

The bonefish, the third member of this group, ranks high in the judgment of artful anglers, for it is a wary fish that requires skill and patience to find, careful stalking to approach, and long and delicate casting to catch. It occurs in almost all warm seas about the world. On our Atlantic coast, it has been found as far north as the Bay of Fundy, but the frequency of its appearance diminishes rapidly above southern Florida. What little is known about the habits of this elusive fish, locally called silver ghost, comes from observing it in the shallow water of bays and sounds. In southeastern Florida, it may be seen feeding by day on an incoming tide among the sand and grass flats and around the prop roots of mangroves, often in water less than a foot deep. Bonefish gets much of its food from the bottom which it grubs or roots out with its snout. While feeding on the worms, mollusks, crabs, and shrimp living there, its caudal fin often breaks the surface, a behaviorism which fishermen call *tailing*. As the tide ebbs, they move off the flats and into holes and channels where fodder, such as small fishes and squid, concentrate. Their habits are different in other areas. For instance in Bermuda, where bonefish is called grubber, it comes onto the shallows at night to feed.

While bonefish is usually taken in shallow waters of bays and estuaries, it probably spends some of its life in the sea, at least for spawning. Judging from the times that larvae have been collected, spawning goes on at one place or another along our side of the Atlantic on the northern hemisphere almost the year round. Unfortunately, almost nothing is known about its seasonal movements, age, or rate of growth.

		RECREATIONAL AREAS				ACTIVITIES				
		COUNTY – CITY – TOWN: PARK	STATE: PARK-WILDL. AREA–FOREST	NATL.: PARK-WILDL. AREA–FOREST	NATIONAL SEASHORE	USE: DAY-WKND-VACATION	FISHING	BOATING	PICNICKING	CAMPING
NO.	LOCATION									
2SP	Bahia Honda		SP			DWV	F	B	P	C
14NW	Great White Heron			NW		DW	F	B		
7NW	Key Deer			NW		DW	F	B		
15NW	Key West			NW		DW	F	B		

		BOAT RENTALS			LAUNCH'G	DEPTH			SUPPLIES			SERVICES						
		BOATING FACILITIES PER LOCATION	ROWBOAT – OUTBOARD	CHARTER BOAT	PARTY BOAT	RUNABOUT – SKIFF	RAMP: SURFACED – NATURAL	HOIST: FIXED – PORTABLE	MARINE RAILWAY	TIDAL RANGE – FT.	APPROACH – FT.	ALONGSIDE – FT.	BAIT – TACKLE	FUEL: GASOLINE – DIESEL	WATER – ICE – GROCERY	MOORINGS – BERTHS – ELEC.	REPAIR: MOTOR – HULL	FOOD – LODGING	TOILET – SHOWER
NO.	LOCATION																		
1	Ohio-Pacet Key	2		C					S			1.1		BT	GD	WIG	BE	FL	
2	Bahia Honda Key	1							S			1.1		BT	G	WIG	BE		TS
3	Big Pine Key	2	RO						S			1.1		BT	G	WI			
4	Big Pine Key	3								F		1.0			G	WI	BE	MH	F
5	Big Pine Key	1							S			0.7							
6	Summerland Key	1										1.0							
7	Cudjoe Key	1							S			1.0							
8	Cudjoe Key	1							S			1.0							
9	Sugarloaf Key	1	RO	C										BT		WIG			FL
10	Big Coppitt Key	2							S			1.0							
11	Stock Island	4	RO	C					S			1.1		BT	G	WI	BE		
12	Stock Island	5		C	P							1.2		BT	GD	WI	BE		F T
13	Key West	1							S			1.3							
14	Key West	5		C	P				S	FP		1.3		BT	GD	WIG	BE	MH	FL TS
15	Key West	1							S			1.3							


LEGEND
Barracuda
Gag grouper
Black grouper
Red grouper
Warsaw grouper
Nassau grouper
Jewfish
Sea bass
Sailfish
White marlin
Blue marlin
Bluefish
Bonefish
Sea catfish and Gafftopsail catfish
Cobia
Dolphin
Sea trout
Red drum
Black drum
Kingfish
Croaker
Fluke
Grunt
Pigfish
Amberjack
Crevalle jack
Pompano
Permit
Palometa
Blue runner
King mackerel
Spanish mackerel and Cero mackerel
Little tuna
Skipjack tuna
Blackfin tuna
Wahoo
Pinfish
Porgy
Sheepshead
Shark
Gray snapper
Mutton snapper
Lane snapper
Silk snapper
Vermilion snapper
Red snapper
Yellowtail snapper
Snook
Spadefish
Swordfish
Tarpon
Ladyfish
Tilefish
Tripletail
Wreck
Artificial Fishing Reef
Interstate and U. S. Highways
State Highway
Dry Land
Wet Land
Recreational Area
SCALE
0 5 10
NAUTICAL MILES
This map not to be used for navigation.
See National Ocean Survey Chart Nos.
1250, 1251 and 1112.
Depths in feet at mean low water
Gulf of Mexico
Florida Straits
Atlantic Ocean
Bahia Honda Channel
Hawk Channel
Key West
Fishing Pier
Smith Shoal Light
Smith Shoal
Sand Key Light
Sand Key
American Light
American Shoal
Ninefoot Light
NINEFOOT SHOAL
Sombrero Light
Sombrero Key
DELTA SHOAL
The Humps
60-Foot Bank
Content Keys
Upper Harbor Key
Big Spanish Key
Little Spanish Key
Crane Key
Raccoon Key
Sawyer Key
Water Keys
Horseshoe Keys
West Bahia Honda Key
East Bahia Honda Key
Hardup Key
Crawl Key
Johnson Keys
Porpoise Key
Teakettle Key
Cocoanut Key
Barracuda Keys
Johnston Key
Galdin Key
Mallory Key
Mud Keys
West Harbor Key
Bay Keys
Lower Harbor Keys
Cayo Agua
Fish Hawk Key
Cottrell Key
Little Mullet Key
Big Mullet Key
Archer Key
Barracouta Keys
Sand Key
Woman Key
Man Key
Ballast Key
Fleming Key
Salt Pond Keys
Raccoon Key
Boca Chica Key
Saddlehill Key
Pelican Key
Channel Key
Big Harper Key
Duck Key
Halfmoon Key
Big Coppitt Key
O'Hara Key
Wells Key
Saddlebunch Keys
Rockland Key
Perky
Cudjoe Key
Sugarloaf Key
Summerland Key
Ramrod Key
Little Torch Key
Middle Torch Key
Big Torch Key
Little Swash Keys
Toptree Hammock Key
Knockemdown Key
Rattlesnake Jumper
Dreguez Key
Waltz Key
Snipe Keys
Little Pine Key
Big Pine Key
No Name Key
Big Mangrove Key
West Summerland Key
Pye Key
Loggerhead Key
Newfound Harbor Keys
Bahia Honda Key
Pacet Key
Missouri Key
Ohio Key
Molasses Keys
Pigeon Key
Knight Key
Boot Key
Vaca Key
Harbor Key Bank
Turtlecrawl Bank
Spanish Banks
Bullfrog Banks
Sideboard Bank
Monkey Bank
Bluefish Bank
Horseshoe Bank
Jack Bank
Bullard Bank
Red Bay Bank
Elbow Bank
John Sawyer Bank
Bethel Bank
Friend Key Bank
Pigeon Key Banks
East Washerwoman Shoal
West Washerwoman Shoal
Maryland Shoal
Pelican Shoal
Western Dry Rocks
Eastern Dry Rocks
Western Sambo
Eastern Sambo
Middle Sambo
Satan Shoal
Southwest Channel
West Channel
Northwest Channel
Southeast Channel
Main Ship Channel
Sand Key Channel
Content Passage
Harbor Channel
Rocky Channel
Cutoe Banks
Cudjoe Basin
Turkey Basin
Jewfish Basin
Waltz Key Basin
Cudjoe Bay
Coupon Bight
Old Finds Bight
Similar Sounds
Long Beach
Long Pt.
Middle Ground
Western Head
Calda Bank
Kingfish Shoals
Johnston Key Channel
Barracuda Key Channel
East Harbor Key Channel
West Harbor Key Channel
Jewfish Channel
Mud Key Channel
Snipe Pt. Channel
Outer Narrows
Middle Narrows
Inner Narrows
Bluefish Channel
West Jetty
East Jetty
Boca Chica Channel
Newfound Harbor Channel
Bogie Channel
Kemp Channel
Niles Channel
Pine Channel
Moser Channel
Knight Key Channel
Money Key Channel
7 NW
14 NW
15 NW
2 SP
82°00′
81°50′
81°40′
81°30′
81°20′
81°10′
25°00′
24°50′
24°40′
24°30′
24°20′

Marquesas to the Dry Tortugas

LAND CONFIGURATION AND WATER DEPTH

The small groupings of islands known as the Marquesas Keys and the Dry Tortugas mark the southern end of the Florida Keys. The Marquesas Keys, locally called the Marquesas *(Mar•'kēy ses),* are some 20 miles east of Key West and 70 miles southeast of the nearest point of the mainland, Cape Sable, Florida. The Dry Tortugas lie some 60 miles from Key West, and are actually 20 miles closer to Cuba than Florida's mainland. The only inhabitants on these two island groups are a caretaker and his family on Garden Key in the Dry Tortugas.

The Marquesas are a group of low, mangrove-covered islands that lie upon a shallow bank of calcareous sand. The islands themselves are the exposed part of a narrow sand strip which forms the rim of a 3-mile-wide, more or less continuous circle. Within the rim is a sheltered lagoon having depths as much as 10 feet. This circle of islands surrounding the lagoon looks superficially like an atoll such as are common in the south Pacific Ocean. But unlike the Pacific atolls, which are composed almost entirely of coral or coral debris, the Marquesas are composed of calcareous sands that are not of coral origin. Apparently these sands have been cast up by waves and the circular shape formed by the actions of tidal currents and wind. Although the sand strip of the Marquesas is nearly continuous, the sea cuts through in a number of places, forming nearly a dozen islands of various size.

The shallow bank of calcareous sand continues westward of the Marquesas to form the 30-square-mile area known as the Quicksands, perhaps so named because of the loose sand bottom into which heavy objects sink. Depths there range from 2 to 20 feet, and average about 10 feet. Halfmoon Shoal marks the western end of the Quicksands. During winter months, large numbers of king mackerel gather off here and also just north of here in the area that commercial fishermen call No Man's Land. A few hundred yards away from the Quicksands the water deepens to about 50 feet, but in less than a half dozen miles it shoals abruptly to form the New Grounds to the north and Isaac Shoal and Rebecca Shoal to the west. Beyond Rebecca Shoal, the water deepens to 100 feet or so and forms a 12-mile-wide strait that is used by coastal ships bound from the east coast to the west coast of Florida. The Dry Tortugas form the offshore side of this strait.

The Dry Tortugas are a group of small, low islands scantily vegetated and surrounded by extensive shoals. The islands and shoals, like the Marquesas, are atoll-shaped and surround and shelter a central lagoon. But unlike the Marquesas, the Tortugas are a true atoll composed of calcareous material derived mostly from living corals. In all of the Dry Tortugas there are only about a hundred acres of land. Were the sea level to drop by only 6 feet, well over 5,000 acres would be exposed. The islands and shoals are constantly changing shape in response to storms and currents. In 1513 when Juan Ponce de León first saw these islands and named them for the large catch of sea turtles he made (tortuga being Spanish for turtle), there were 12 to 15 islands. Today only 8 remain.

The central lagoon of the Tortugas is about 50 feet deep and is connected to the sea by three principal channels that are at least as deep. Both the channels and the lagoon have luxuriant growths of corals and sea fans as well as other attached organisms. The channels are often lined along their sides with an abundance of corals. One of the most impressive growths in the lagoon is White Shoal, with sides rising nearly vertically 60 feet above the bottom.

FISH AND FISHING

Of the more than 500 species of fishes living in this area, barracudas are among the commonest and easiest to identify. The almost cylindrical-shaped body; long, pointed head; large mouth; sharp teeth; and silvery sides are obvious marks that distinguish barracudas from other fishes. They are of a family which includes some 20 species, all members of a single genus distributed in tropical, subtropical, and warm-temperate waters around the world. Four species occur along the Florida coast, the northern and southern sennets, guaguanche, and the great barracuda.

The great barracuda, distinguished by conspicuous black blots on the rear part of the body, is a major predator, a favorite subject of lurid stories of attacks on people, and an acceptable game fish. Caught on light tackle, barracuda often make a series of spectacular jumps similar to those of sailfish. The great barracuda is perhaps the most widely distributed species of the family, only its absence from the eastern Pacific keeping it from being distributed around the world. It spends much of its life nearshore, though large ones may be found traveling far offshore—one was taken some 900 miles east of Bermuda. In the western Atlantic, the great barracuda's reported range extends from Cape Cod to southern Brazil. Along our east coast, its numbers decrease rapidly north of about Palm Beach, Florida, and few are seen alongshore north of Cape Canaveral, Florida. Even so, large adults are common offshore to about Cape Hatteras, North Carolina.

Mature females produce several batches of ripe eggs from April to about August. The eggs are probably cast and fertilized in open water. From spring until mid-September, the young come close to shore, usually into depths of less than 10 feet, along beaches, about nearshore obstructions, mangroves, in grass beds, or in the brackish water of estuaries. Some take shelter under floating seaweeds. At this age, they may gather into small groups of as few as 10 to 30 or as many as thousands, and prey on small fishes, including killifishes, sardines, anchovies, silversides, gobies, and young puffers, needlefishes, snappers, parrotfish, and mojarras. As they grow larger, they move into deeper water where they find larger prey.

Although great barracuda 10 to 30 inches long are fairly gregarious, each individual seems to keep domain over its own territory from which it excludes others of the group. It will leave its territory only briefly to catch a passing fish. However, when schools of small fish such as silversides, halfbeaks, or sardines come inshore with the flood tide, the barracuda abandon their territories to make the attack. As great barracuda get larger, they become less gregarious; and when they get to be about 3 feet long, they usually travel alone or in groups of two or three. As they become larger, they take larger prey, such as groupers, dolphin, sailfish, wahoo, and various tunas.

Very little is known about the migrations of great barracuda. Beginning about their third year, they travel seasonally. In summer, some seem to go northward in coastal waters or in the Gulf Stream; others go far out over deep water. In fall they return along the south Florida coast to their winter habitats. Many spend the winter about the Keys, both along the edge of the Outer Reef and in holes along the flats.

In some localities, great barracuda weighing over about 3 pounds are occasionally poisonous to eat. The poisoning, called *ciguatera* in the Caribbean region, is technically known as *ichthyosarcotoxism.* Symptoms may include nausea, vomiting, acute diarrhea, metallic taste in the mouth, tingling sensations in the skin, cramps in the extremities, aching muscles and joints, scalding urination, and sometimes convulsions. A few severe cases have led to coma and even death. This poisonousness does not result from spoilage, but probably is a property of the flesh that develops after the great barracuda has fed on prey such as trunkfishes and puffers, which are generally poisonous in tropical waters. The same effect might result from eating invertebrates which have fed on poisonous algae. Fish poisoning is a phenomenon of tropical seas around the world affecting many fishes of coral reef communities.

The great barracuda has a sinister reputation which has been handed down through literature going back more than three centuries. During the present century, it is supported by a number of fairly well-documented accounts of attacks on bathers along the coast between South Carolina and the Florida Keys as well as in other parts of the world where this species occurs. These episodes have been frequent enough to make people wary of great barracuda, but not frequent enough for them to consider it a serious menace. We can say only that occasionally a great barracuda or even a group of them may attack a swimmer, though nearly all cases have resulted from being provoked by being teased or injured, as by a spear, or when in the presence of an injured fish.

The sea animals which are most notorious for being dangerous to people are sharks. Accoding to records collected and verified by a group of biologists working under the auspices of the American Institute of Biological Sciences and the United States National Museum, there were 678 unprovoked attacks by sharks on persons and 110 on boats in various places around the world during the 25 years from 1928 to 1962. Of these, 55 occurred on the Atlantic coast between Massachusetts and Florida.

The vast majority of sharks are inoffensive. Of the nearly 250 species known throughout the world, only 27 have been implicated in attacks. The whale shark which is the largest fish known, growing to be nearly 60 feet long, is a sluggish, peaceable beast. The next largest, the basking shark, which reaches a length of 45 feet, is also sluggish and generally peaceable. Yet, there are two records of wounded basking sharks attacking boats in Scotland.

On our coast, most of the attacks on persons have been attributed to the great white shark and the tiger shark. There is no reason to believe that the sharks with bad reputations have a particular affinity for human flesh. Like most other fishes, sharks are opportunistic feeders. Some, including the tiger shark, are scavengers. Nevertheless, people in the water should never be complacent about them. Never annoy a shark in the water. Be particularly cautious with any shark longer than about 4 feet.

The habits of the 3 dozen shark species occurring off our east coast differ greatly from one to another. Most live near land masses in continental-shelf water or about offshore islands. Some of these come very close to shore; they may enter estuaries and even run far up rivers. Others, such as the blue shark and mako, spend most of their lives roaming over the deep ocean far from land. Still others live in great depths. Some, such as the mako, dusky, blue, tiger, and blacktip sharks, migrate seasonally in about the same pattern as do many of our migratory bony fishes—northward in spring and summer, southward in fall and winter. Blue shark and mako seem to follow migratory patterns similar to those of white marlin.

Of the many shark species occurring off southern Florida at one time or another, the most numerous are the blacktip, spinner, sandbar, and dusky. The tiger, bull, lemon, and at least four species of hammerheads are also common. The blacktip shark is an active, swift swimmer, often seen schooling at the surface. It is given to leaping clear of the water and spinning around as many as three times before falling back into the sea. It feeds on many kinds of fishes, and is in turn prey to other sharks. Anglers catch them frequently while trolling for other surface-swimming fishes. Like the blacktip shark, the spinner shark schools at the surface and often leaps clear of the water and spins before falling back.

If large sharks are a menace to bathers and a nuisance to anglers, their numbers can be reduced rather quickly by intensive fishing, for their low reproductive rates make them particularly vulnerable. Recognizing this fact, a number of areas in Florida hold regular shark fishing tournaments.

RECREATIONAL AREAS						ACTIVITIES				
		County – City – Town: Park	State: Park-Wildl. Area–Forest	Natl.: Park-Wildl. Area–Forest	National Seashore	Use: Day-Wknd-Vacation	Fishing	Boating	Picnicking	Camping
No.	Location									
15NW	Key West				NW		DW	F	B	
15NM	Fort Jefferson				NM*		D	F	B	

*National Monument

82°50′ 82°40′ 82°30′ 82°20′ 82°10′

SCALE
0 5 10
NAUTICAL MILES

This map not to be used for navigation.
See National Ocean Survey Chart Nos.
1252, 585 and 1113.
Depths in feet at mean low water

0 N NW NE 270 W E 90 SW SE S 180

LEGEND

- Barracuda
- Gag grouper
- Black grouper
- Red grouper
- Warsaw grouper
- Nassau grouper
- Jewfish
- Sea bass
- Sailfish
- White marlin
- Blue marlin
- Bluefish
- Bonefish
- Sea catfish and Gafftopsail catfish
- Cobia
- Dolphin
- Sea trout
- Red drum
- Black drum
- Kingfish
- Croaker
- Fluke
- Grunt
- Pigfish
- Amberjack
- Crevalle jack
- Pompano
- Permit
- Palometa
- Blue runner
- King mackerel
- Spanish mackerel and Cero mackerel
- Little tuna
- Skipjack tuna
- Blackfin tuna
- Wahoo
- Pinfish
- Porgy
- Sheepshead
- Shark
- Gray snapper
- Mutton snapper
- Lane snapper
- Silk snapper
- Vermilion snapper
- Red snapper
- Yellowtail snapper
- Snook
- Spadefish
- Swordfish
- Tarpon
- Ladyfish
- Tilefish
- Tripletail
- Wreck
- Artificial Fishing Reef
- Dry Land
- Wet Land
- Recreational Area

24°50′ 24°40′ 24°30′ 24°20′

PULASKI SHOAL
NORTHKEY HARBOR
BRILLIANT SHOAL
MIDDLE GROUND
Hospital Key
East Key
Garden Key
Bush Key
Long Key
Fort Jefferson
SOUTHEAST CHANNEL
Dry Tortugas
15 NM
REBECCA SHOAL
Rebecca Light
ISAAC SHOAL
HALFMOON SHOAL
"4A" Red Nun Buoy
"12" Red Whistle Buoy
NEW GROUND
ELLIS ROCK
15 NM
The Quicksands
Marquesas Keys
MOONEY HARBOR
Mooney Harbor Key
Gull Keys
Boca Grande Channel
Boca Grande Key
Woman Key
MARQUESAS ROCK
COSGROVE SHOAL
Cosgrove Light
"MR" Buoy (Red and black nun buoy)
"CB" Buoy (Red and black nun buoy)
COALBIN ROCK
Snapper Bar
SATAN SHOAL
Vestal Shoal
60-Foot Bank

Gulf of Mexico
Straits of Florida
Atlantic Ocean

83°00′ 82°50′

NORTHWEST CHANNEL
PULASKI SHOAL
TEXAS ROCK
BRILLIANT SHOAL
NORTHKEY HARBOR
WHITE SHOAL
Hospital Key
East Key
Loggerhead Light
Loggerhead Key
Fort Jefferson
Garden Key
Bush Key
Long Key
15 NM
CHANNEL
SOUTHEAST CHANNEL
SOUTHWEST
Dry Tortugas

Glossary

ANADROMOUS. Spoken of fish which spend most of their lives in salt or brackish water but ascend rivers to spawn in slightly brackish or fresh water.

BACK COUNTRY. As used in Florida, Florida Bay and adjacent smaller bays and sounds lying between the Keys and the mainland.

BERTH. A place at a dock or wharf where a boat is tied.

BOBBING. A method of fishing for eels. A number of earthworms are threaded on cotton twine and then made into a ball. The ball is usually attached to a short length of line on the end of a cane pole. When an eel takes this bait it tangles its teeth on the twine and is caught.

BOTTOM CONTOUR. An imaginary line on the floor of a body of water connecting points of equal depth.

BOTTOM FISHING. Placing a bait on or near the bottom so as to catch fish. The bait, usually weighted with a sinker, may be cast and allowed to sink or it may be lowered vertically into the water. Sometimes the bait is buoyed by a float so that it remains suspended just off the bottom. The bait is left in place until a fish bites or until the angler slowly retrieves it.

BRACKISH WATER. Applied in this book to water having from 0.2 to 17 parts per thousand, by weight, of dissolved salts.

BREACHWAY. A term used in Rhode Island for an inlet.

BROKEN BOTTOM. A rough, stony or rocky area of the sea floor.

BUOY. A float moored to the bottom to mark a channel or to warn of an obstruction or other danger. Special-purpose buoys are often used to mark the location of artificial fishing reefs.

CASTING. Throwing forth a bait. The bait, either a natural one or artificial lure made to imitate a natural one, is attached to one end of a line, the other end is attached to the angler's reel. When the bait or lure strikes the water, the angler can rapidly retrieve it, let it drift with the current, or let it sink to the bottom. *See* Squidding, Live Lining and Bottom Fishing.

CATADROMOUS. Spoken of fish which spend most of their lives in fresh or brackish water but spawn in salt water.

CHARTER BOAT. A fishing boat with crew hired for the exclusive use of one to six anglers. With the advice of the captain, the anglers determine what type of fishing they will do. Charter boats range in size from a small outboard with guide ($20 or more per day) to a twin-engine, ocean-going vessel in excess of 50 feet with a captain and two mates ($150 or more per day). Tackle and bait are usually furnished with the boat. *See* Party Boats.

CHUMMING. Attracting fish to an area with fish or shellfish, either ground, chopped, or whole, or sometimes with scrap meat and dried blood. Once fish are in the area, hooks baited with cut and whole fish or artificial lures are used to catch them. *See* Live Lining and Bottom Fishing. Oily fish such as menhaden, herring, shad and mackerel are usually used for chum. Chumming for bottom fish is done by lowering a porous container filled with chum. This may be a punctured can of pet food, a wire basket or pot (chum pot), or a cloth bag (chum bag).

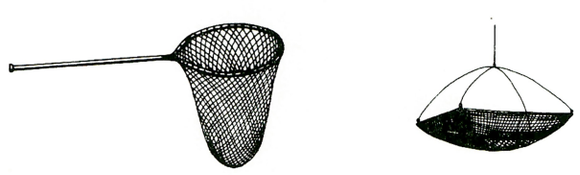
COASTAL. Spoken of marine fishes which spend most of their lives within a few miles of shore.

CONTINENTAL SHELF. A submarine plain extending out from shore to a depth of about 600 feet, beyond which the ocean bottom begins a relatively steep descent to the deep ocean floor.

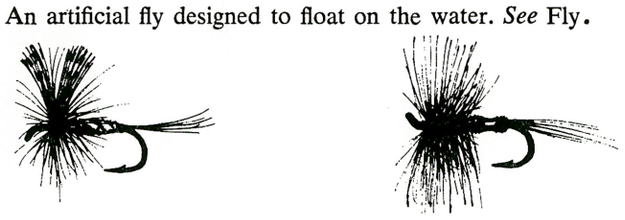
CUT. A term used in southern Florida for an inlet.

DIAMOND JIG. An elongated, narrow, diamond-shaped jig. Weights usually range from ½ ounce to 2½ pounds.

DIP NET. Also called hand dip net. A conical, small-mesh net attached to a rigid frame on a long handle. It is used to catch fish or crabs. Along the southeast coast the term dip net usually applies to a rectangular, small-mesh net supported by a metal frame and attached to a rope or pole. Here it is used to catch baitfish and shrimp.

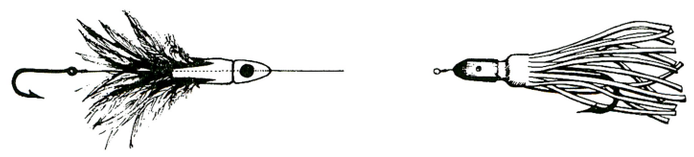


DRY FLY. An artificial fly designed to float on the water. *See* Fly.



ESTUARY. A partially enclosed body of water having a free connection with the open ocean, within which salt and fresh water mix.

FEATHER. Also called a trolling feather. An artificial bait or lure made to simulate a baitfish and used for trolling. The feather is made of a round or bullet-shaped metal head to which is attached a feather, hair, nylon or other synthetic material body.

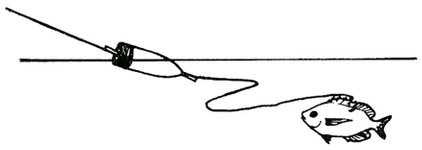


FIRE LIGHTING. Also called night lighting, gigging and floundering. Locating or attracting fish in shallow water at night with lights either held above or below the surface. Once a fish is located, it is usually speared.

FLAT. A low-relief plane at the border between a body of water and land. The flat is alternately exposed and submerged, according to the tide. It is designated according to its surface characteristics, as mud flat, sand flat, grass flat, etc.

FLATLINE. A trolling line fished directly astern of a boat.

FLOAT-RIG. Also called popping-jig in southern Florida. A floating plug to which is attached a hook baited with a live fish or shrimp. The plug splashes and makes a popping noise as the rig is drawn through the water, and this disturbance attracts fish to the bait. Float-rigs are often used to catch spotted sea trout.



FLOUNDERING. Fire lighting specifically for flatfishes. *See* Fire Lighting.

FLY. A lightweight artificial bait or lure made to simulate a live insect or other small natural bait. The fly consists of a hook dressed with feathers, hair, yarn and tinsel and tied with thread. *See* Dry Fly, Wet Fly and Streamer Fly.

FRESH WATER. Applied in this book to water having less than 0.2 parts per thousand, by weight, of dissolved salts.

GIGGING. Fishing with a spear, especially while fire lighting.

GULF STREAM. Also called the Stream. A general term used to describe the narrow, relatively fast-flowing ocean current along the Atlantic coast of North America. Properly called the Gulf Stream System, it is made up principally of the Florida Current and the Antilles Current. The name Gulf Stream is based on the misconception that the current's source is the Gulf of Mexico.

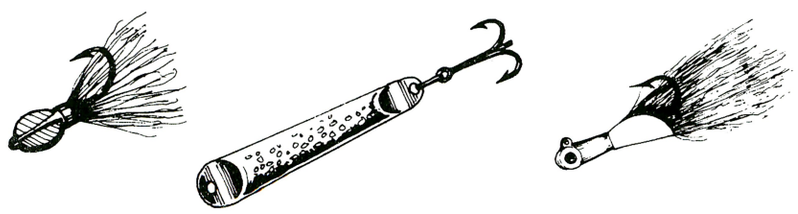
HEADLAND. A high point of land or rock projecting into the sea.

INLET. A narrow passage of water connecting the open sea with protected coastal and inland water. Along various sections of our coast, inlets are called breachways, cuts and passes.

INSHORE. Referring to the part of the sea adjacent to the shore. In this book it is bound by the 60-foot bottom contour.

INTRACOASTAL WATERWAY. Also called Inland Waterway or Waterway. A comparatively shallow passage extending continuously on the Atlantic Seaboard from Manasquan, New Jersey, to Key West, Florida. Sheltered from the open sea, it consists of a series of artificial channels connecting bays, sounds, lagoons and other protected waters. It is used primarily by small craft.

JIG. An artificial lure made to simulate a live bait. Although many variations exist, all jigs are made wholly or partly of metal, hence, are heavy for their size. In weight they range from less than 1 ounce to over 2 pounds.



JIGGING. Manipulating an artificial lure to imitate a live bait and thus attract fish to the hook. The lure is lowered vertically or cast some distance away, allowed to sink to a desired depth, and then jerked quickly upward a short distance. Immediately after this upward jerk the lure is allowed to sink back. This jerking or jigging procedure is repeated again and again.

KEY. A low island or reef off the southern coast of Florida. This word is derived from the Spanish "cayo" meaning little island. In the West Indies, it is spelled Cay (pronounced ké or kã).

KITE FISHING. A method of fishing done by suspending a baitfish from a kite. When flown from a boat, the kite carries the bait well away from the boat's wake. Live fish are slowly trolled just under the surface. Dead fish may be fished this way, or skipped along the surface at a faster trolling speed. When flown from a beach, the kite carries the bait out a distance from shore. During periods of light breeze, helium-filled balloons are sometimes used in place of kites.

Glossary

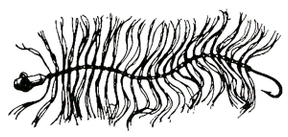
LIVE BAITING. Live lining with live bait.

LIVE BOTTOM. An area of the sea floor abounding in living attached organisms such as mussels, sponges, sea fans, live corals, sea weeds, etc.

LIVE LINING. Allowing a natural bait, either alive or dead, to drift in a current or be suspended by a float some distance above the bottom. As the bait drifts away from the angler, line must be played out from the unlocked spool or open bail of the reel. Live lining is often done while chumming. *See* Live Baiting.

MOORING. A float, usually a small buoy, anchored away from land to which a boat is tied.

MOP. An artificial bait or lure made to simulate a natural bait and trolled in the water. It consists of a small-linked brass chain 6 to 14 inches long with tufts of thread tied or glued into each link. Attached to the front of the chain is either a swivel or a weight, and to the rear end a hook. This lure is usually trolled.

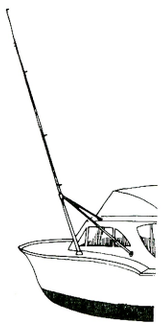


NIGHT LIGHTING. *See* Fire Lighting.

OFFSHORE. Applied in this book to the part of the sea away from shore beyond about the 60 foot bottom contour.

OUTBOARD. A rowboat propelled by an outboard motor.

OUTRIGGERS. Movable rods or poles which project outward from each side of a boat and used during trolling to keep the baits spread apart.



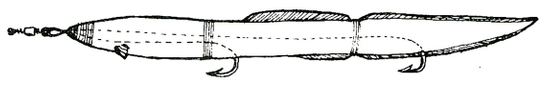
PARTY BOAT. Also called head boat, open boat, ground-fishing boat, deep sea-fishing boat, drift-fishing boat, and packet or party packet. A fishing boat, usually carrying 10 to 60 anglers. Space is sold to the general public until either the boat is filled to capacity or the scheduled sailing time is reached. The captain usually determines the type of fishing and the areas to be fished. The fee ranges from $3 to $20, depending on duration of the trip or distance from port, and usually includes bait but not tackle. Trip lengths are usually eight hours for a full day, four hours for a half day. *See* Charter Boat.

PASS. A term used in the Florida Keys and along the coast of the Gulf of Mexico for an inlet. As used in the Florida Keys, it is the passageway from the sea to Florida Bay and ranges in width from a fraction of a mile to 7 miles.

PELAGIC. Spoken of fishes and other sea animals that are more or less independent of the bottom. They are characteristically active swimmers spending much of their time in mid-water or near the surface.

RELIEF. Used in this book to describe a sharp rise above or depression below the plane of the sea floor caused by an outcropping of rock or coral, submerged ridge, sunken ship, etc.

RIGGED BAIT. A natural bait consisting of all or part of a dead fish or squid which is tied, sewn or wired onto a hook and used for trolling.



ROWBOAT. An open boat, usually 12 to 16 feet long, propelled by oars. The bottom may be flat, round, or V-shaped.

RUNABOUT. An open boat, usually 14 to 17 feet long, having a planing hull and powered by an outboard motor of 10 or more horsepower.

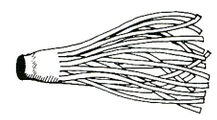
SALT WATER. Applied in this book to water having more than 17 parts per thousand, by weight, of dissolved salts. Average sea water for all oceans has about 35 parts per thousand of dissolved salts.

SCHOOL. A large number of fish, usually of the same kind and size, swimming and feeding together. The members are closely oriented to each other in such a way that the school behaves as a well integrated unit.

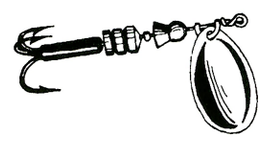
SHAD DART. A small jig, usually a weighted bucktail, weighing about ¼ ounce or less. Darts are used primarily to catch shad and similar fishes.

SKIFF. A boat, usually 18 to 26 feet long, propelled by an inboard or inboard-outboard motor.

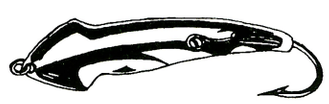
SKIRT. An artificial bait or lure consisting of a brightly colored shredded plastic tube 4 to 8 inches long and fitted over a feather, stripbait, rigged bait or other trolling lure.



SPINNER. An artificial bait or lure composed of one or more spoon-like blades that spin on a shaft or swivel when drawn through the water. Presumably the glitter caused by the spinning blades' reflecting light simulates the metallic sheen of a baitfish; this acts together with vibrations emitted by the spinner in stimulating fish to bite.



SPOON. An artificial lure made to simulate a live bait. It usually consists of a thin, slightly curved piece of metal or combination of metal and plastic. When drawn through the water it has a wobbling and wiggling motion.



SQUIDDING. A term sometimes used to describe the casting into the surf of metal lures called squids.

STREAMER FLY. A wet fly, made on a long shank hook, designed to simulate a small baitfish. *See* Fly.

STRIPBAIT. A long narrow strip of skin and flesh cut from the sides or belly of a fish or squid in a shape simulating the outline of a whole fish. This strip is attached to a hook and used for trolling.

THERMOCLINE. A narrow zone in the water column where a sharp change in temperature occurs between relatively warm water above and cool water below.

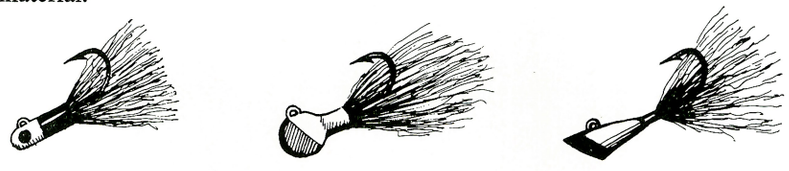
TIDE-LINE. The water level at the shore, which changes with the tide.

TROLLING. Trailing a natural bait, artificial lure, or a combination of the two behind a moving boat. The bait can be made to skip along the water surface or troll at any depth below the surface to just above the bottom. A bait or lure trailed by an angler running along a fishing pier, bridge or breakwater is also trolling. Trolling speeds vary according to the fish species sought.

TUBE LURE. Also called surgical-tube lure, teaser, and Norwegian teaser. An artificial lure made to simulate a live bait. The lure consists of a hook covered by a piece of surgical or plastic tubing 3 to 12 inches long. Large tube lures are usually trolled; small ones are attached to a fishing line ahead of a diamond jig.

WATER COLUMN. Spoken of the water from surface to bottom about a given point.

WEIGHTED BUCKTAIL. A type of jig consisting of a lead or metal head cast on a single hook. The tail can be made of hair, nylon, feathers or other fibrous material.



WET FLY. An artificial fly designed to sink in the water. *See* Fly.