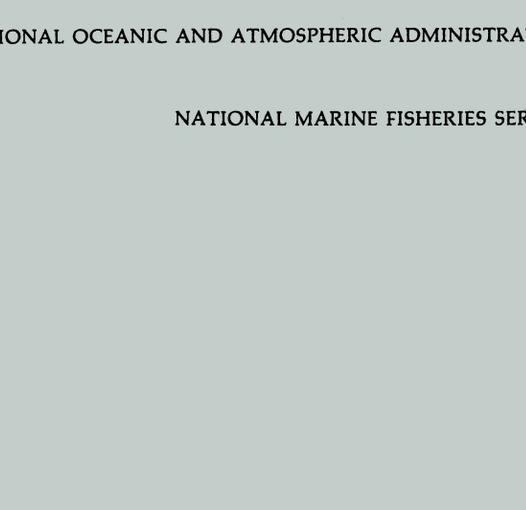
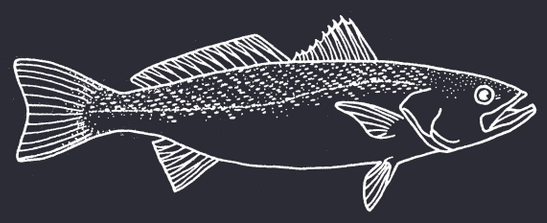
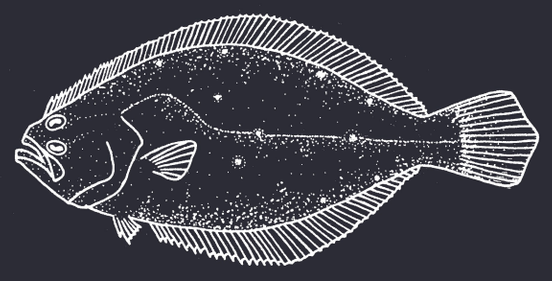
UNITED STATES DEPARTMENT OF COMMERCE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

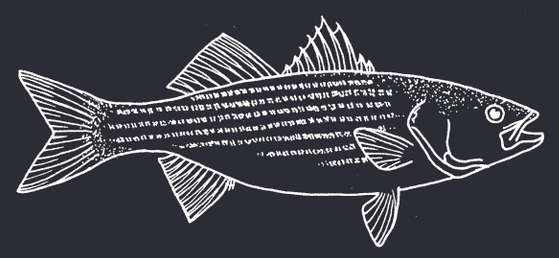
NATIONAL MARINE FISHERIES SERVICE

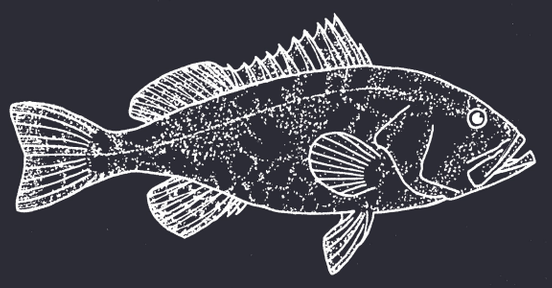






Anglers' Guide TO THE *United States Atlantic Coast*





SECTION III

Block Island to Cape May, New Jersey

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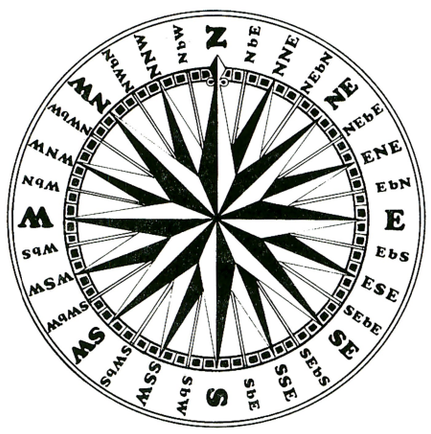
Anglers' Guide

TO THE

United States Atlantic Coast

FISH, FISHING GROUNDS & FISHING FACILITIES



BRUCE L. FREEMAN AND LIONEL A. WALFORD

SECTION III

Block Island to Cape May, New Jersey

JULY 1974
SEATTLE, WASH.

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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, gillnet boats, longline boats, pound nets and weirs, lobster and sea bass pots, beach seines, and bait seines; also, anglers, outdoor writers, and operators of boat liveries, bait and tackle stores, and marinas. We have questioned scores of biologists of the various state and federal laboratories, especially the staff at Sandy Hook. City, county and 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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The section of coast from Montauk Point, Long Island, to Cape May, New Jersey, and seaward out to the edge of the continental shelf, is called the New York Bight. From Montauk Point the shoreline runs westward the entire length of Long Island, a distance of over 100 miles. At about the longitude of New York City, it changes direction sharply and runs southward the entire length of New Jersey, again a distance of over 100 miles.

The eastern end of Long Island marks the beginning of a remarkable estuarine system which extends almost unbroken all the way to Florida. It includes the bays, sounds, lagoons, river mouths, tidal streams, and creeks, and extends from the sandy barrier islands which lie between the mainland and the open ocean to the limit of saltwater intrusion—in the Hudson River, for example, nearly 100 miles. New Jersey marks the beginning of a nearly flat, sandy expanse of land, called the coastal plain, which extends southward through Florida and out to the edge of the continental shelf. The strikingly uniform sea floor, for the most part, gently slopes downward at a rate of about 7 feet a mile.

Two channels or canyon systems, one off Block Island and the other off New York City, cut along the sea bottom 100 miles or so from the mainland out to the edge of the continental shelf. These are remnants of ancient river systems which once carried fresh water across what was then dry land. Within 20 miles of land along this section of coast a number of flat-topped, sand-covered hills, commonly called banks, rise as much as 50 feet above the surrounding floor. These banks as well as the ancient river channels are favorite gathering places for fishes.

Along the open sea coast of the New York Bight, high and low tides occur twice each day. But owing to the shape of the coastline—an inverted V—the tidal range (i.e., difference in water level between high and low tide) varies. It is highest at the head of the V, the vicinity of New York City, where it is about 5 feet. From there eastward to Montauk and Block Island the range gradually decreases to about 3 feet; southward to Cape May to 4 feet. Tidal ranges in the bays vary from a few inches to a few feet, the one at Jamaica Bay, Long Island, being 5½ feet, the greatest within the entire New York Bight. Usually large coastal rivers have complicated tidal patterns. At the mouth of the Hudson River the tides range about 5 feet. From there to West Point, 60 miles upriver, they drop progressively to about 3 feet. From West Point upriver all the way to the Troy Dam, 120 miles from the river's mouth, they increase progressively again to a maximum of about 5 feet.

The New York Bight is characterized by two principal seasons, 6 months of warm weather and 4 months of cold. These are separated by brief fall and spring transitional periods. From May to October, the warm period, the weather usually remains unchanged for several weeks at a time, the prevailing southerly and southwesterly winds keeping the temperature uniformly warm and the humidity high. However, since the air over the sea averages 5°F lower in summer than over land, a change to an easterly wind causes a sharp change in the coastal temperature. This brings relief during hot July and August afternoons when breezes, moving across the cool water, blow in from the sea. These, however, seldom penetrate more than a mile inland. Sometimes, especially in late spring and early summer, the warm, moist air brought northward by the southwesterlies is cooled to form fog. This often sets in without warning and may last for several days, sometimes even a week or more. Even though hurricanes are uncommon, they have been recorded in every month from May through December, being most frequent and severe during August, September, and October. During the fall there is a gradual transition from the high temperatures and mild breezes of summer to the low temperatures and blustery winds announcing the advent of winter. From December to March, the cold period, the weather is variable and marked by frequent shifts in the prevailing northwesterly winds and rapid changes of temperature. The northwesterlies usually blow between 10 and 20 knots, but often increase to about 40 knots as large cold fronts push down from the north. Often while these cold fronts are moving through this area the intracoastal waterway and many of the bays ice over. Usually the most devastating northeast storms strike during the cold period, bringing snow or freezing rain. Southerly and southwesterly winds, blowing across the sea with air temperatures 6°F higher than on land, moderate the weather. During spring, a time of transition, the weather is at first more variable than in winter as air masses change rapidly. With approaching summer, however, it gradually becomes more stable and warmer.

Migratory fishes tend to gather in areas where temperature and food supply are favorable to their particular needs, and to remain there as long as those conditions persist. Thanks to the wide range of environmental features in the middle Atlantic section a remarkable diversity of sea life gathers here during the course of a year, including boreal, oceanic, tropical, and temperate-water fishes.

All of these fishes are here at the same time during the warmer months. What makes such a diversity possible at that season is the temperature structure of the water, the most striking feature of which is an enormous mass of cool bottom water extending from about Montauk, Long Island, to just south of Delaware Bay. Oceanographers explain this mass as leftover winter water, for it had been chilled during the preceding winter and remained cold even after the spring warming of the surface. It is called the Middle Atlantic Cold Cell. Its shape is roughly that of a triangle, of which the vertex is some 6 to 10 miles off Asbury Park, New Jersey; the northern point is about 20 miles off Montauk; and the southern point is about 45 miles off Delaware Bay.

The summer temperature in the Middle Atlantic Cold Cell ranges from about 45° to 50°F. Boreal or cold-water fishes that can tolerate such cool water inhabit the bottom here. A few of them which are familiar on the New England banks, such as cod, redfish, and pollock, are permanent residents in this region rather than casual visitors, and probably belong to southern races of their respective species. They are generally sparsely distributed, tending to concentrate around sharp irregularities on the sea floor such as wrecks. In midautumn they begin moving southward about the same time as their northern relatives migrate into the area for the winter. These groups seldom go south of Cape Hatteras or east or north of Nantucket Shoals off Cape Cod.

Meanwhile, the water temperature at the surface overlying the area of the cold cell is 70°-75°F, and it remains fairly even down to a depth of about 30 to 50 feet. Between this surface layer and the cold cell the temperature generally drops about 10°F or more in just a short distance. This water layer of rapid changing temperature is called the thermocline.

Oceanic fishes such as the tunas (bluefin, yellowfin, bigeye, skipjack, and albacore), bonito, mackerel scad, white and blue marlins, mako shark, dolphin, and other species that are independent of the bottom roam in the surface layer throughout the summer. Many of these tend to concentrate just above the thermocline where they find an abundance of food, particularly along the slopes of the submarine canyons.

Migrant animals other than fishes, such as sea turtles, porpoises, and whales, are frequently seen at the surface during the summer. Deeper in the surface layer are numerous young fishes too small to be noticed. Many of these originated in tropical waters and had been carried northward by the Gulf Stream. During the summer they make their way to the shallow waters of the shore and into the estuaries. Thus, bonefish, needlefish, pompanos, blue runner, permit, and many others that are the anglers' delight in tropical winter resorts are accidental summer visitors here.

It is on the landward side of the cold cell, the shallow water near the shore and in the estuaries, where the greatest concentration of fishes gather. These species migrate in response to seasonally changing temperatures, their migratory habits varying with species, size, and, in some instances, sex. Bluefish, fluke, black sea bass, scup, striped bass, and gray sea trout (locally called weakfish) make up about a third of the total anglers' catch. By far the most abundant of temperate-water migratory fishes visiting here, the menhaden is not a food or game fish but has great economic value of manufacture into meal and oil and for bait. This single species has contributed more than 80 percent of the catch landed by commercial fisherman in the middle Atlantic states.

On the ocean side of the cold cell, as we approach the edge of the continental shelf and continue over its slope, we find at the bottom still another assemblage of fishes including many strange and grotesque forms. Although there are many of the same species of boreal fishes that occur in the cold cell, these tend to be much larger. Cod 70 to 80 pounds, white hake 40 to 50 pounds, and pollock 30 to 40 pounds are fairly common so that an angler has a reasonable chance to catch one of these giants. The tilefish, an excellent food fish, is becoming increasingly popular among deep-sea anglers. Specimens which anglers catch average about 25 pounds.

Thus, from spring into fall, an angler in a seaworthy boat has at his disposal a wide range of fishes—boreal, oceanic, tropical, and temperate-water groups. By winter, though the last three of these have left, there are more boreals which have come down from the north.

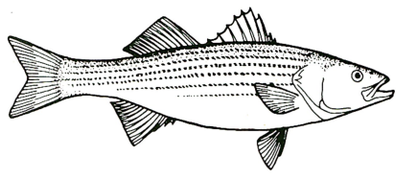
Many of the fishes now caught off this section of coast were unknown to the natives, for they only fished along the shore with their primitive gear. The fishes they found, however, were apparently abundant and they used what they caught to feed themselves as well as to fertilize the soil. Striped bass, shad, sturgeon, eels, and flounders, as well as shellfish, were used for food. Menhaden, an oily fish belonging to the herring family, were put in the soil when planting corn. Indeed, the word menhaden is a modification of an Indian one, meaning "that which enriches the earth" or "fertilizer." The European colonists arriving here in the early 1600's fished in the bays and along the ocean beaches much as the Indians did. For over 200 years most of the fishing was done close to shore simply because the fishermen had to go no farther than estuaries to make their catches. People fishing for pleasure had no trouble finding suitable water, for any place along the shore would suffice and the fish were nearly always accommodating in taking the hook. But as the demand for fishery products increased, fishing became more intense, and more and more fish were taken. At the same time estuaries, the extraordinarily fertile areas where saltwater and freshwater mix, were being destroyed through unwise use. Increased waste from the growing population living in the area gradually fouled the water, and alteration of the shore gradually reduced the living space of many fishes. Since estuaries are important breeding areas for some fishes—winter flounder, white perch, tomcod, silversides, and killifish, nursery areas for many others—such as bluefish, gray sea trout or weakfish, striped bass, puffers, eels, and menhaden, and the permanent residence of shellfish—such as blue crabs, hard- and soft-shell clams, oysters, and bay scallops, any reduction in the area of the estuaries or impoverishment of the estuarine water quality must have serious biological consequences.

Although fishing remained good in the water around New York for about two centuries after its settlement, catches very close to shore began to decline, requiring fishermen to travel away from shore. In time it became necessary to go farther. Gradually, it became more and more evident that the sea is not limitless. Unfortunately, even today, this unpleasant truth is not generally appreciated. Between 1956 and 1968 as the commercial catch of fish in this area declined over 80 percent, the destruction of the estuarine zone not only continued but actually accelerated. In just 15 years since 1954, a total of 38,000 acres of tidal marshland have been destroyed in New York and New Jersey. In addition, during this same period dredging and filling have destroyed nearly 65,000 acres of important shoal water habitats in these states.

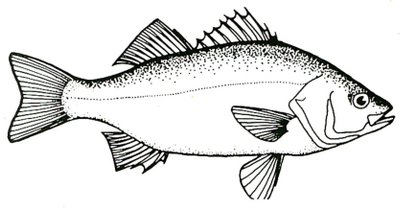
An angler in New York and New Jersey does not need a license to fish or crab in salt water. These states, however, have some saltwater regulations. New York has a minimum size limit for striped bass and fluke. New Jersey, in addition to a minimum size limit for striped bass, has a limited season and a daily catch limit for them. Both states have minimum size regulations for blue crabs and prohibit keeping egg-bearing females. Both states require clamming licenses. To obtain copies of fishing and shellfishing regulations, contact the following: *New York*—Department of Environmental Conservation, Fish and Wildlife Division, 50 Wolf Road, Albany, 12201; and *New Jersey*—Department of Environmental Protection, Division of Fish, Game and Shellfisheries, P. O. Box 1809, Trenton, 08625.

Most Commonly Caught Fish

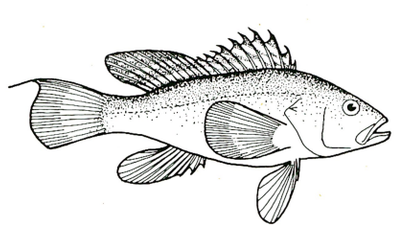
BASSES, SEA



STRIPED BASS, *Morone saxatilis*. Bass, striper, rockfish; fish less than 5 lbs called school bass. See white perch. SIZE: Largest recorded 125 lbs; tackle record 73 lbs; avg. 1-5 lbs; over 55 lbs unusual. HABITS: Schooling, migratory, anadromous. Occur in rivers, estuaries and the ocean. Coastal fish usually found in depths to 45 ft but at times to 120 ft. Some fish overwinter in rivers and bays but they are active only in water above 39°F. SEASON: Most taken April—December, but a few all year. Best fishing late April—mid June and mid September—November or early December. FISHING METHODS: Casting, live lining or chumming from shore; these same methods plus trolling from boats. Check state regulations on size, catch limit and season. BAITS: Worms, clams, eels, live or dead fish, shrimp, soft or shedder crab and cut fish; also plugs, spoons, spinners, jigs, weighted bucktails, feathers and imitation eels or worms.

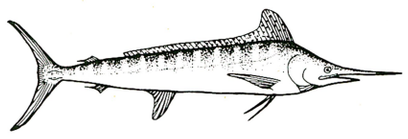


WHITE PERCH, *Morone americanus*. Perch, river perch. Distinguished from striped bass by having the spiny and soft dorsal fins connected and the 2nd and 3rd anal fin spines of equal length. Striped bass have the dorsal fins separated and the 2nd spine of the anal fin shorter than the 3rd. SIZE: To 4¾ lbs; avg. ⅓ - ⅔ lb; over 2 lbs unusual. HABITS: Schooling and anadromous. Occur in fresh, brackish and salt water from the surface to 35 ft. Most abundant in estuaries and rivers. During winter found in channels and deep holes. SEASON: Taken all year; best fishing March—May. FISHING METHODS: Live lining, chumming, jigging and casting from shore or boats. BAITS: Shrimp, worms, clams, and small silversides or killifish; also small spoons, spinners, jigs, weighted bucktails, and wet or streamer flies.



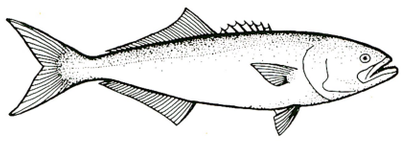
BLACK SEA BASS, *Centropritis striata*. Sea bass. SIZE: Largest recorded 8 lbs; tackle record 8 lbs; avg. ¼-¾ lb; over 4½ lbs unusual. HABITS: Migratory and gregarious. Occur on or near rock, coral or shell bottom and around wrecks, pilings, rock jetties or breakwaters. At times they may be 20 ft or more off the bottom. During warm months most black sea bass occur in depths from a few to 120 feet; during cold months they retreat to deeper water, some to 400 ft or more. SEASON: Mid April or May—November; best fishing June—August. FISHING METHODS: Most caught in water warmer than 55°F from 30 to 80 ft deep by bottom fishing from anchored or drifting boats. A few taken from shore by bottom fishing. BAITS: Squid, clams, crabs, worms, shrimp and cut fish.

BILLFISHES



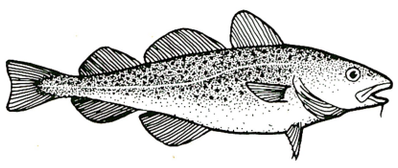
WHITE MARLIN, *Tetrapturus albidus*. Marlin. SIZE: To 161 lbs, tackle record 161 lbs; avg. 40-60 lbs; over 100 lbs unusual. HABITS: Pelagic and migratory. Occur in oceanic and continental-shelf water but some come close to shore in water 60 ft deep during warm months. Travel in small groups or alone. SEASON: Mid or late June—September or early October; best fishing mid July—late September. Most frequently taken near the surface in water warmer than 70° F from 20 to 80 miles offshore; especially in the vicinity of Block, Hudson, Wilmington and Baltimore Canyons. FISHING METHODS: Trolling from boats. Some taken while chumming for other kinds of fish. BAITS: Rigged eel, mullet, squid, mackerel, ballyhoo and stripbait, feather-stripbait or skirt-stripbait combination. Some caught on feathers and plugs.

BLUEFISH

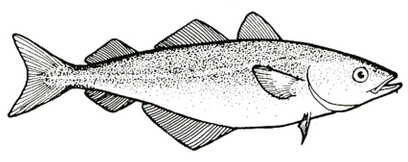


BLUEFISH, *Pomatomus saltatrix*. Blues. Small fish called snappers; large fish called choppers, slammers or jumbos. SIZE: Largest recorded 35 lbs; tackle record 31 lbs 12 oz; snappers average less than 1/3 lb, larger fish 1-4 lbs; over 17 lbs unusual. HABITS: Pelagic, schooling and migratory. Bluefish occur in water of 50° to 80°F and as deep as 300 ft or more. Fish less than 4 lbs are common inshore and offshore of the 90 ft contour; larger fish usually remain offshore of this contour. SEASON: Late April or May—late November; best fishing June—October or early November. Snapper fishing in estuaries is best August—October. FISHING METHODS: Live lining, chumming and casting from shore; these same methods plus jigging and trolling from boats. Most caught in water of 64° to 75°F within 90 ft of the surface. BAITS: Spoons, jigs, plugs, feathers, skirts, tube lures and weighted bucktails; also butterfish, silversides, mullet, eels, sand lance and cut menhaden or other fish.

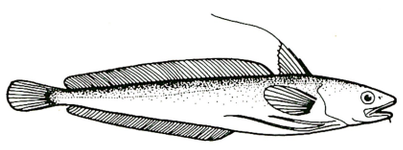
CODS, HAKES AND POLLOCK



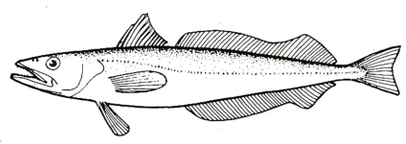
ATLANTIC COD, *Gadus morhua*. Cod. See Atlantic tomcod. SIZE: Largest recorded 211½ lbs; tackle record 98¾ lbs; avg. 3-10 lbs; over 55 lbs unusual. HABITS: Occur on rock, gravel, coral or shell bottom and around wrecks and offshore shoals. Adult cod generally occur in water colder than 50° to 55°F from near shore to 1,200 ft. SEASON: Taken all year in depths over 150 ft; November—April in shallower water. Best fishing March—April and November—mid January in depths of 30 to 120 ft. FISHING METHODS: Bottom fishing or jigging from anchored or drifting boats. BAITS: Clams, sand lance, squid, crabs, worms and cut fish; also diamond jigs.



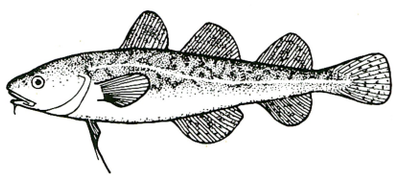
POLLOCK, *Pollachius virens*. Distinguished from cods by having a forked tail and projecting lower jaw. SIZE: Largest recorded 70 lbs; tackle record 43 lbs; avg. 2-5 lbs; over 25 lbs unusual. HABITS: Pelagic and schooling; however, large adults live closer to bottom than smaller fish. Occur from the surface to 600 ft in water of 31° to 60°F. SEASON: Taken in depths over 120 ft all year and in shallower water October—May. Best fishing December—April on wrecks or rocky bottom in water of 35° to 52°F and depths of 25 to 150 ft. FISHING METHODS: Most caught from anchored or drifting boats while live lining or jigging 4 to 25 ft off the bottom. Some caught while trolling or casting from boats. BAITS: Sand lance, worms, clams, squid and cut fish. Artificial lures are best and include diamond jigs, tube lures, spoons, spinners and plugs.



SQUIRREL HAKE, *Urophysis chuss*. Ling, frostfish. SIZE: To 7 lbs; avg. ½-2 lbs; over 4 lbs unusual. HABITS: This bottom fish occurs from the tide-line to depths of 1,000 ft on clay, mud or sand bottom; however, during daylight, at least from spring through fall, some congregate on rock or other hard bottom and around wrecks. At night they leave their cover to feed. During warm months small ones are found in all depths, but large ones are usually in 90 ft or more. SEASON: Taken all year in depths of 120 ft or more. Caught inshore November—June; best fishing April—June and November—December in water of 40° to 50°F. FISHING METHODS: Bottom fishing and jigging from anchored or drifting boats. BAITS: Sand lance, clams, worms, squid and cut fish; also small jigs.

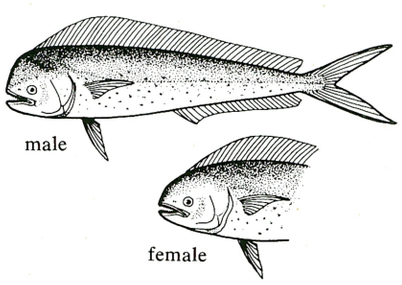


SILVER HAKE, *Merluccius bilinearis*. Whiting, frostfish. SIZE: To 5½ lbs; avg. ½-1½ lbs; over 4 lbs unusual. HABITS: Migratory and schooling. Occur from the surface at the tideline to depths of 2,400 ft or more in water of 38° to 64°F. Usually remain on or close to bottom during daylight and move towards the surface or into shallow water at night. Sometimes they drive bait fish ashore and strand themselves in pursuit. SEASON: Taken in depths over 120 ft all year; in shallower water October—June. Best fishing inshore April—May and mid October—January; offshore January—March. FISHING METHODS: Most caught in water of 40° to 50°F while bottom fishing or casting from shore. BAITS: Sand lance, clams, worms, squid and cut fish; also spoons, spinners, weighted bucktails, plugs, jigs and tube lures.



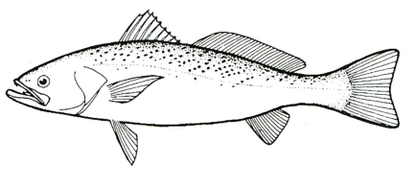
ATLANTIC TOMCOD, *Microgadus tomcod*. Tomcod, tommy cod, frostfish. Distinguished from cod by having a rounded tail and the 2nd pelvic ray being about 1½ times the length of the next longest ray. Cod have a slightly concave tail and the 2nd pelvic ray is 1¼ times the length of the next longest ray. SIZE: To 1½ lbs; avg. ¼-¾ lb; over 1 lb unusual. HABITS: Usually occur in estuaries, rivers and along the coast in depths less than 36 ft. Frequent sand, mud, gravel or rock bottom. Tomcod move into or towards rivers in the fall where they spawn from December through March. SEASON: Most taken October—June; a few all year. Best fishing November—December. FISHING METHODS: Bottom fishing or jigging from shore or boats. BAITS: Worms, clams, mussels, shrimp and cut fish; also weighted bucktails and jigs.

DOLPHINS

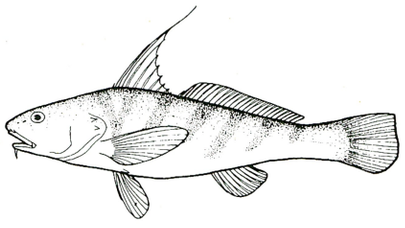


DOLPHIN, *Coryphaena hippurus*. SIZE: To 85 lbs; tackle record 85 lbs; avg. 2 - 10 lbs; over 30 lbs unusual. HABITS: Pelagic, schooling and migratory. A rapid swimmer occurring near the surface in water warmer than 70°F over depths of 60 ft or more. Often found under floating debris and seaweed. SEASON: Mid June—September or early October; best fishing August—early September. FISHING METHODS: Trolling, casting or chumming from boats. Most are caught 10 miles or more offshore. BAITS: Feathers, spoons, plugs, weighted bucktails, stripbait, feather-stripbait combination or skirt-stripbait combination and whole mullet, ballyhoo, squid, eel or cut fish.

DRUMS

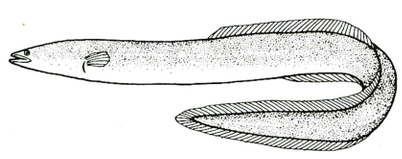


GRAY SEA TROUT, *Cynoscion regalis*. Weakfish; small fish called spikes or heads-and-tails, large fish called tide-runners. SIZE: Largest recorded 30 lbs; tackle record 19½ lbs; avg. ½-1½ lbs; over 6 lbs unusual. HABITS: Pelagic, schooling and migratory. Most abundant in the brackish water of estuaries and in shallow water within three miles of shore, but they occur in the open ocean, some to depths of 300 ft or more during winter. Favor sandy areas, especially around eel grass beds. SEASON: May—October or early November. Best fishing September—October; a few large fish in June. In the past when this species was abundant, best fishing was in June. Most are caught from the surface to 40 ft. FISHING METHODS: Live lining, casting, chumming and jigging from shore; these methods plus trolling from boats. BAITS: Shrimp, squid, silversides, mullet, soft or shedder crab, worms, clams, mussels, cut fish and live killifish. Also spinners, spoons, plugs, jigs and weighted bucktails.



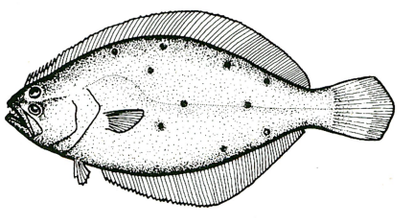
NORTHERN KINGFISH, *Menticirrhus saxatilis*. Kingfish; large fish called silver kings in southern New Jersey. SIZE: To 3¼ lbs; avg. ⅓ - ⅔ lb; over 2 lbs unusual. HABITS: An inshore fish occuring from the tideline to depths of 30 ft in salt and brackish water warmer than 46°F. Aggregations occur on sand, shell or gravel bottom; especially near inlets, sand bars or along the edges of channels. SEASON: Late April or May—early November; best fishing May—early July and September—mid October. FISHING METHODS: Bottom fishing from shore. Bottom fishing and chumming from anchored or drifting boats. BAITS: Worms, clams, mussels, squid, shrimp, soft or shedder crab and cut fish.

EEL

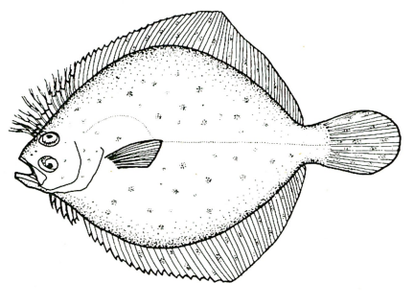


EEL, *Anguilla rostrata*. SIZE: Largest recorded 16 lbs; avg. 1/2-2 lbs; over 5 lbs unusual. HABITS: Catadromous. Young (elvers) enter estuaries in the spring. Some remain in the estuaries while others migrate varying distances, sometimes hundreds of miles, up rivers and streams. After living in fresh or brackish water, sometimes as long as 20 years, they return to the deep ocean to spawn and subsequently die. Occur on any type of bottom in ponds, rivers, estuaries and near the ocean shore. Active during warm months; embedded in mud during cold months. SEASON and FISHING METHODS: Taken April—mid December by anglers either bottom fishing or bobbing from shore or boats. December—March speared from boats or through the ice while eels are embedded in mud. BAITS: Any natural bait; also small jigs and weighted bucktails.

FLOUNDERS, LEFT-EYED



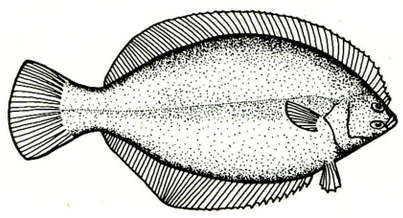
NORTHERN FLUKE, *Paralichthys dentatus*. Fluke, summer flounder; Large fish called doormats. See windowpane flounder. SIZE: Largest recorded 30 lbs; tackle record 20½ lbs; avg. 1-4 lbs; over 11 lbs unusual. HABITS: Migratory. Lives on mud, sand, sand-shell, gravel or rock bottom and around wrecks. During warm months most occur from the tide line to depths of 100 ft; during cold months they retreat to deeper water, some to 500 ft or more. Small fish occur in brackish water, a few in fresh water; large fish in salt water deeper than 50 ft. Usually feed near bottom but will pursue prey to the surface. SEASON: May—October or early November; best fishing July—September in water warmer than 61°F. FISHING METHODS: Bottom fishing and casting from shore; these methods plus chumming, live lining or trolling near bottom from boats. BAITS: Squid, smelt, silversides, clams, worms, cut fish, and live killifish; also spinners, jigs and weighted bucktails.



WINDOWPANE, *Scophthalmus aquosus*. Flounder, sand flounder, sand dab, sundial, sole. Distinguished from summer flounder by the first 10-12 dorsal fin rays elongated and branched to form a fringed crest. Summer flounder have no fringed crest. SIZE: To 2 lbs; avg. ⅓ - ⅔ lb; over 1¼ lbs unusual. HABITS: A year-round resident in salt and brackish water. Windowpanes frequent sand, sand-mud, sand-shell, gravel and soft mud or clay bottom. Most occur from the tide-line to 80 ft; a few as deep as 200 ft. SEASON: Taken all year; best fishing April—November. FISHING METHODS: Bottom fishing, from shore. Bottom fishing, trolling near bottom, jigging and chumming from boats. Usually taken incidentally while fishing for some other fish. BAITS: Shrimp, worms, silversides, squid, clams, mussels, cut fish and live killifish; also jigs and weighted bucktails.

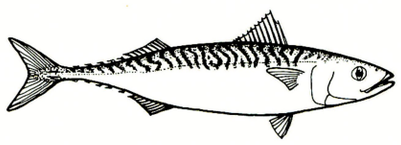
Block Island to Cape May, New Jersey

FLOUNDERS, RIGHT-EYED

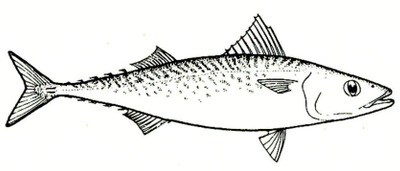


WINTER FLOUNDER, *Pseudopleuronectes americanus.* Flounder; large fish around Block Island and eastern Long Island called snowshoes. SIZE: To 8 lbs; avg. ⅓ -1 lb inshore and 1½-3 lbs offshore; over 2 lbs inshore and 4 lbs offshore unusual. HABITS: A year-round resident. A few occur in fresh water, but most in salt and brackish water from the tide-line to depths of 180 ft, rarely to 270 feet, in temperatures of 31° to 77°F. Small fish usually remain inshore and large fish offshore but large winter flounder move into bays from December—mid March. Occur on mud, sand, shell or gravel bottom; especially mud-sand around eel grass. SEASON: Taken all year; best fishing March—May and October—December. FISHING METHODS: Bottom fishing and chumming from shore and boats. BAITS: Shrimp, worms, clams, mussels, squid and cut fish.

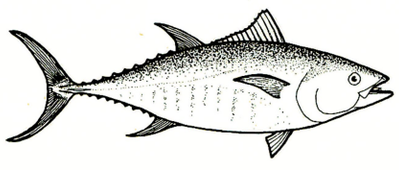
MACKERELS, TUNAS AND BONITOS



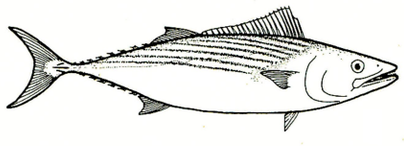
ATLANTIC MACKEREL, *Scomber scombrus.* Fish to 8 inches called spikes; 8-13 inches (1 lb) fish called tinkers; those over 1 lb called mackerel, common mackerel or Boston mackerel. See chub mackerel. SIZE: To 7½ lbs; avg. ½-1¼ lbs; over 3 lbs unusual. HABITS: Pelagic, schooling and migratory. Occur both offshore and inshore; often enter estuaries. Usually occur in water of 44° to 68°F from the surface to depths of 600 ft. SEASON: April—December; best fishing April—May and October—November or early December. FISHING METHODS: Most are taken by anglers between the 40 and 80 ft bottom contours by chumming, jigging or trolling from boats. Also taken by live lining, casting or jigging from shore. BAITS: Sand lance, worms, clams, shrimp, squid and cut fish; also spoons, spinners, weighted bucktails, flies, jigs and tube lures.



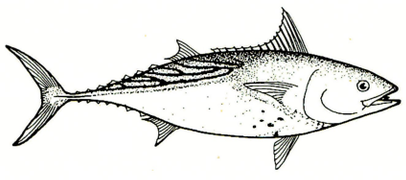
CHUB MACKEREL, *Scomber colias.* Mackerel, thimble-eyed mackerel, hard-head. Distinguished from Atlantic mackerel by having 9-10 dorsal spines, head length going into standard body length 3-3½ times and by the silvery sides below midline being mottled with dusky blotches. In contrast Atlantic mackerel have 11-14, rarely 10, dorsal spines; head length goes into standard body length 3½-4½ times and the sides below mid-line are without dusky blotches. SIZE: To 1½ lbs; avg. ⅓ - ⅔ lb; over 1 lb unusual. Although smaller in size and preferring warmer water, chub mackerel are similar in most respects to Atlantic mackerel. Most fishermen make no distinction between these two fish. HABITS, SEASON, FISHING METHODS and BAITS are the same as for Atlantic mackerel.



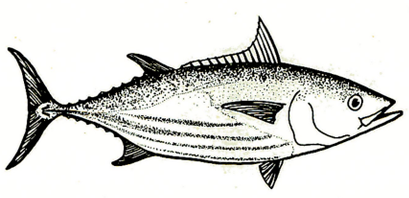
BLUEFIN TUNA, *Thunnus thynnus.* Tuna; common names vary with size. Fish to 15 lbs called Mickey Mouse tuna, those to 100 lbs school tuna and those over 100 lbs giant tuna. SIZE: Largest recorded 1,500 lbs; tackle record 977 lbs; school tuna avg. 10-35 lbs and giant tuna 250-450 lbs; over 700 lbs unusual. HABITS: Pelagic, schooling and migratory. Range from far out at sea to a few miles from shore. When offshore tuna occur from the surface to at least 300 ft. Large fish occur in water warmer than 44°F; small fish in water warmer than 60°F. SEASON: Mid June—November or early December. When trolling best fishing is in July—August and October—November and when chumming from September—mid October. Most are caught in water of 56° to 72°F. FISHING METHODS: Trolling or chumming from boats. BAITS: Large feathers, plugs and spoons; also live or dead mackerel, silver hake, bluefish or flounder and squid or cut fish.



ATLANTIC BONITO, *Sarda sarda.* Bonito, common bonito, Jersey bonito, green bonito. SIZE: To 15 lbs; avg. 1-4 lbs; over 9 lbs unusual. HABITS: Pelagic, schooling and migratory. A rapid swimmer which feeds mainly at or near the surface; they often jump clear of the water when in pursuit of prey. SEASON: Mid June—October; best fishing late July—September. FISHING METHODS: Most are caught at or near the surface 5 to 20 miles offshore in water warmer than 65°F by trolling, chumming, jigging or casting from boats; some by surf-casting from shore during late summer. BAITS: Feathers, spoons, plugs, jigs, stripbait, feather-stripbait or skirt-stripbait combination, and cut fish.

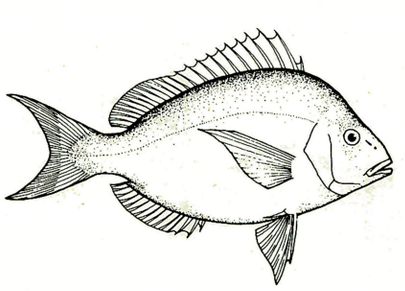


LITTLE TUNA, *Euthynnus alletteratus.* False albacore, miscalled albacore. SIZE: To 26 lbs; avg. 4-8 lbs; over 15 lbs unusual. HABITS: Pelagic, schooling and migratory. A rapid swimmer usually occurring in water warmer than 65°F. Travel in aggregations varying from three or four individuals to schools of many thousands. Schools are often found over uneven or irregular bottom. SEASON: Late July—mid October; best fishing in August and September. FISHING METHODS: Most caught near the surface over depths of 60 to 120 ft by trolling, chumming and casting from boats. Some caught by surf-casting from shore during late summer. BAITS: Feathers, spoons, plugs, jigs, stripbait, feather-stripbait combination or skirt-stripbait combination and whole or cut fish.



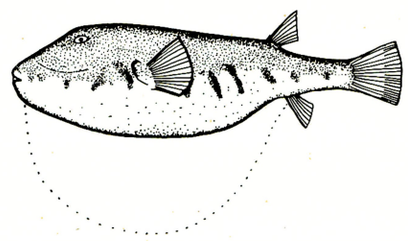
SKIPJACK TUNA, *Katsuwonus pelamis.* Oceanic bonito, arctic bonito, skipjack, striped bonito, watermelon tuna, mush mouth. SIZE: To 45 lbs; tackle record 39 lbs 15 oz; avg. 4-8 lbs; over 15 lbs unusual. HABITS: Pelagic, schooling and migratory. A rapid swimmer usually occurring near the surface in water deeper than 90 ft and warmer than 63°F. SEASON: Early July—September or early October; best fishing late August—mid September. FISHING METHODS: Most are caught by trolling near the surface over depths of 90 to 600 ft in water of 67° to 78°F. Also taken by casting, jigging or chumming from boats. BAITS: Feathers, spoons, jigs, plugs, stripbait, feather-stripbait combination or skirt-stripbait combination, and whole or cut fish.

PORGIES



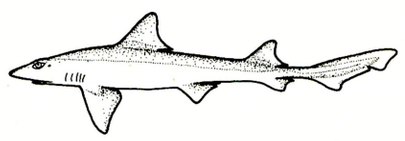
SCUP, *Stenotomus chrysops.* Porgy; small fish called sand porgy, bay porgy or pins; large fish called shad porgy or sea porgy. SIZE: Largest recorded 5 lbs; avg. ¼-¾ lb; over 3 lbs unusual. HABITS: Migratory and gregarious. Occur on sand, gravel or rock bottom and near shoals, shellfish beds, pilings and wrecks. During warm months scup move inshore to shallow water along beaches and in estuaries; during cold months they retreat to deeper water to remain in temperatures warmer than 45°F. Usually near bottom during daylight but move towards mid-depths at night. SEASON: Taken May—October or early November. Best fishing inshore mid May—June; offshore mid September—October. FISHING METHODS: Anglers catch most in depths of 10-90 ft while bottom fishing, live lining and chumming from anchored or drifting boats. Some taken while bottom fishing from shore. BAITS: Clams, mussels, shrimp, worms, squid, cut fish and silversides or killifish; also small spoons, weighted bucktails, jigs or tube lures.

PUFFERS

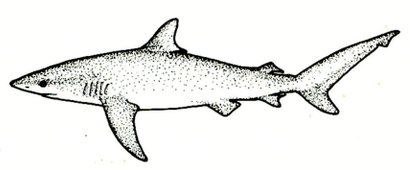


NORTHERN PUFFER, *Sphaeroides maculatus.* Blowfish. SIZE: To 2½ lbs; avg. 1/3-2/3 lb; over 1½ lbs unusual. HABITS: An inshore fish found from the tide-line to 60 ft in salt and brackish water. Aggregate on or a few feet above mud, sand or gravel bottom. Abundance can fluctuate greatly from year to year. As the name implies, puffers have the ability to inflate themselves with water or air as a self defense mechanism. SEASON: Late April or May—October; best fishing May—June. FISHING METHODS: Bottom fishing from anchored or drifting boats and shore. BAITS: Worms, clams, mussels, shrimp, squid, small crabs, silversides, killifish and cut fish.

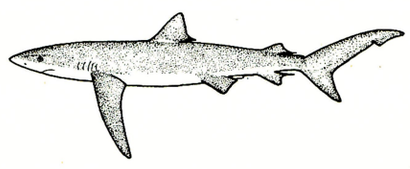
SHARKS



SMOOTH DOGFISH, *Mustelus canis.* Shark, miscalled sand shark. Distinguished from other sharks by the two spineless triangular dorsal fins of nearly the same size; rounded flat snout; fifth gill opening behind origin of pectoral fin and small, low, flat teeth. SIZE: To 20 lbs; avg. 1-4 lbs; over 10 lbs unusual. HABITS: Migratory. Occur from the tide-line to depths of 600 feet or more in water of 43° to 72°F. Usually found on or a few feet above any type of bottom along the open ocean shore or in estuaries; occasionally in fresh water. More active during night than day. SEASON: May—November or early December. Most caught from July—September in depths less than 60 ft. FISHING METHODS: Bottom fishing from shore and bottom fishing or chumming from boats. BAITS: Squid, clams, crabs, worms, and cut fish.

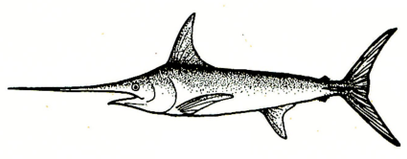


SANDBAR SHARK, *Carcharhinus milberti.* Shark, brown shark, ground shark. Distinguished from other sharks by the large first dorsal fin (vertical height exceeds 10% of shark's total length) originating over the middle of equally large pectoral fin, and by a distinct ridge along the back between dorsal fins. SIZE: To 230 lbs; small ones avg. 30-50 lbs, large ones 120-160 lbs; over 200 lbs unusual. HABITS: Migratory. A bottom dweller common both inshore and offshore. Seen at the surface only when crossing a shoal area or when chummed to the surface. Adult females enter bays in early summer to give birth to their young. Large males remain offshore. A newborn sandbar shark is about 2 ft long and weighs 2½ lbs. SEASON: June—October; best fishing August—September. FISHING METHODS: Most adult sharks are caught by anglers in depths of 60 to 150 ft by bottom fishing or chumming; small sharks in bays by bottom fishing. BAITS: Cut or whole fish, clams, crabs, eels and squid.



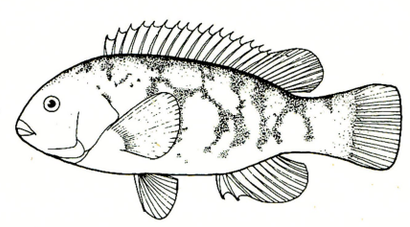
BLUE SHARK, *Prionace glauca.* Shark. Distinguished from other sharks by the long pointed snout, the long sickle-shaped pectoral fin and the first dorsal fin originating well behind the pectoral fin. SIZE: To 500 lbs; tackle record 410 lbs; avg. 100-150 lbs; over 300 lbs unusual. HABITS: Migratory. A pelagic shark ranging far out at sea, although occasionally venturing close enough to shore to be caught from ocean piers. Frequently seen at the surface swimming lazily or basking in the sun, but capable of swimming fast in pursuit of prey. SEASON: June—December; best fishing for small sharks in June; for large ones in September—October. FISHING METHODS: Most are caught by anglers chumming over depths of 120 to 200 ft; some while trolling at the surface. BAITS: Live and whole dead fish, cut fish, eels and squid. Occasionally taken on artificial lures.

SWORDFISH

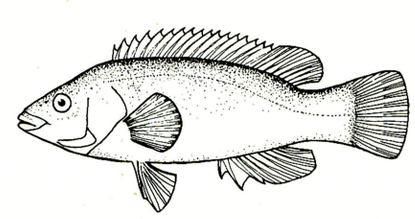


SWORDFISH, *Xiphias gladius.* Broadbill, broadbill swordfish. SIZE: Largest recorded in the Atlantic Ocean, 1,100 lbs; largest taken on tackle in western North Atlantic 602 lbs (World tackle record 1,182 lbs caught in Pacific Ocean off Chile); avg. 200-300 lbs; over 500 lbs unusual. HABITS: Pelagic and migratory. Occur in oceanic and continental-shelf water from the surface to depths of 2,100 ft or more. SEASON: Mid June—September or early October; best fishing late June—late July. Most are caught near the surface in depths of 90 to 250 ft and over offshore canyons when the surface temperature of the water is warmer than 58° to 60°F. The abundance of swordfish near shore has diminished during the past 15 years. FISHING METHODS: Boat anglers usually sight fish at the surface before presenting the bait; some fish caught while blind trolling or chumming. As many swordfish are caught by angling as are harpooned. BAITS: Whole squid, mackerel, silver hake, eel, butterfish and hake.

WRASSES

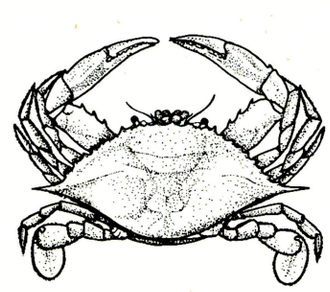


TAUTOG, *Tautoga onitis.* Blackfish, tog, slippery bass. See cunner. SIZE: To 22½ lbs; tackle record 21½ lbs; avg. 1-5 lbs; over 13 lbs unusual. HABITS: A gregarious year-round resident living in salt water but occasionally entering brackish water. Occur on rock, gravel or sand bottom and around shellfish beds, wrecks, jetties, breakwaters and pilings. Active during warm months from the tide-line to depths of 250 ft, especially in water of 46° to 65°F; inactive during cold months in depths less than 90 ft and temperatures less than 46°F. SEASON: All year offshore; late March—mid December inshore. Best fishing April—June and September—November. FISHING METHODS: Bottom fishing from shore or anchored boats. Most abundant fish in the catch of underwater spear fishermen. BAITS: Clams, worms, mussels, shrimp, crabs and sand bugs.



CUNNER, *Tautogolabrus adspersus.* Bergall, bengall, bait stealer. Distinguished from tautog by a pointed snout and a scaled gill cover. Tautog have a blunt snout and a scaleless gill cover. SIZE: To 3½ lbs; avg. ¼-¾ lb; over 2 lbs unusual. HABITS: A gregarious year-round resident. Occur on rocky or other hard bottom and around shellfish beds or wrecks from the tide-line to depths of 350 ft. At times on soft bottom, especially around eel grass. Cunner frequent jetties, breakwaters, pilings and wharves. Feed during daylight. SEASON: Taken all year in depths over 90 ft; from April—November in shallower water. Best fishing mid April—mid May and October—November. FISHING METHODS: Live lining or bottom fishing from shore or boat. BAITS: Clams, mussels, worms, shrimp, squid, and cut fish; also small spoons, spinners, and weighted bucktails.

CRABS



BLUE CRAB, *Callinectes sapidus.* Crab, blue claw crab. Crabs about to shed their shells are called shedders; those immediately after shedding are called soft crabs. Size is usually expressed as the width of the shell across the back measured from spine tip to spine tip. SIZE: To 10 inches; avg. 4½-6 inches; over 8 inches unusual. HABITS: Occur in salt, brackish and a few in fresh water on mud, clay, sand, sand-shell and gravel bottom. Especially abundant in shallow bays and mouths of streams or rivers on muddy sand around eel grass. During warm months crabs frequent shallow water; during cold months they seek deep water and may embed in mud. Active in water warmer than 50°F. Large adult males tend to concentrate in the upper reaches of creeks and rivers; adult females in the bays. SEASON: Mid May or June—early November; best fishing August—October. Check state laws governing size limits and the taking of egg-bearing females. FISHING METHODS: Hand lines or crab traps from shore or boats. BAITS: Fresh whole and cut fish or scrap meat.

Block Island to Shinnecock Bay

LAND CONFIGURATION AND WATER DEPTH

When Long Island was formed by glacial deposits of soil and rocks many thousands of years ago, its outer coastline was very irregular. Then the level of the surrounding sea was lower than it is now, but as the glaciers gradually melted, they released into the sea an enormous volume of water causing its level to rise. As the old shore became inundated and eroded by wave action, currents carried the sediments westward and deposited them along the coast. During the slow course of erosion and deposition which still continues, the original embayments were closed off, becoming brackish and sometimes freshwater ponds. From time to time, however, these have become joined again with the sea as storm-caused waves washed away small sections of the beach to form inlets, which lasted awhile, only to be closed once more by the current-carried sand. Such an opening was cut through the barrier beach to Shinnecock Bay by the 1938 hurricane. This one is likely to remain permanent for man-made rock jetties have been built there to keep it open.

A narrow neck of land separated Shinnecock Bay from Great Peconic Bay for many thousands of years until the early 1890's, when a man-made canal provided a passage between them. Like Long Island Sound, the Peconic Bays are sheltered by the land and therefore are not subjected to heavy wave action that affects the exposed south shore beaches. Nonetheless, the environment of the Peconic Bays and the fishes which inhabit them are more characteristic of south shore beaches than of those in Long Island Sound.

Except for Block Channel, a remnant of an ancient river valley, the sea bottom off the southeast coast of Long Island is a gently sloping sandy plain, descending in 4 miles to 90 feet, in 15 miles to 150 feet, and in 60 miles to 300 feet. It is in striking contrast to the topography of the land, where in 2 miles from the ocean beach the elevation gradually rises to 90 feet, in 3 miles to 150 feet, and in 4 miles to 280 feet, its highest point.

HISTORY

Fishing has always been important to the inhabitants of this area. For many centuries before the arrival of European settlers, Indians dug clams and oysters and fished along these shores. Although the early settlers were primarily farmers, they always caught fish to supplement their diet as well as to market. They also caught menhaden which they spread on their fields as fertilizer.

Starting about 1750 and continuing for over 120 years, whaling flourished here. Sag Harbor became the principal whaling port on Long Island. Near the middle of the 18th century over 60 vessels sailed out of this harbor in search of whales. Indeed, it was the bark *Superior* sailing out of Sag Harbor under the command of Captain Royce that gained fame in 1848 by being the first to pass through the Bering Strait and capturing the right whale of the Arctic Ocean. Nonetheless, with the discovery of petroleum substitutes for whale oil and competition from other ports, whaling declined in Sag Harbor and by 1875 died out.

About the same time that whaling became such a profitable occupation, the inshore and bay fisheries gained in importance. The early fishermen on eastern Long Island were transients, staying only long enough to secure a cargo of fish, then usually returning to their home ports to sell them. In the late 1700's as many as 35 boats seasonally fished out of Montauk, but it was not until 1830 that a resident colony of fishermen was firmly established there.

FISH AND FISHING

The many kinds of fishes inhabiting the water around eastern Long Island make this area extremely popular for angling. Winter flounder, a resident fish important to bay anglers, grows to a larger size in the Peconic Bays-Gardiners Bay complex than in any other Long Island bay. The name "winter flounder" is derived from the adult flounder's habit of moving into shallow water during cold months and back into deeper water during warm ones. Although most of the adults follow this pattern, some of them, as well as many young ones, remain in these bays the year round. It is only when they cease feeding during their peak spawning time, from January to March, that anglers have difficulty catching them.

The habits of tautog or blackfish, another resident species, differ from those of flounder. A fish much smaller than the tautog but in the same family and of similar habits is the cunner or bergall. These fish spend the winter in depths of 90 feet or more, their activity lessening as the water becomes colder. During very cold periods they gather in rocky crevices and wrecks and become dormant. As the water warms during spring, they become active and move towards shore into relatively shallow water where they feed throughout the summer. As the water cools during fall, they move back into deep water and become less active as the winter advances.

During May, as many adult winter flounder are moving offshore, porgies, more properly called scup, are beginning to migrate inshore after spending winter along the edge of the continental shelf. The largest ones usually are the first to arrive, followed in a week or two by smaller ones. Scup remain here throughout the summer and into mid-fall, then migrate back offshore into deep water to spend the winter. Generally the large ones are the last to leave during the fall. Scup now provide the largest catch of game fish in this area.

The Peconic Bays-Gardiners Bay complex is the most important northern population center of weakfish (in sections of the coast outside this area usually called gray sea trout). From the early 1880's to the late 1940's gray sea trout were very abundant in these bays. During the 1930's anglers caught more of them than any other species. Nevertheless, beginning in the late 1940's, their numbers decreased greatly, reaching a low in the mid-1960's. In the late 60's and early 70's, however, there was enough evidence of a recovery to offer hope that this excellent game fish is returning to its former abundance.

Black sea bass and northern fluke, like scup, migrate here from their wintering grounds along the outer edge of the continental shelf between New Jersey and North Carolina. Unfortunately, the abundance of both has declined almost as severely as that of the gray sea trout. During the 1930's sea bass was the principal catch of anglers out of Montauk; but starting in the mid-1950's the catch of sea bass fell to half its former level, and since then it has continued to decline. During the 1960's the catch of fluke, likewise, followed a similar trend.

Bluefish, ranging in size from young stages to adults over 3 feet, migrate here each year. The eastern end of Long Island seems to be one of the few areas along the east coast where exceptionally large bluefish occur within casting distance of shore. Striped bass, more coastal in habit than bluefish, are also abundant around the eastern end of Long Island, especially Montauk Point. They spawn in rivers from the Hudson to the Roanoke in North Carolina whence many migrate during early summer. Although some overwinter in Long Island estuaries, most return in the fall to their home streams or along nearby ocean beaches.

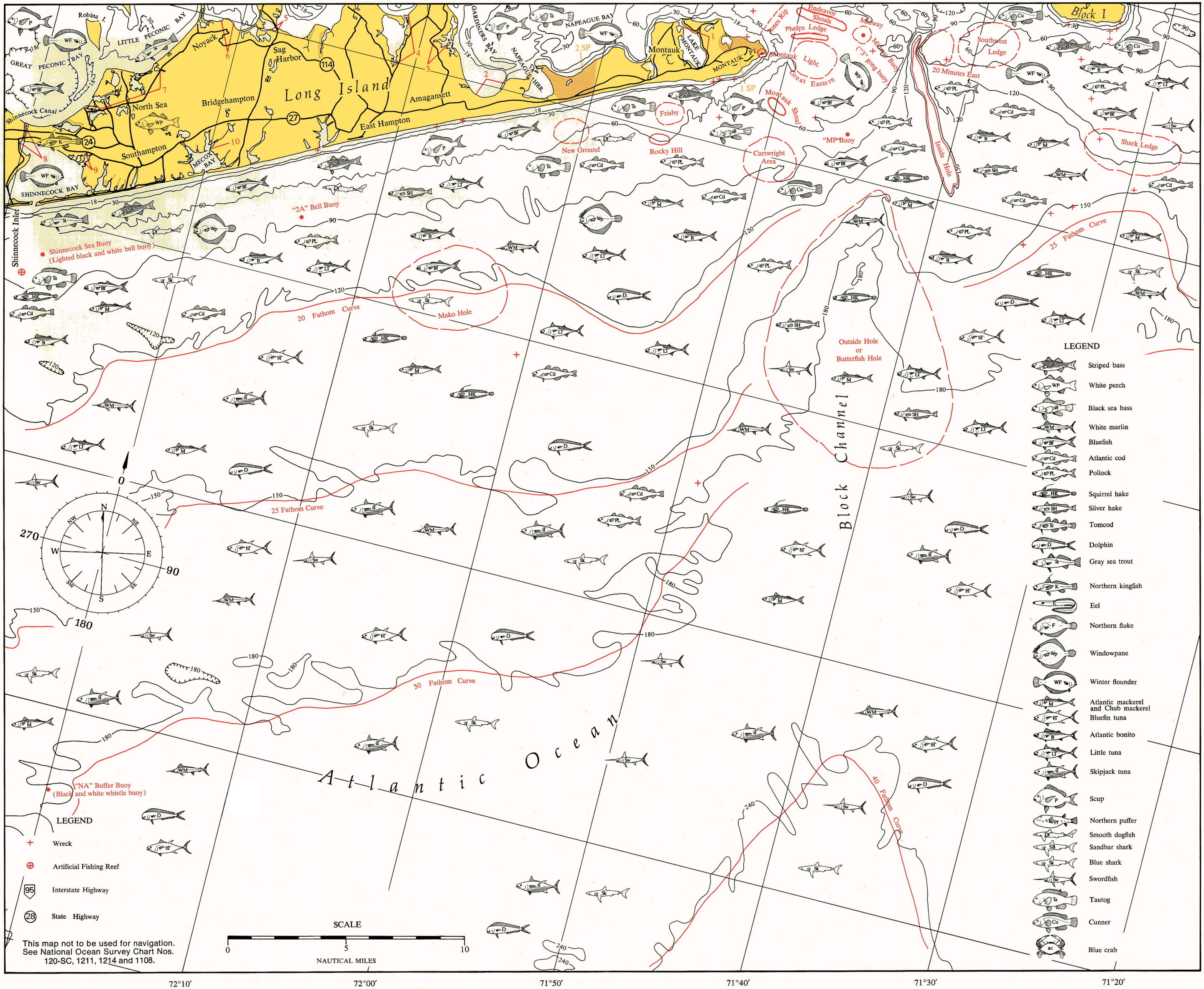
Even though cod and pollock live year round in the cold bottom water offshore, many come inshore to spend the winter. Arriving during fall they move into shallow water, some right to the beaches, though they retreat into greater depths when the water temperature drops to near freezing. Cod are the first to leave the inshore areas as the water warms, usually in March and April. Pollock remain until about June, when they move offshore back into deeper and cooler water. The eastern end of Long Island is the southernmost point on our Atlantic coast where large numbers of adult pollock occur inshore each year.

The occurrence of large pelagic fishes, such as blue and mako sharks, white marlin, bluefin tuna, and swordfish, make this an excellent area for big game fishing. Although these fishes come close to shore in the warm surface water brought here during periods of prevailing southeast winds, many concentrate between the 300- and 600-foot bottom contours, especially when prevailing northeast winds keep the warm surface water away from land.

Since 1926 when the first swordfish was caught on rod and reel in the Atlantic off this area, it has been the anglers' greatest prize. It was not unusual 25 or 30 years ago to sight 10 or more swordfish a day only 2 to 4 miles from shore. Then, swordfishermen rarely needed to go more than 10 miles offshore to catch one. As fishing pressure increased, fishermen saw progressively fewer swordfish near shore and had to travel greater distances to see any. A decade ago anglers traveled about 12 miles to the fishing grounds; today they often must go 50 or even 100 miles. In the western Atlantic, the method of angling for swordfish is unique. A boat cruises the fishing grounds with all hands searching the water surface for signs of finning swordfish. When one is spotted, the boat slows down almost to an idle and the bait is put overboard. Then, in order to entice the fish to bite, the bait is placed within 30 feet of its mouth by cautiously maneuvering the boat. Because swordfish are so difficult to hook and bring to gaff, very few seen swimming in the ocean are ever caught by anglers.

No.	Location	RECREATIONAL AREAS: Town-City-County: Park	State: Park – Wildl. Area – Forest	National: Park – Wildl. Area – Forest	National Seashore	ACTIVITIES: Use: Day – Wknd – Vacation	Fishing	Boating	Picnicking	Camping
1SP	Montauk			SP			DW	F	B	P	
2SP	Hither Hills			SP			DWV	F		P	C

No.	Location	BOAT RENTAL: Boating Facilities Per Location	Rowboat – Outboard	Charter Boat	Party Boat	Runabout – Skiff	LAUNCH'G: Ramp: Surfaced – Natural	Hoist: Fixed – Portable	Marine Railway	DEPTH: Tidal Range – (Ft.)	Approach – (Ft.)	Alongside – (Ft.)	SUPPLIES: Bait – Tackle	Fuel: Gasoline – Diesel	Water – Ice – Grocery	SERVICES: Moorings – Berths – Elec.	Repair: Motor – Hull	Food – Lodging	Toilet – Shower
1	Montauk	21	RO	C	P	RS	SN	P	R	1.9			BT	GD	IG	BE	MH	FL	TS
2	Gardiners Bay	2	R							2.3			BT	G				FL	T
3	Acabonack Harbor	2					S												
4	East Hampton	11	RO			S	SN	FP	R	2.4			BT	GD	WIG	MBE	MH	FL	TS
5	Sag Harbor	7	RO	C			SN		R	2.5			BT	G	IG	BE	MH	FL	TS
6	Noyack	3	RO				S	F	R	2.3			BT	G	IG	MBE	MH	L	T
7	Southampton	4	RO				N		R				BT	GD	IG	MBE	MH	FL	T
8	Shinnecock Canal	11	RO	C	P	S	SN	FP		2.0	2	2	BT	GD	WIG	BE	MH	FL	TS
9	Southampton	3	RO	C	P		SN	F	R	0.5	4	4	BT	G	WIG	MBE	MH	FL	
10	Mecox Bay	1																	


72°30′
72°20′
72°10′
72°00′
71°50′
71°40′
71°30′
41°10′
41°00′
40°50′
40°40′
40°30′
40°20′
Robins I.
LITTLE PECONIC BAY
GREAT PECONIC BAY
Noyack
Sag Harbor
Long Island
Amagansett
East Hampton
Montauk
LAKE MONTAUK
MONTAUK PT.
NAPEAGUE BAY
GARDINERS BAY
NAPEAGUE HBR.
North Sea
Bridgehampton
Southampton
Shinnecock Canal
MECOX BAY
SHINNECOCK BAY
Shinnecock Inlet
Block I
Jones Rip
Endeavor Shoals
Phelps Ledge
Montauk Light
Great Eastern
Montauk Shoal
Frisby
New Ground
Rocky Hill
Cartwright Area
"MP" Buoy
Midway
Midway Buoy
("3" gong buoy)
Southwest Ledge
20 Minutes East
Inside Hole
Shark Ledge
25 Fathom Curve
"2A" Bell Buoy
Shinnecock Sea Buoy
(Lighted black and white bell buoy)
Mako Hole
20 Fathom Curve
Outside Hole
or
Butterfish Hole
Block Canyon
30 Fathom Curve
40 Fathom Curve
Atlantic Ocean
"NA" Buffer Buoy
(Black and white whistle buoy)
1 SP
2 SP
N
NE
E
SE
S
SW
W
NW
0
90
180
270
LEGEND
Striped bass
White perch
Black sea bass
White marlin
Bluefish
Atlantic cod
Pollock
Squirrel hake
Silver hake
Tomcod
Dolphin
Gray sea trout
Northern kingfish
Eel
Northern fluke
Windowpane
Winter flounder
Atlantic mackerel and Chub mackerel
Bluefin tuna
Atlantic bonito
Little tuna
Skipjack tuna
Scup
Northern puffer
Smooth dogfish
Sandbar shark
Blue shark
Swordfish
Tautog
Cunner
Blue crab
LEGEND
Wreck
Artificial Fishing Reef
95 Interstate Highway
28 State Highway
SCALE
0
5
10
NAUTICAL MILES
This map not to be used for navigation.
See National Ocean Survey Chart Nos.
120-SC, 1211, 1214 and 1108.

Shinnecock Bay to South Oyster Bay

LAND CONFIGURATION AND WATER DEPTH

Along this stretch of coast, a series of shallow saltwater and brackish water bays varying in widths from a few hundred feet in some places to 5 miles in others lies behind the nearly straight ocean beaches. Quite unlike the deep open bays of New England, these are shallow lagoons, separated from the open sea by long sand bars, called barrier beaches, which nearly parallel the main shore. Connecting these bays with the sea is one large opening, Fire Island Inlet, and two smaller ones, Moriches and Shinnecock Inlets.

Inlets are cut through the barrier beaches on the south shore of Long Island from time to time by storm-caused waves. These inlets last awhile, and then become closed by accumulating sand. New openings are generally formed westward of the site of the old one. Because inlets are important for the passage of water as well as for boats, people work to keep them open by dredging them continually and by building jetties. Once marine and estuarine organisms, such as saltwater fishes, clams, and oysters, become established in these bays, their dependence upon the interchange of sea water with bay water continues throughout their lives. When inlets close, these organisms become entrapped and either die when the water gets cold or when it becomes fresh due to the influx from streams emptying into the bays. An example of this occurred in Shinnecock Bay during the 1800's. For many years this bay had an inlet, but in October of 1880 current-carried sand closed it. As a result bluefish, weakfish, porgies, and menhaden were among the many thousands of fishes trapped inside which died from the cold water as winter approached. In the following years the water became progressively brackish so that it would not support a marketable crop of oysters or clams. Indeed, it was the desire to restore the fish and shellfish of this bay that prompted the digging of the Shinnecock Canal to Great Peconic Bay in the early 1890's.

Great South Bay, the largest on Long Island, lies behind the 25-mile long barrier beach called Great South Beach or Fire Island. It is traditional in this area to speak of the ocean side of the bay as "the beach" and of the land side as "the shore." Unlike the nearly straight beach, the shore is scalloped with sandy beaches and saltmarsh sod banks. Lobelike land formations, called necks, project into the bay and terminate in points. The most notable of these is Blue Point where formerly great quantities of the famous "Blue Point" oysters were dredged and tonged. These necks are interspersed by coves, harbors, and small bays into which flow many creeks and small rivers.

Offshore of Great South Beach the gently sloping sandy sea bottom descends in 5 miles to 90 feet, in 20 miles to 150 feet, and in 65 miles to 300 feet. Between 80 and 100 miles from shore lies the 600-foot bottom contour marking the edge of the continental shelf.

FISH AND FISHING

Of the many kinds of fishes inhabiting Great South Bay each year, winter flounder and fluke are among the most important to anglers. During some seasons within the last 15 years, these two fish made up as much as 90 percent of the anglers' catch. Even though many winter flounder are year-round residents and as such must withstand the cold of winter and heat of summer, their abundance seems to have remained about the same for at least the last 35 years. Each year about a quarter million anglers catch nearly one and a half million winter flounder in this bay. Until 1959 they also caught about the same number of fluke, a summer visiting flatfish averaging three times as heavy as winter flounder. Since then, however, the catch of fluke has been declining—in 1960 to about a million fish, in 1965 to a quarter million, and in 1968 to less than 40,000.

When fluke were abundant, between half and three-quarters of the catch consisted of young fish, those weighing 1 pound or less. As they have become scarce, the proportion of young in the catch has declined to less than a twentieth. Thus, it seems that fishing success depends on the influx of small fish. Unfortunately, we do not know enough about the fluke's life history to determine what factors cause the diminution of these small ones. We know that fluke spawn from late September through December during their migration offshore to their winter grounds along the edge of the continental shelf. While adults live on or near the bottom, their eggs and larvae drift near the surface. Currents apparently carry them southward and shoreward towards their nursery areas in estuaries. At about three-quarters of an inch, usually by the time the young ones reach the estuaries, their right eye has migrated to the left side of their head, and they have assumed the shape and bottom-dwelling habits of adults. In the past, young-of-the-year fluke have been found living in our estuaries along the Atlantic coast as far north as Massachusetts. Now, for reasons yet to be discovered, very few of them are found north of Virginia. It seems that the fluke caught along Long Island's shore are ones which have spent the first year or so of their lives south of here, perhaps as far away as North Carolina. As they grow, some of them move progressively northward and eastward along our coast. Some seem to go only as far as New Jersey and New York, returning there from their offshore wintering grounds during subsequent summers; others move farther north and east to the shores of Connecticut, Rhode Island, and southern Massachusetts.

Concentrations of larvae in two widely separated areas, offshore of New Jersey and offshore of Oregon Inlet, North Carolina, suggest both a northern and southern spawning group of fluke. The gradual movement of some fluke northward seems now to be the principal source of New York's fluke. Nonetheless, during the years when fluke have been abundant, the progeny from the northern group must have contributed substantially to the fishery. Although the reason for their serious decline is unknown, one fact stands out—estuaries which once harbored and sustained small fluke no longer do so! Whether estuaries from Virginia to Massachusetts now lack nutrients needed by young fluke or contain pollutants detrimental to their survival remains to be discovered.

		BOAT RENTAL				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	Shinnecock Inlet	3	RO	C				S		R	2.9	18	10	BT	GD	WIG	BE	MH	F	TS		
2	Ponquogue	3	RO					S		R	0.9	2	2	BT	G	WIG	BE	MH	L	T		
3	Springville	5	RO	C			R	SN	P	R	0.5	2	3	BT	G	WI	BE	MH	FL	TS		
4	East Quogue	2						N	FP	R	0.5	4	5	B	G	WI	BE	MH	L	TS		
5	Quogue	2									0.5	11	11		G	W		M		T		
6	Westhampton	3						S		R	0.5	2	2	B	G	WIG	BE	MH	FL	TS		
7	Eastport-Remsenburg	3						SR	P		0.7	3	3	BT	G	W	B	MH				
8	Westhampton Beach	1													G	I	B		F	TS		
9	East Moriches	13	RO				S	S	FP	R	0.7	2	3	BT	G	WIG	BE	MH	F	T		
10	Moriches Inlet	1															B			TS		
11	Center Moriches	5	RO					SN	P	R	0.7	3	3	BT	G	WI	BE	MH	FL	TS		
12	Mastic Beach	6	RO	C			S	SN			0.5	3	4	BT	G	WI	BE		F	T		
13	Brookhaven	3						SN	F	R	0.8	2	3		G	W	BE	MH		T		
14	East Patchogue	5	RO					SN	FP	R	0.8	4	4	BT	GD	WI	BE	MH		TS		
15	Patchogue	13	RO	C				S	FP	R	0.7	3	3	BT	GD	WIG	BE	MH	FL	TS		
16	Blue Point- Bayport	5						S	P	R	0.7	5	5		G	WI	BE	MH	F	T		
17	Sayville	12	R					S	FP	R	0.6	2	2	BT	G	WI	BE	MH	FL	TS		
18	Oakdale	6	R						FP		0.7	5	4	BT	G	WIG	BE	MH	F	TS		
19	Islip	8						S	P	R	0.6	6	4	BT	G	WIG	BE	MH	FL	T		
20	Bay Shore	15		C				S	FP	R	0.6	6	3	BT	GD	WIG	BE	MH	FL	TS		
21	Davis Park	2														IG	BE		FL	TS		
22	Lone Hill-Cherry Gv.	2									0.6					WIG	BE		FL	TS		
23	Point O'Woods	4									0.6			B	G	W G	B		FL	TS		
24	Saltaire	2												BT	G	IG	B		FL	T		
25	Fire Island Inlet	1									2.6	12	6	BT		WI	B		F	T		
26	Captree Island	4		C	P					R	0.6	10	6	BT	GD	WI	BE	MH	F	T		
27	Gilgo-Cedar Is. Bch.	3																				
28	Babylon	11	RO	C	P		S	SN	FP	R	0.6	5	5	BT	G	WIG	BE	MH	FL	T		
29	West Babylon	5	RO	C				S	FP	R	0.8	5	5	BT	G	WIG	BE	MH	FL	TS		
30	Lindenhurst	14	RO	C	P		S	S	FP	R	1.1	4	3	BT	GD	WIG	MBE	MH	FL	TS		
31	Copiague	5	RO				S	R	FP	R	1.1	6	4	B	G	WIG	BE	MH	FL	TS		
32	Amityville	12	RO	C				S	FP	R	1.2	3	5	BT	GD	WIG	BE	MH	FL	TS		
33	Nassau Shores	2						S	F	R	1.2	4	4		G	W	BE	MH				

		RECREATIONAL AREAS				ACTIVITIES					
		Town-City-County: Park	State: Park – Wildl. Area – Forest	National: Park – Wildl. Area – Forest	National Seashore	Use: Day – Wknd – Vacation	Fishing	Boating	Picnicking	Camping	
No.	Location										
10NS	Fire Island				NS	DW	F	B	P		
13NW	Wertheim			NW		DW			P		
18SP	Southside Preserve (undev.)		SP				F				
19SP	Heckscher		SP			DW	F	B	P		
25SP	Robert Moses		SP			DW	F	B	P		
26SP	Captree		SP			DW	F	B	P		
27SP	Gilgo (undeveloped)		SP			DW	F		P		
29SP	Belmont Lake		SP			DW	F	B	P		
33SP	Massapequa		SP			DW			P		
34SP	Jones Beach		SP			DW	F	B	P		

73°30′ 73°20′ 73°10′ 73°00′ 72°50′ 72°40′ 72°30′

40°40′ 40°30′ 40°20′ 40°10′

SCALE
0 5 10
NAUTICAL MILES

Long Island

Atlantic Ocean

Wantagh
Massapequa
Amityville
Bay Shore
Islip
Patchogue
Bellport
Mastic
Eastport
Quogue
Hampton Bays
GREAT PECONIC BAY
Shinnecock Canal
PINE NECK PT.
SHINNECOCK BAY
Shinnecock Inlet
TIANA BEACH
WESTHAMPTON BEACH
MORICHES BAY
Moriches Inlet
NARROW BAY
BELLPORT BAY
PATCHOGUE BAY
BLUE PT.
NICOLL BAY
CONKLIN PT.
CONNETQUOT RIVER
CARMANS RIVER
FORGE RIVER
SOUTH OYSTER BAY
Cedar Island
Captree Island
Fire Islands
Sexton I.
Fire Island
GREAT SOUTH BAY
GREAT SOUTH BEACH
TOBAY BEACH
Fire Island Inlet
27A
24

Shinnecock Sea Buoy
(Lighted black and white bell)

Moriches Sea Buoy (Red "2B")

Fire Island Sea Buoy (Red "4FI")

Fishing pier

Southeast Ground

East of Cholera

"NB" Buffer Buoy
● (Black and white whistle)

20 Fathom Curve

25 Fathom Curve

30 Fathom Curve

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

LEGEND

+ Wreck

⊕ Artificial Fishing Reef

95 Interstate Highway

28 State Highway

LEGEND

Striped bass
White perch
Black sea bass
White marlin
Bluefish
Atlantic cod
Pollock
Squirrel hake
Silver hake
Tomcod
Dolphin
Gray sea trout
Northern kingfish
Eel
Northern fluke
Windowpane
Winter flounder
Atlantic mackerel and Chub mackerel
Bluefin tuna
Atlantic bonito
Little tuna
Skipjack tuna
Scup
Northern puffer
Smooth dogfish
Sandbar shark
Blue shark
Swordfish
Tautog
Cunner
Blue crab

This map not to be used for navigation.
See National Ocean Survey Chart Nos.
120-SC, 1214, 1215 and 1108.

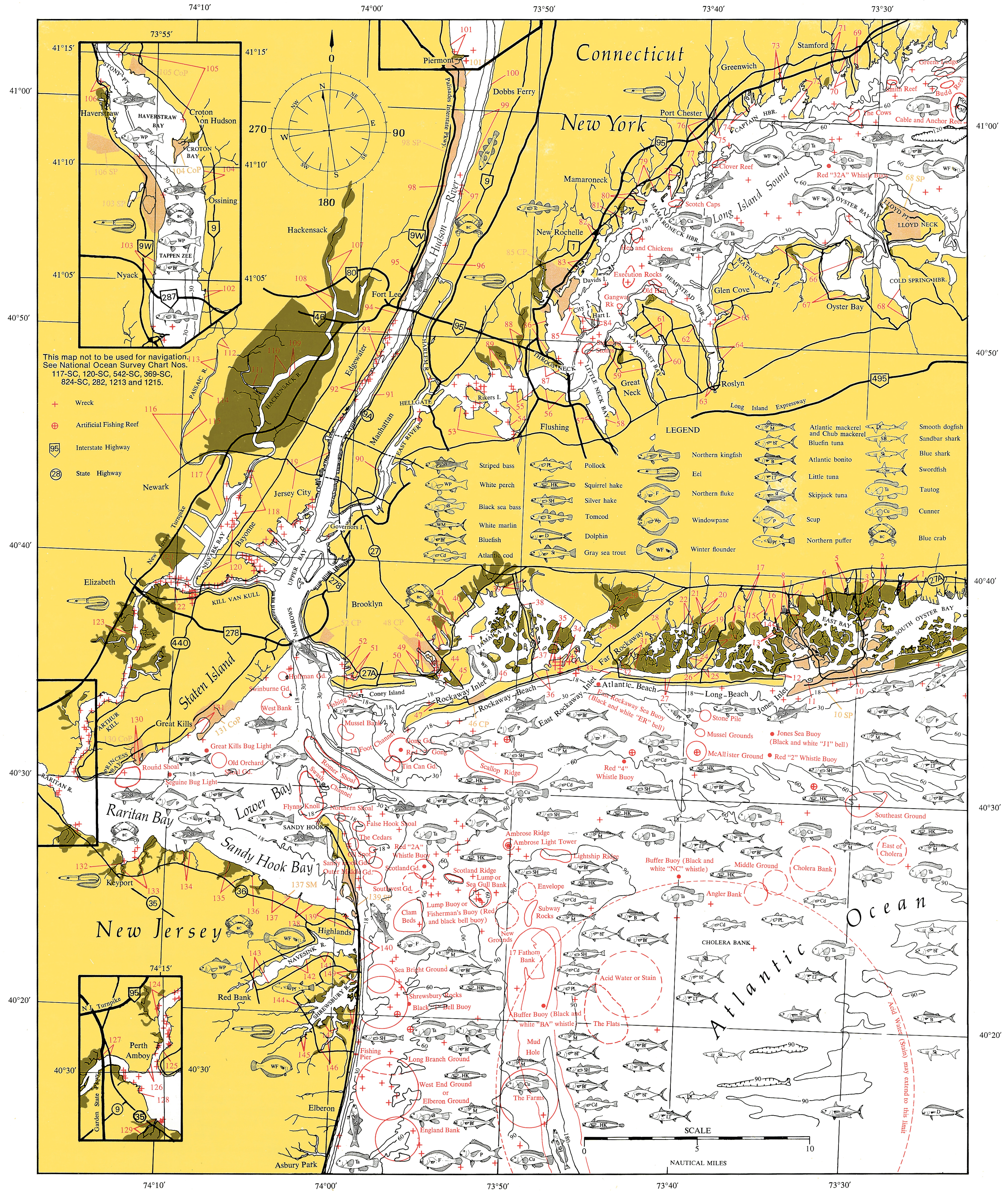
Lloyd Neck to Elberon

No.	Location	Boating Facilities Per Location	BOAT RENTAL: Rowboat - Outboard	BOAT RENTAL: Charter Boat	BOAT RENTAL: Party Boat	LAUNCH'G: Runabout - Skiff	LAUNCH'G: Ramp: Surfaced - Natural	LAUNCH'G: Hoist: Fixed - Portable	DEPTH: Marine Railway	DEPTH: Tidal Range - (Ft.)	DEPTH: Approach - (Ft.)	DEPTH: 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	Massapequa	5						SN	P		1.4	8	3	BT	G	WI	BE	MH	F	T
2	Seaford	6	RO				R	SN	FP	R	1.4	8	4	BT	GD	WIG	BE	MH	F	TS
3	Wantagh	8	RO	C			S	SN	FP	R	1.4	3	2	BT	G	WIG	BE	MH	F	T
4	Island Creek	11	RO	C				S	FP	R	1.4	4	2	BT	GD	WIG	BE	MH	F	TS
5	Bellmore	5						S	FP	R	2.0	5	4	T	GD	WIG	BE	MH	F	T
6	Merrick	12	RO						FP	R	2.0	3	3	BT	G	WIG	BE	MH	F	TS
7	Freeport Creek	9						SN	FP	R	3.1	5	1	BT	G	WIG	BE	MH	FL	TS
8	Hudson Channel	8						S	FP	R	3.0	3	3		G	WI	BE	MH	F	TS
9	Hudson Channel	9	RO				S	S	P	R	3.0	6	2	BT	G	WIG	BE	MH	FL	TS
10	Sloop Channel	1	R								2.4	5	16	BT	G	WI	B		F	T
11	Short Beach	1													G		B		F	T
12	Point Lookout	5	RO	C	P	S		S	FP	R	3.6	8	7	BT	GD	WIG	BE	MH	F	TS
13	Freeport	3	RO					N	FP		3.0	10	10	BT	GD	WIG	BE	MH	FL	T
14	Woodcleft Canal	22	RO	C	P	RS		N	FP	R	3.0	9	5	BT	GD	WIG	BE	MH	FL	T
15	Baldwin	7			P			S	FP	R	3.0	4	4	BT	G	WIG	BE	MH	F	TS
16	Freeport	4	RO						FP	R	3.0	6	3	BT	G	WIG	BE	MH	FL	T
17	Parsonage Cove	3	RO					S	P	R	3.0	5	4	BT	G	WIG	BE	MH	F	T
18	Oceanside	2							P	R	3.0	3	3		G	WI	BE	MH		TS
19	Reed Channel	8	RO					S	FP	R	3.7	3	1	BT	G	WI	BE	MH	F	T
20	Oceanside	4						N	FP	R	3.7	6	3		G	WI	BE	MH	F	TS
21	East Rockaway	9	RO	C				SN	FP	R	3.7	5	3	BT	G	WIG	BE	MH	FL	TS
22	Hewlett Bay	2																		
23	Barnums Channel	6	RO	C	P			S	FP	R	3.7	15	10	BT	G	WIG	BE	MH	FL	TS
24	Hog Island Channel	5	RO		P	S			FP	R	3.9	12	7	BT	G	WIG	BE	MH	F	T
25	Island Park	7	RO		P	S		SN	FP	R	3.9	12	6	BT	GD	WIG	BE	MH	FL	TS
26	Long Beach	1	RO					S	F	R	3.9	10	10	BT		WIG	BE	MH	FL	T
27	Long Beach	2	RO					S	P		3.9	18	6	BT	G	WIG	BE	MH	FL	T
28	Hewlett Neck	1																		
29	Head of Bay	4	RO					S	P		5.4	2	2	BT	G	W	MBE	MH	F	T
30	Inwood	1	RO					S	P		5.4	3	3	BT	G	W G	BE	M	F	
31	Lawrence	2																		
32	Far Rockaway	2	RO				S		FP		4.1	3	2	BT		W	BE	MH	F	T
33	Atlantic Beach	1	RO	C	P	S			F		4.1	30	20	BT	GD	WIG	BE	MH	F	T
34	Sommerville Basin	1						S	F	R	5.4	35	20		G	WIG	BE	MH	L	T
35	Vernam Basin	3	R					S	FP	R	5.3	17	1	BT	GD	WIG	BE	MH	F	T
36	Hammel	4	RO					S	FP	R	5.3	7	3	BT	G	WIG	BE	MH	FL	T
37	Broad Channel	10	RO	C					FP	R	5.2	4	3	BT		W G	M E	MH	FL	T
38	Pumpkin Patch Channel	1	R							R	5.2	25	5	BT		WI			F	T
39	Howard Beach	16	RO	C				S	FP	R	5.2	13	5	BT	G	WIG	BE	MH	F	T
40	Canarsie	1	RO	C	P						5.2	30	20	BT		WIG	M		F	T
41	Paerdegat Basin	4							FP		5.2	14	14	BT	G	W G	BE	MH	F	T
42	East Mill Basin	4	R					S	F	R	5.2	16	18	BT	G	WIG	BE	MH	F	TS
43	Mill Basin	7	RO					S	FP	R	5.2	11	10	BT	G	WIG	BE	MH	F	TS
44	Dead Horse Bay	1	R											BT			M			
45	Rockaway Inlet	1									5.0				GD					
46	Belle Harbor	1									5.1									
47	Rockaway Point	1																		
48	Gerritsen	4		C	P						4.9	16	20	BT	GD	W G	B		FL	T
49	Plumb Beach Channel	10		C	P			S	FP	R	4.9	16	5	BT	GD	WIG	BE	MH	FL	TS
50	Sheepshead Bay	12	RO	C	P			S	FP	R	4.9	5	6	BT	GD	WIG	BE	MH	F	T
51	Coney Island Creek	2							FP		4.7	7	2	BT	GD	WIG	BE	MH	FL	TS
52	Gravesend Bay	3						S	FP		4.7	3	3	BT	GD	WIG	BE	MH	FL	TS
53	Long Island City	2							P						G	I	MBE		F	TS
54	College Point	11							FP	R					G	IG	MBE	MH	F	TS
55	College Point	3							P						G	I	MBE	MH		TS
56	Whitestone	5	RO					S	FP		7.1	15	4	BT	G	WI	MBE	MH	F	T
57	Bayside	2	RO					S						BT	G	I	M		F	T
58	Douglaston	4							FP		7.1	0	0			W	E	MH		T
59	Great Neck	5																		
60	Port Washington	12	RO	C				S	FP	R	7.3	0	0	BT	GD	WI	MBE	MH	F	TS
61	Manorhaven	12	RO	C				S	FP	R	7.3	4	4		GD	WIG	MBE	MH	F	TS
62	Port Washington	1	RO											BT			M			
63	Roslyn	2	RO					S	FP	R	7.3			BT	G	W G	BE	MH	F	TS
64	Glenwood Landing	2							F	R	7.3	0	0			W	E	MH		
65	Glen Cove	9		C				S	FP	R	7.3	6	6	BT	GD	WIG	BE	MH	FL	TS
66	Oak Neck	6	RO				S	S	FP	R	7.4	0	0	BT	G	WI	M E	MH	F	T
67	Oyster Bay	3	R					S		R	7.3	6	0	B	GD	W	BE	MH		T
68	Cold Spring Harbor	5	RO								7.4	10	5	BT	G	WIG	M E	MH	FL	T
69	Westcott Cove	3							FP	R	7.2	8	8		GD	W	BE	MH		T
70	Stamford E. Branch	6		C					FP	R	7.2	7	6		GD	WIG	BE	MH	F	TS
71	Stamford W. Branch	4	RO					S	F	R	7.2	15	12	B	G	I	BE	MH	F	TS
72	Old Greenwich	2							F		7.2	0	0					MH		
73	Cos Cob	9	RO	C				SN	FP	R	7.2			BT	GD	WIG	BE	MH	FL	TS
74	Greenwich	5						S			7.4	10	10	B	GD	WI	MB	M	F	T
75	Byram	5	RO					SN	FP	R	7.2	4	1	BT	G	WI	MBE	MH		TS
76	Port Chester	5	RO					S	F	R	7.2	6	5	BT	G	WI	MBE	MH	F	TS
77	Playland	1	RO						P		7.2	1	1	BT	G		E	MH	F	T
78	Milton Harbor	5							FP	R	7.2	2	6		G	W	BE	MH		T
79	Mamaroneck Harbor	7		C				S	FP	R	7.3	5	5		GD	WI	MBE	MH		TS
80	Mamaroneck Harbor	5		C				N	FP	R	7.3	5	4		GD	WI	MBE	MH		TS
81	Larchmont	1																		
82	New Rochelle	5	RO	C				S	FP	R	7.3	3	3	BT	G	WI	MBE	MH	F	TS
83	New Rochelle Harbor	10	R					S	FP	R	7.2	5	1	BT	GD	WI	MBE	MH	F	TS
84	City Island	7	RO	C	P			S	FP	R	7.2	12	7		GD	WIG	MBE	MH	F	TS
85	City Island	16	RO		P	S		S	FP	R	7.2	8	4	BT	G	WIG	MBE	MH	FL	TS
86	Eastchester Bay	7	RO					SN	FP	R	7.2	4	1		G	WI	MBE	MH	F	T
87	Throgs Neck	4	R	C					FP	R	7.0	8	4	BT	G	WI	MBE	MH	F	TS
88	Westchester Creek	2		C	P			N	FP	R	7.0	10	7		G	WI	BE	MH		TS
89	Bronx River	3			P				FP	R					G		MBE	MH	F	TS
90	East River	1		C	P						4.2	20	11		GD	WI	BE			T
91	Hudson Harbor	1		C											GD	I	MBE		F	T
92	Guttenberg	6													G		M			
93	Edgewater	4							FP						GD	I	MBE	MH	F	TS
94	Palisades	1						S			3.9									
95	Englewood	1													G	I	MB			T
96	Riverdale	1																		
97	Yonkers	6							F		3.7				GD	I	MBE	MH	F	TS
98	Alpine	1													G	I	MB			T
99	Hastings on-Hudson	3							P	R	3.4				G	I	MB	MH	F	TS
100	Dobbs Ferry	1						S			3.4				G	I	M			T

No.	Location	Boating Facilities Per Location	BOAT RENTAL: Rowboat - Outboard	BOAT RENTAL: Charter Boat	BOAT RENTAL: Party Boat	LAUNCH'G: Runabout - Skiff	LAUNCH'G: Ramp: Surfaced - Natural	LAUNCH'G: Hoist: Fixed - Portable	DEPTH: Marine Railway	DEPTH: Tidal Range - (Ft.)	DEPTH: Approach - (Ft.)	DEPTH: 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
101	Piermont	3						S	P					BT	G	IG	MBE	MH	FL	T
102	Tarrytown	2							P		3.2				GD	I	BE	M	F	TS
103	Nyack	4							FP	R	3.2				GD	IG	BE	MH	FL	TS
104	Ossining	3							P		3.1				GD	I	MBE	MH		T
105	Verplanck-Croton	4						S	P	R					G	IG	BE	MH	FL	TS
106	Stony Point	6						SN	P		2.9				G	IG	MBE	MH	FL	TS
107	Hackensack	2							FP		5.3				G		MB	MH		T
108	Little Ferry	2							P		5.3				GD		BE	MH	F	T
109	Secaucus	3						S	P		5.1				G		MB	MH	F	T
110	Carlstadt	7	R					S	P	R					GD	I	MBE	MH	F	T
111	Berry Creek Canal	1						N											F	T
112	Wallington	2						S	F	R				B	G	I	MB			T
113	Rutherford	3						S		R					G		MB	MH		T
114	North Arlington	1																M		T
115	Kearny	4						S	P	R	5.1	10	3		G	IG	MBE		F	
116	Newark	3			P			N	P	R	5.1	10	10			W	BE	MH		
117	Newark	4						SN	FP	R	5.1	13	4	BT	G	WIG	MBE	MH	F	T
118	Jersey City	3						S	P		5.0	6	6		G	WI	BE	MH	F	TS
119	Hoboken-Jersey City	7	RO	C	P			SN	FP	R	4.5	12		BT	G	WIG	BE	MH	F	T
120	Bayonne	4	RO		P				F		4.9	6	6	BT	GD	WIG	MBE	MH	FL	T
121	Elizabethport	1			P						4.9									
122	Mariner's Harbor	2							P						GD	I	BE	MH	F	TS
123	Carteret	2	R	C					F	R	5.1	35	8		G		BE	M		
124	Sewaren	9	R					SN	P	R	5.3	4	3	BT	GD	WIG	MBE	MH	FL	TS
125	Tottenville	1									5.3									
126	Perth Amboy	4		C	P			S			5.2	30	15	BT	GD	WIG	BE		FL	TS
127	Keasbey	2							F	R							B	MH		T
128	South Amboy	1						S			5.0	2	2		G	W G			F	T
129	Morgan	9	RO					SN	FP	R	5.0	4	3	BT	GD	WI	MBE	MH	FL	TS
130	Princess Bay	4	RO					S	F	R	4.9	4	4	BT	G	WIG	BE	MH	F	T
131	Great Kills Harbor	13	RO	C	P			S	FP	R	4.7	6	3	BT	GD	WIG	MBE	MH	FL	TS
132	Cliffwood Beach	1						S	FP	R	5.0	1	5		G	W	MBE	MH	F	T
133	Keyport	9	RO	C				S	FP	R	5.0	2	2	BT	G	WIG	MBE	MH	FL	TS
134	Keansburg	5	R	C				SN	FP		4.9	2	3	BT	GD	WIG	BE	MH	FL	TS
135	Port Monmouth	5	RO					S	F		4.8	1	0	BT	G	WI	BE	MH	F	T
136	Belford	1						S	F	R	4.8	8	7				E	MH		
137	Leonardo	2	RO	C	P					R	4.7	2	3	BT	GD	WI	BE	MH	FL	T
138	Atlantic Highlands	5	RO	C	P	S		S	P		4.7	6	4	BT	GD	WIG	MBE	MH	FL	TS
139	Highlands	12	RO	C	P	R		S	FP	R	4.0	8	5	BT	GD	WIG	MBE	MH	FL	TS
140	Highlands Reach	5	RO	C	P			S	P	R	3.5			BT	GD	WI	BE	MH	FL	TS
141	Rumson	2	RO					S	FP	R	2.7	7	5	BT	GD	WI	MBE	MH	F	TS
142	Fair Haven	3							F	R	2.8	5	6		G	WI	MBE	MH	L	T
143	Red Bank	8	RO					S	FP	R	3.0	3	3	BT	GD	WIG	MBE	MH	FL	TS
144	Parker Creek	1	R								1.7						M		F	
145	Oceanport Creek	2	RO					S			1.7			BT			B			T
146	Branchport	3	R							R	1.7	1	1	BT	G	WI	BE	MH		T
147	Pleasure Bay	6							FP	R	1.3	4	4		G	WI	BE	MH	F	TS
148	Monmouth Beach	3	RO					S	F	R	1.0	6	6		G	WIG	BE	MH	F	TS
149	Sea Bright	9	RO		P			S	FP	R	1.9	11	11	BT	GD	WI	BE	MH	FL	TS

No.	Location	RECREATIONAL AREAS: Town-City-County: Park	State: Park – Wildl. Area – Forest	National: Park – Wildl. Area – Forest	National Seashore	ACTIVITIES: Use: Day – Wknd – Vacation	Fishing	Boating	Picnicking	Camping
10SP	Jones Beach		SP			DW	F	B	P	
46CP	Jacob Riis	CP					F			
48CP	Marine Park	CP					F			
52CP	Dyker Beach	CP					F			
68SP	Caumsett (undeveloped)		SP				F			
85CP	Pelham Bay	CP					F			
98SP	Palisades Interstate		SP			DW	F	B	P	
101SP	Tallman Mountain		SP			DW			P	
103SP	Rockland Lake		SP			DW	F	B	P	
104CoP	Croton Point	CoP					F			
105CoP	Georges Island	CoP					F	B		
106SP	High Tor		SP			DW			P	
130CoP	Wolfes Pond	CoP								
131CoP	Great Kills	CoP					F			
137SM	Leonardo		SM*			DWV		B		
139SP	Sandy Hook		SP			DWV	F		P	

*State Marina



This map not to be used for navigation.
See National Ocean Survey Chart Nos.
117-SC, 120-SC, 542-SC, 369-SC,
824-SC, 282, 1213 and 1215.
Wreck
Artificial Fishing Reef
Interstate Highway
State Highway
LEGEND
Striped bass
White perch
Black sea bass
White marlin
Bluefish
Atlantic cod
Pollock
Squirrel hake
Silver hake
Tomcod
Dolphin
Gray sea trout
Northern kingfish
Eel
Northern fluke
Windowpane
Winter flounder
Atlantic mackerel and Chub mackerel
Bluefin tuna
Atlantic bonito
Little tuna
Skipjack tuna
Scup
Northern puffer
Smooth dogfish
Sandbar shark
Blue shark
Swordfish
Tautog
Cunner
Blue crab
Connecticut
New York
New Jersey
Atlantic Ocean
Long Island Sound
Staten Island
Raritan Bay
Lower Bay
Sandy Hook Bay
Hudson River
Manhattan
Brooklyn
Jersey City
Newark
Elizabeth
Bayonne
Hackensack
Fort Lee
Edgewater
Piermont
Dobbs Ferry
Stamford
Greenwich
Port Chester
Mamaroneck
New Rochelle
Flushing
Great Neck
Glen Cove
Oyster Bay
Roslyn
Haverstraw
Croton on Hudson
Ossining
Nyack
Tappen Zee
Keyport
Perth Amboy
Highlands
Red Bank
Elberon
Asbury Park
Great Kills
Coney Island
Rockaway Beach
East Rockaway Inlet
Atlantic Beach
Long Beach
Jones Inlet
Rockaway Inlet
Jamaica Bay
East Bay
South Oyster Bay
Sandy Hook
Ambrose Light Tower
Ambrose Ridge
Cholera Bank
Middle Ground
Angler Bank
Lightship Ridge
Acid Water or Stain
The Flats
Mud Hole
The Farms
17 Fathom Bank
Shrewsbury Rocks
Sea Bright Ground
Long Branch Ground
West End Ground or Elberon Ground
England Bank
Southeast Ground
East of Cholera
Acid Water (Stain) may extend to this limit
SCALE
0 5 10
NAUTICAL MILES
74°10′ 74°00′ 73°50′ 73°40′ 73°30′
41°00′ 40°50′ 40°40′ 40°30′ 40°20′

Lloyd Neck to Elberon

LAND CONFIGURATION AND WATER DEPTH

The low lying rocky and gravelly shores along the western end of Long Island Sound are indented by bays, harbors, and coves. Most of these indentations are estuaries which open into the Sound, usually with a transition to marshes towards their heads where streams of fresh water enter. Depths in the Sound decrease from about 140 feet off Lloyd Neck to 50 feet off Throgs Neck, the mouth of the East River. Not a river at all but a narrow channel, the East River holds depths of 40 feet or more for its entire length. At Hell Gate, a constricted area in this channel, the twice daily high and low tides cause the water to flow at 5 knots or more. This is among the fastest tidal currents along the entire eastern coast of the United States.

For 22 miles between Fort Lee, New Jersey, and Haverstraw, New York, the Hudson River flows through a defile whose western side consists of a precipitous rocky cliff, the Palisades, and whose eastern side consists of steeply sloping hills. Rising in some places over 500 feet straight up from the water's edge, the Palisades' columnar-structured rock cliff of basalt is indeed a spectacular geological formation to behold. The Indians called the Palisades *weehawken,* a word of theirs describing the fact that the columns of rock resembled rows of trees.

From Upper Bay to about the New Jersey-New York boundary, the Hudson is narrow and deep, being a half to three-quarters of a mile wide and 30 to 50 feet deep. The original beauty of this shoreline is now blemished by hundreds of tumbledown piers and derelict barges hard aground. Northward of there the Hudson widens to over 3 miles in the area of Tappan Zee, Croton Bay, and Haverstraw Bay. Along this stretch extensive shallow areas, called flats, exist on either side of the 30-foot-deep channel. Large rocks, placed to support railroad tracks, extend into the river in many places along these shores. At the head of Haverstraw Bay in the vicinity of Stony Point the channel deepens again. Northward of here in about a 10-mile stretch many spots are over 100 feet deep, the deepest one being 216 feet, located near West Point at a bend in the river called Worlds End. Throughout the lower portion of the Hudson River, the bottom is characterized by dark-gray mucky clay. Some bars and beaches consist of fine gray sand, a few others of relic oyster shells. Scattered about the bottoms are rocky reefs and boulders and also sunken wrecks.

The 50-mile stretch from the tip of New York City to Verplanck, often referred to as the Lower Hudson, is actually an estuary. The early Dutch settlers realized the saltiness of the *Groote* or *Noort* (Hudson) *Rivier* and distinguished it from the *Versche* or Fresh *Rivier,* now called the Connecticut River. Haverstraw Bay, located just south of Verplanck, has a fauna and flora that is dominantly marine, including saltwater fishes (bluefish, jack crevalle, bay anchovy, and white mullet), barnacles, crabs, oysters, jellyfish, marine crustaceans and worms, and also seaweeds and saltmarsh grasses. In summer and fall when freshwater runoff is low, marine organisms predominate 20 miles farther north to Newburgh-Beacon, especially in the channel, where salinities are highest. During times of drought, brackish water extends all the way to Poughkeepsie, permitting marine and estuarine organisms to extend nearly 100 miles inland from New York City in this arm of the sea. Under normal flow conditions aquatic organisms above Poughkeepsie are typically freshwater forms.

Another feature of the Lower Hudson indicative of the sea is its tides. Because the surface elevation of the river is the same for the 150 miles from New York City to Troy, the water level rises and lowers twice each day in response to celestial caused tides. During high tide, at times raising the water level 5 feet or more, the Hudson flows "upstream" or north about a knot for 6 hours. Upon ebbing, it flows "downstream" or south at about 1½ knots for the same length of time until the next flood tide. Thus, a block of wood thrown off the Tappan Zee Bridge at the start of flood tide would float first upstream for about 6 miles, then downstream for 9 miles on the ebb. During a tidal cycle of 12 hours the block would cover a total distance of 15 miles but would only be about 3 miles closer to the sea. At this rate it would take 5 days for it to reach the Verrazzano Bridge at the Narrows.

From the Narrows southward and westward to New Jersey, the mouth of the Hudson estuary is a triangular-shaped bay which the early settlers called Godyns Bay, after Samuel Godyn, one of the supporters of Henry Hudson's expedition. Later, during part of the 1700's and most of the 1800's, it was called New York Bay. Maps today show this 60-square-mile body of water as being fancifully separated into Lower, Raritan, and Sandy Hook Bays. Low lying sandy beaches form the bronze-colored shores. The land a short distance behind these shores seldom rises over 100 feet. Elevations of about 300 feet are reached in just two places—the northern end of Staten Island and the Highlands of Navesink in New Jersey. The Highlands is usually the first land sighted when sailing northwest into New York Harbor from offshore. Except for the five major ship channels which are dredged to 30 feet, depths rarely exceed 25 feet in Godyns Bay. Separating Staten Island from New Jersey are two narrow channels called the Arthur Kill and the Kill Van Kull. A "kill," incidentally, is the Dutch word for channel, creek, or stream. The shallow areas on either side of these channels as well as the adjoining wetlands, called meadows, are lined with hundreds of relic barges and boats, some partially submerged and others floating, which have been abandoned by their owners. Flowing into the Arthur Kill and Kill Van Kull is the water from Newark Bay which in turn is fed by the Passaic and Hackensack Rivers. In these rivers and kills as well as in shallow Newark Bay, the water oscillates according to tidal currents with a slight net movement towards the sea.

Low sandy barrier beaches abut the Atlantic Ocean along the south shore of Long Island and along New Jersey. Built by the deposition of marine sediments, south shore beaches owe their existence to westward flowing currents which carry material eroded from Long Island's eastern end. Inlets cut through the beaches usually extend a little farther to the west each year as deposits accumulate. In the last 125 years Rockaway Inlet and East Rockaway Inlet have both moved 4 miles to the west. Along the New Jersey shore sediments are carried northward by prevailing currents. Sandy Hook has increased in length during the last 200 years by more than a mile, an average of over 30 feet each year.

Unlike the plain sand beaches east of Jones Inlet, those of Long Beach, Atlantic Beach, and Rockaway Beach on Long Island, and from Sandy Hook south to Asbury Park along New Jersey are intensively jettied or groined. Built of rock or creosoted wood, most of the jetties extend a few hundred feet into the ocean. Behind the barrier beaches lie shallow embayments consisting both of open waters and marshes. Examples of this are South Oyster Bay, Hempstead Bay, and Jamaica Bay on Long Island and the Navesink and Shrewsbury Rivers in New Jersey. These extremely nutrient-rich areas extend inland 1 to 6 miles before they give way to drylands.

Off Long Island the sandy bottom gently slopes down from shore to 90 feet in 10 to 15 miles. Off Sandy Hook it reaches that depth in only 6 miles, and then, within a mile or two farther, drops to over 200 feet. This naturally occurring depression, called the Hudson Gorge or Hudson Channel, can be easily traced 100 miles across the entire continental shelf. An extension of the Hudson River, this gorge was carved out many thousands of years ago during glacial times. Its head is first discernable at an area fishermen call the Mud Hole. Particles of silt, clay, and mud brought down by the Hudson settle out and collect here in this deep depression, hence the name. The Hudson Gorge is bounded on either side by the great plateau of the continental shelf.

HISTORY

Marine fisheries in the New York metropolitan area have decreased markedly in response to the demands placed upon them by the large number of people living there. Indians living near the coast of this area harvested all the fish and shellfish they needed for both food and fertilizer. In addition to these uses, various shells and bones served as implements, ornaments, and money. Europeans like Giovanni da Verrazzano, Estévan Gómez, and Henry Hudson, exploring the North American eastern coast in the 16th and 17th centuries, recounted finding an abundance of fish, shellfish, and game together with rich soil and luxuriant vegetation. Indeed, their writing about the land of plenty aided in setting off the greatest wave of human migration in history. During the settlement of New Amsterdam (i.e., New York City), striped bass, drum, shad, herring, cod, smelt, sturgeon, sheepshead, sea bass, tautog, flounders, bluefish, and many other species were plentiful along the shores and in the estuaries. About a quarter million acres of oyster beds occurred along Brooklyn, Manhattan Island, the East River, both shores of Western Long Island Sound, the Hudson River, and Staten Island, and in New Jersey along the Hackensack and Passaic Rivers, Newark Bay, and the shore from Perth Amboy to Keyport. Because oysters were so common that anyone could easily gather them, it was difficult to find a profitable market. Both hard- and soft-shell clams were also plentiful, three of the best spots to gather them being Communipaw Flats off Jersey City, the mouth of Newark Bay, and Princess (Prince) Bay, Staten Island. During warm months blue crabs were abundant in the shallow water of estuaries and throughout their tributaries to where the brackish water gave way to fresh water. The principal crabbing places on Long Island were Canarsie, Flatlands, Sheepshead Bay, Gravesend Bay, Oyster Bay, Cold Springs, and Huntington Bay. In New Jersey most were caught in the Navesink and Shrewsbury Rivers and to a lesser extent in Newark Bay.

So abundant were fish and shellfish resources that people thought them to be inexhaustible. But harvesting these animals at excessive rates, fouling their habitats, and reducing their living space by diking and filling drastically reduced the abundance of many species and the availability of others. It was not long before overraking, siltation, and pollution put an end to the oyster beds. Shad from Newark Bay lost their fine market reputation as they developed the disagreeable taste of petroleum. The much sought smelt of the Hackensack and Passaic Rivers ceased coming as suitable spawning sites disappeared. An example of the decline in commercial fishing within the last century is shown by the following table:

Commercial Landings — South Oyster Bay to Sandy Hook Bay*

	1880	*1970*
Food fishes	3,500,000 lb	1,000,000 lb
Hard clams	200,000 bu	25,500 bu
Soft clams	100,000 bu	5,500 bu
Oysters	250,000 bu	0
Blue crabs	56,000 bu	1,000 bu

*Data on the catch by recreational fishermen are lacking from this area.

Thus, in 90 years, the catch of food fishes has declined nearly 75 percent and that of both shellfish and crabs more than 95 percent. A substantial increase in the production of shellfish should follow the cessation of pollution, especially off Staten Island and New Jersey.

FISH AND FISHING

Fishes which spend most of their lives in salt or brackish water but ascend to fresh water to spawn are spoken of as anadromous. Such are the sea sturgeon, shad, alewife, and blueback herring; all of which make their spawning runs during spring. Sturgeon in large numbers once entered nearly all of our east coast rivers, but today their abundance has diminished to the point where they have been put on the list of species whose survival is endangered. Though sturgeon may be rare elsewhere, the Hudson is one of the few rivers that can still boast of a sizable run. Mature adults entering the river to spawn eat little or nothing while traveling upstream. Once spawning is over and before returning to the sea they resume feeding. Shad, alewife, and blueback herring arrive about the same time during spring, but unlike the sturgeon, they do not resume feeding after spawning until they have returned to sea, a journey sometimes taking a

week or more and covering as much as 130 miles. Even though shad cease feeding during their spawning run, they often strike artificial lures, a phenomenon born out by the fact that each year anglers catch about 50,000 shad in the Connecticut River alone. In the Hudson, however, shad rarely strike a lure. Whether this is because of a peculiarity of their behavior in the deep-channeled Hudson or the need for an improvement in angling techniques remains to be seen.

Other anadromous fishes such as tomcod and smelt gather in estuaries early in fall and reside there until time for their respective upstream spawning migrations—early winter for tomcod, early spring for smelt. After spawning both these species move back into saltier water.

Among striped bass, another anadromous fish, some individuals remain in the estuaries and rivers the year round while others migrate in and out at different seasons. Those in the Hudson River represent the northernmost spawning population of this species along the United States Atlantic coast. (A Canadian population of striped bass resides in the St. Lawrence River and various coastal rivers in New Brunswick and Nova Scotia.) Most of the spawning takes place from mid-May to mid-June in the 40-mile stretch of river extending from near the head of Haverstraw Bay to Kingston. According to tagging studies, the spawners are composed of four different segments, which may or may not be genetically distinct. Each segment appears to maintain its identity by distinct seasonal migratory patterns, at least for the first few years of their lives.

One segment of stripers stays in the Hudson the year round. Another summers in the mouth of the Hudson estuary, along the south shore of Long Island to about Westhampton Beach, and along New Jersey's shore to Barnegat Bay. From September through October these fish return to the Hudson to overwinter. The following spring they spawn, then return to their summering grounds. A third segment summers in the western part of Long Island Sound, reaching as far as the Connecticut River. As water temperatures drop in September and October, they migrate through the East and Harlem Rivers back to the Hudson. There they overwinter, spawn the following spring, and then return to Long Island Sound. The fourth segment summers in the area from eastern Long Island to Cape Cod. During fall they move southward until off the coast of New Jersey, Delaware, and the eastern shore of Maryland and Virginia. During early spring they return north. By late May they are off Sandy Hook; by June they are in the Hudson River as far north as Haverstraw Bay. These fish, known as "June Bass" by Hudson River fishermen, are generally large, many of them weighing 10 to 50 pounds. A few even weigh as much as 60 and 70 pounds. After spawning, fish of the last group leave the Hudson and return to their summering grounds.

About the time most striped bass have completed their spawning and are leaving the Hudson River, bluefish appear along the New Jersey-New York coast. Arriving from offshore and the south, they migrate into these waters to spend the warm months. Even though the bluefish appear to be a homogeneous group, close study of their anatomical features, growth patterns, and spawning grounds show them to be composed of at least two distinct segments. These two segments, one a southern and the other a northern, spawn at different places and at different times, but intermingle by the time they are 1½ years old.

Adults of the southern segment spawn in spring along the edge of the continental shelf between Florida and the Carolinas. The developing eggs and larvae are carried northward by the Gulf Stream. Usually by the time the larvae are north of Cape Hatteras, North Carolina, they begin swimming towards shore and eventually find their way into middle Atlantic estuaries. Once in these fertile waters they find enough food to grow over a half inch each week during their first summer. By mid-July they are about 5 inches long. In the fall, when about 9 inches long, they swim out of the estuaries and begin their southward migration. Based upon circumstantial evidence it is believed these young-of-the-year bluefish overwinter in a belt of warm offshore water extending from Cape Hatteras to Florida. The following spring they migrate north from their wintering grounds to spend their second summer in middle Atlantic waters. When they arrive they weigh about three-quarters of a pound. At the end of their second summer, now weighing about 2 pounds, they migrate south again, many spending the winter along Florida's east coast.

Adults of the northern segment migrate to this area during late May and early June after spending the winter along the continental shelf. From July through early September they spawn over the plateau of the continental shelf from Virginia to southern New England, casting their eggs into the open sea. Upon hatching most larvae drift southward along the coast, apparently very few of them entering middle Atlantic estuaries. After spending their first winter offshore of the Carolinas, they swim into nearby estuaries to spend their second summer. Weighing a quarter of a pound when they first arrive in the estuaries, they grow to a pound and a half before migrating out of them and farther south for the winter.

Members of both segments unite and mix in schools according to size during their second winter which is spent south of Cape Hatteras. Even though both segments migrate to middle Atlantic states during their third summer, whether the southern spawned fish separate from the general mass to spawn before swimming north remains to be discovered. Also, once on their summering grounds do these southern spawned blues spawn with the northern spawned ones? At any rate, bluefish of both segments are found together throughout the remainder of their lives, although the northern spawned ones never quite make up the additional 4 or 5 months' growth the southern ones possess. At 3 years of age the southern spawned ones average 4 pounds, the northern spawned ones 3¾ pounds; at 4 years, 6 pounds and 5⅞ pounds; at 5 years, 8 pounds and 7⅞ pounds. Growth slows in later life within both segments. At 10 years the southern spawned ones average 15 pounds, the northern spawned ones just under 15 pounds; and at 15 years specimens of both segments weigh about 18 pounds.

FISHING GROUNDS

The various fishing grounds adjacent to the New York metropolitan area are among the most intensively fished in the world. Since people first fished these waters, they have found that fish tend to concentrate in some areas more consistently than others. Many of these areas, which fishermen call spots, banks, or grounds, are characterized by outcrops of rocks and large boulders which interrupt the otherwise smooth sandy bottom. The irregular shapes of rocks provide not only convenient hiding places for many fishes but also a suitable substrate for the attachment of sessile food organisms such as mussels, barnacles, and tube-building worms.

Such grounds as Shrewsbury Rocks, 17 Fathom Bank, Cholera Bank, Southeast Ground, and the Stone Pile are part of a naturally occurring, horseshoe-shaped, rocky submarine reef that extends from the Shrewsbury River in New Jersey to about East Rockaway Inlet on Long Island. Much of this reef remains covered by sand with only scattered portions protruding through. Other rocky areas such as Southwest Ground, Scotland Ridge, Lump or Sea Gull Bank, New Grounds, Subway Rocks, Lightship Ridge, and the Tin Can Ground are old dumping grounds for excavated materials, building rubble, and garbage of which only the insoluble material remains.

The hulls of hundreds of vessels—many broken, twisted, and smashed—and the cargoes they carried are equally effective in providing shelter for fishes and attachment surfaces for food organisms. Wooden ribs, the skeletons of old schooners and square riggers, still lie on the bottom. In the 10 years from 1839 to 1848, over 300 vessels were wrecked along the shores of New York and New Jersey. Steel hulls deteriorate more slowly than wooden ones, and a great many have gone down in these waters, especially during World Wars I and II when shipping was unusually heavy and enemy submarines were active. Over 10 torpedoed ships sank within a mile of New Jersey's beaches during World War II alone. Even now hardly a year goes by when a tug, barge, or ship does not go down because of storm, fog, or man's carelessness.

The attraction of fish to these wrecks and rock outcrops has inspired biologists from state and federal governments as well as cooperating sportfishing groups to establish artificial reefs. Fishes that inhabit reefs have a strong sense of territoriality, and since the total area of natural and accidental reefs is limited, it follows that by providing more living space, new reefs increase the population potential of fishes. Even species that do not inhabit reefs benefit from them by feeding on the resident reef fishes. The artificial reef 3 miles off Atlantic Beach, Long Island, is one of the largest along the eastern coast. It now consists of over 30,000 automobile tires, 500 tons of concrete culvert, 400 junk automobiles and trucks, and 8 large barges, and its size continues to increase with the addition of more material.

Some of the fishing grounds, famous for certain species, have in recent years undergone name changes. An example of this is the bluefish grounds off New Jersey. From at least the early 1600's to the mid-1700's, bluefish were plentiful along our coast. Then they disappeared, presumably as a consequence of natural causes, and were not seen again for about 70 years. When they did reappear, no one knew what they were. Soon, however, people welcomed them, and fishing smacks, many of them equipped with live wells, were sailing out from Fulton Fish Market about 25 miles south to grounds where bluefish often congregated. The largest of these grounds, called Fishing Bank, covers the offshore side of the areas anglers now call Shrewsbury Rocks, Long Branch Ground, West End or Elberon Ground, and England Bank. Another old bluefish ground, Rocky Spots In The Channel, is now called 17 Fathom Bank, and Rocky Ground is now called The Farms.

Before the early 1800's boats rarely had to go outside the range of Sandy Hook Light to catch black sea bass, a favorite fish then in great abundance. As fishing pressure in Lower Bay and along the shore increased, the yield followed the usual course of overexploitation. The catch per fisherman, and eventually the total catch, decreased so that fishermen were forced to go offshore to seek concentrations of fish. By random searching they slowly discovered the various grounds where fish congregate. One of the better grounds was found in 1832 when a boat dropped anchor on a rocky spot that proved to abound with large sea bass. The captain quickly signaled other boats to share his good fortune. Because it was such a good ground, the fishermen decided to give it a name, and because it was the time of a great cholera epidemic, they called it Cholera Bank. Although the original location of this ground (in black letters on the map) lies about 17 miles east of Sandy Hook, boat captains now refer to another part of the reef, 5 miles to the northeast (in red), as Cholera Bank. Located on the same submarine reef are two grounds west of Cholera, Middle Ground and Angler Bank, and one to the east, appropriately called East of Cholera. Since these grounds are defined as being located so far west or east of Cholera Bank, their positions change when Cholera Bank's does.

About 10 miles southwest of Cholera Bank there is a large patch of coffee-colored water, called the Acid Water or Stain, which continually changes in shape and size in response to wind driven currents. Discoloration of the water results from the waste products of a few chemical industrial plants, which consist mainly of a mixture of ferrous sulfate and dilute sulfuric acid. Each year about half a billion gallons of this waste solution is barged from plants in New Jersey and dumped at sea. To visualize this quantity of waste, think of it as being equivalent to about 1,000 gallons dumped each minute of every day. The seawater reacting with the mixture neutralizes the acid and reduces the iron compound to ferric hydroxide which, being identical with rust, is biologically innocuous. Judging from old accounts, fish have always frequented this area, but the murky color provides a reference to help anglers locate the spot. The large numbers of bluefish and bonito which often occur around the margins of the Acid Water are probably held there by the hundreds and sometimes thousands of pounds of chum ladled over the sides of fishing boats each day.

Elberon to Beach Haven

LAND CONFIGURATION AND WATER DEPTH

The shoreline from Long Branch to Manasquan Inlet is low country, typical of the Atlantic Coastal Plain. The land within a mile or so of the beach usually rises between 20 and 40 feet—only in three localities does it exceed to 100 feet. Interrupting the otherwise straight, sandy shoreline are a few places where small freshwater streams flow into the sea. The largest and most important of these is Shark River. Dredged to 4½ feet in the channel, it is the only small-boat haven in the 25 miles between Sandy Hook and Manasquan. The narrow inlet at the mouth of the river tends to shoal with sand and is kept open by periodic dredging. Where once only sand beaches and dunes lined this stretch of coast, there are now nearly 150 small jetties, called groins.

Manasquan Inlet, the next break in the shoreline, is the northernmost point of the Intracoastal Waterway which continues on to Key West, Florida. Manasquan River and Inlet derive their names from the Indian word, *Manatahsquawhan,* meaning "Stream of the Island for Squaws." During summer and fall months when various tribes journeyed to the coast, the women and children camped here to gather shellfish and beach plums while the men fished and hunted nearby.

South of Manasquan Inlet, a series of sandy barrier beaches stretch out in front of the mainland and intercept the sea. Behind these beaches are protected shallow estuaries, the longest one being Barnegat Bay, whose name is a corruption of the Dutch *Barende-gat,* meaning Breakers Inlet. Barnegat Bay has three openings—Manahawkin Bay and Barnegat Inlet, which were both formed by nature, and Bay Head-Manasquan Canal, which was man-made in 1925. Once there was another one, Cranberry Inlet, that had been cut through the beach by a storm in 1750. This was wide enough and deep enough to provide safe passage for large square-rigged sailing vessels. Unfortunately, current-carried sand finally closed it off in 1812.

FISH AND FISHING

All marine fishes undergo periodic fluctuations in abundance, and striped bass is no exception. Judging from early 19th century accounts, stripers and their close relative, white perch, occurred at the northern end of Barnegat Bay, especially about the Metedeconk River, in such large numbers as to keep nearly 200 men busy fishing for them. Fishermen sometimes took 15,000 to 20,000 pounds in a day, once even 80,000 pounds in a single catch. In 1880, the first year in which fishing statistics were recorded, the total catch on the Metedeconk was over half a million pounds. During the first third of the 1900's, however, the abundance of stripers all along the middle Atlantic coast declined. After reaching a low point about 1933 they staged a remarkable recovery and have fluctuated about a high level ever since. Among all our coastal fishes, the striper appears to be the most resilient, the most able to flourish in spite of man's abuse of its riverine, estuarine, and coastal environments. Its flesh may become tainted and foul-tasting in an area badly polluted with industrial wastes, but somehow it survives. As is true of other fishes, the ups and downs of striped bass reflect variations in the success of their spawning.

Besides stripers and white perch, other fishes such as snapper blues, puffers (called blowfish), kingfish, and northern fluke occur in the estuaries during warm months. As important to bay anglers as these fishes are, another form of marine life, the blue crab, is perhaps even more intensely sought. Traditionally crabbing has always been important to this area. A hundred years ago more crabbing was done from Sandy Hook to Barnegat Bay than from any other section of the entire east coast. From late May, when crabs come out of their winter quarters in the bottom, until October, when they return, people fish for them from bulkheads, docks, piers, sod banks, and sandy beaches; also in rowboats, prams, garveys, skiffs, yachts; in fact, any type of craft that will float.

Here as along all the ocean beaches of the middle Atlantic states, scup, northern fluke, sea bass, tautog, bluefish, bonito, and tunas are important summer fishes. But as these temperate- and warm-water species are migrating to their wintering grounds offshore or to the south, cold-water or boreal species, like the cod and its relatives the silver hake, squirrel hake, and white hake, take their place.

People tend to associate cod with the North Atlantic banks of New England and Canada, as well as the cold waters of Iceland, Greenland, and northern Europe. To them, the catching of cod off New Jersey and even southward as far as North Carolina comes as a surprise. But actually cod are only to be expected, for the bottom-water temperature off this stretch of coast falls within their limits of tolerance—the year round off the coast of New Jersey and during the winter and spring farther south.

The cod off New Jersey consist of at least three segments. Whether these are genetically distinct races or represent different age classes has yet to be determined. One segment is composed of year-round residents which stay offshore in depths of 150 feet or more, especially on wrecks. The second and much larger segment is composed of migrating fish which summer on Nantucket Shoals but winter and spawn from Rhode Island south. Starting about the middle of October and continuing through December, large bodies of these cod migrate westward and southward along the southern New England and middle Atlantic states. They seem to travel through the New York Bight area in waves, each remaining a week or two, then continuing farther southward. This migration through northern New Jersey's waters stops after December. There follows then a period of relative scarcity until the return migration during March, April, and early May. Most of these are adults, i.e., fish weighing 5 pounds or more, and they contribute most to the spawning, which is heaviest in November and December but continues into the spring. The third segment of cod is composed of a small number of large fish which migrate from New England into the middle Atlantic region during the winter. Probably originating in the deep water of the Gulf of Maine and off the southern side of Georges Bank, these fish apparently make up the bulk of the 30- to 50-pounders. During spring they return eastward to their summer home in the deep water.

		BOAT RENTAL				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	Neptune Heights	5	RO		P		S	P	R	3.4	4	4	BT	GD	WI	BE	MH	F	T
2	Neptune	2	RO	C			S	FP	R	3.4	6	6	BT	GD	WI	BE	MH	FL	TS
3	Belmar	6	RO	C	P	S	S	FP		3.4	5	8	BT	GD	WI	BE	MH	FL	TS
4	Manasquan	7	RO		P		S			3.9	2	2	BT	GD	WI	BE	MH	F	TS
5	Brielle	12		C	P		S	P	R	3.5	8	8	BT	GD	WIG	BE	MH	FL	TS
6	Manasquan River	1						P		3.1	4	4		G	W	B	MH	L	T
7	Manasquan River	5	RO				S	F		3.1			BT	GD	WIG	BE	MH	FL	TS
8	Point Pleasant Beach	16	RO	C	P	RS		FP	R	3.9	3	3	BT	GD	WIG	MBE	MH	FL	TS
9	Bay Head-Manas. Canal	2						FP		1.0	5	5		G	W	BE	MH		T
10	Bay Head	7	O	C			N	FP	R	1.0	6	8	T	GD	WI	BE	MH	FL	TS
11	Beaverdam Creek	3					S	FP		1.0	5	5	BT	G	WI	BE	MH		TS
12	Wardell's Neck	5	RO				SN	F	R	1.0	6	4	BT	GD	WI	BE	MH		TS
13	Laurelton	10					SN	FP	R	0.5	2	3	BT	G	WIG	BE	MH	FL	TS
14	Metedeconk River	3	O					F	R	0.8	4	4	BT	G	WI	BE	MH	F	TS
15	Mantoloking	4	R	C			S	FP	R	0.6	3	5	BT	GD	WIG	MBE	MH	FL	TS
16	Shore Acres	3	R				S	FP		0.6	4	6	BT	G	WI	BE	MH		TS
17	South Kettle Creek	3	R				SN	P		0.6	4	4	B	G	WIG	BE	MH		TS
18	Silver Bay	1						F	R	0.5	5	6	BT	G	WI	BE	MH	F	TS
19	Normandy Beach	3	RO			R	SN	FP	R	0.6	4	12		G	WIG	BE	MH	FL	TS
20	Chadwick	3					S	P		0.6	4	4	T	G	WIG	BE	MH	F	TS
21	Lavallette	3	RO				S	F		0.5	4	3	BT	G	WIG	BE	MH	FL	T
22	Ortley Beach	2	RO	C		R	S	F		0.5	10	12	BT	GD	WI	BE	MH	F	TS
23	Seaside Heights	2	RO			R	S			0.5	6	3	BT	G	W	B			T
24	Pelican Islands	4	RO				S		R	0.5	2	3	BT	G	W G	BE	MH	FL	TS
25	Seaside Heights	2	RO							0.5		3	BT	G	W	BE		F	T
26	Seaside Park	5	RO			R	SN	FP		0.5	3	2	BT	G	W	MBE	MH	F	T
27	Shelter Cove	2					S	F		0.5	6	6	BT	G	WI	BE	MH		TS
28	Bay Shore	8	RO				SN	FP		0.5	4	7	BT	G	WI	MBE	MH	FL	TS
29	Island Heights	4					S	F	R	0.6			B	G	WI	MBE	MH		TS
30	Toms River	8	RO	C			SN	P	R	0.6	5	4	BT	GD	WIG	BE	MH	FL	TS
31	Ocean Gate	5	RO			S	SN	P		0.6	3	5	BT	G	WI	BE	MH	L	TS
32	Goodluck Point	5	RO				S	F		0.5	4	4	BT	G	WI	BE	MH	F	TS
33	Holly Park	4	RO				SN			0.6	5	4	BT	G	WI	BE	M	FL	T
34	Cedar Beach	3	RO				S	P		0.4	3	2	BT	G	WI	MBE	MH		T
35	Cedar Creek	3					SN	FP		0.6	4	4	BT	G	WI	BE	MH	F	TS
36	Laurel Harbor	1				S	SN	F		0.6	4	5	BT	G	W	BE	MH		TS
37	Forked River	12	RO	C		R	S	FP	R	0.6	6	6	BT	GD	WIG	BE	MH	FL	TS
38	Oyster Creek	4		C				FP	R	0.6	3		BT	G	WI	BE	MH	F	TS
39	Waretown	9	RO	C			SN	FP		0.6	4	5	BT	GD	WI	MBE	MH	FL	TS
40	Barnegat	9	RO	C			SN	P		0.8	4	8	BT	G	WIG	BE	MH	F	TS
41	Barnegat Light	6	RO	C	P	S	S	FP	R	2.3	6	6	BT	GD	WIG	BE	MH	FL	TS
42	Harvey Cedars	4	RO					F		0.8	3	3	BT	G	W G	BE	MH		T
43	Surf City	4					S	FP	R	1.0	4	3	BT	G	W	BE	MH	FL	T
44	Ship Bottom	11	RO				S	FP	R	1.5	2	3	BT	GD	WIG	BE	MH	FL	TS
45	Brant Beach	7	O			S	S	FP	R	1.8	4	4	BT	G	WIG	BE	MH	FL	TS
46	Spray Beach	7	RO	C			S	F		2.2	3	2	BT	GD	WI	BE	MH	FL	TS
47	Beach Haven	20	RO	C	P		SN	FP	R	2.2	4	4	BT	GD	WIG	MBE	MH	FL	TS
48	Manahawkin Creek	2	R				S	F		1.5	4	4		G	G	BE	H	L	T
49	Westecunk Creek	4	RO				S	F	R	1.8	4	4	BT	G	WIG	BE	MH		T
50	Parker Run	1		C			S			2.2	4	4		G	W	BE			T
51	Tuckerton	13	RO	C			SN	FP	R	2.4	3	2	BT	G	WI	BE	MH	F	TS

		RECREATIONAL AREAS				ACTIVITIES				
		Town-City-County: Park	State: Park — Wildl. Area—Forest	National: Park—Wildl. Area—Forest	National Seashore	Use: Day—Wknd—Vacation	Fishing	Boating	Picnicking	Camping
No.	Location									
9SM	Point Pleasant		SM*			DWV		B		
26SP	Island Beach		SP			DW	F		P	
37SM	Forked River		SM*			DWV		B		
40NW	Barnegat			NW						
41SP	Barnegat Light		SP			D	F		P	
48SW	Manahawkin		SW							
51SF	Bass River		SF			DWV	F	B	P	C

*State Marina

74°10′ 74°00′ 73°50′ 73°40′ 73°30′

40°20′ 40°10′ 40°00′ 39°50′ 39°40′ 39°30′

74°20′ 74°10′ 74°00′ 73°50′

This map not to be used for navigation.
See National Ocean Survey Chart Nos.
824-SC, 826-SC, 1215, 1216 and 1108.

LEGEND

- Striped bass
- White perch
- Black sea bass
- White marlin
- Bluefish
- Atlantic cod
- Pollock
- Squirrel hake
- Silver hake
- Tomcod
- Dolphin
- Gray sea trout
- Northern kingfish
- Eel
- Northern fluke
- Windowpane
- Winter flounder
- Atlantic mackerel and Chub mackerel
- Bluefin tuna
- Atlantic bonito
- Little tuna
- Skipjack tuna
- Scup
- Northern puffer
- Smooth dogfish
- Sandbar shark
- Blue shark
- Swordfish
- Tautog
- Cunner
- Blue crab
- Wreck
- Artificial Fishing Reef
- 95 Interstate Highway
- 28 State Highway

Fishing Pier
Long Branch Grounds
West End Grounds or Elberon Grounds
The Farms
Mud Hole
England Bank
Acid Water (Stain) may extend to this limit.
Shark River Sea Buoy (Black and white bell)
Shark River Inlet
Klondike (Shark River Grounds)
Sea Girt Inlet (closed)
Firing Range
White and Orange "S" Spar Buoy
Manasquan Inlet
Manasquan Sea Buoy (Red "2" gong)
Manasquan Ridge (Southeast Ridge)
9 SM
Fishing Pier
26 SP
North Pounds
37 SM
Barnegat Bay
Red "2" Whistle Buoy
Barnegat Sea Buoy (Black and white bell)
Barnegat Inlet
Harvey Cedars Lump
40 NW
48 SW
51 SF
Barnegat Light Buoy (Red "B" light)
Barnegat Ridge, North End (North Ridge)
Middle Ridge
Barnegat Ridge, South End (South Ridge)
Atlantic Ocean

Long Branch
Elberon
Asbury Park
Belmar
Spring Lake
Manasquan
Laurelton
Toms River
Forked River
Barnegat
Manahawkin
Tuckerton
Beach Haven
New Jersey

SHREWSBURY R.
SHARK RIVER
MANASQUAN R.
INTRACOASTAL WATERWAY (BAY HEAD - MANASQUAN CANAL)
METEDECONK R.
KETTLE CR.
SILVER BAY
TOMS RIVER
CEDAR CR.
OYSTER CR.
GUNNING R.
MANAHAWKIN BAY
CEDAR RUN
WETECUNK CR.
LONG PT.
LITTLE EGG HARBOR
TUCKERTON CR.
Seaside I.
Clam I.
Egg I.
Cedar Bonnet
Harvey Sedges
Garden State Parkway

SCALE
0 5 10
NAUTICAL MILES

Beach Haven Inlet to Cape May

LAND CONFIGURATION AND WATER DEPTH

From Beach Haven Inlet to Cape May the shoreline is formed by a number of low lying sandy barrier islands that vary from 3 to 7 miles in length and from a few hundred yards to 1½ miles in width. They are separated from each other by shoals and inlets and from the mainland by a network of saltmarshes and shallow estuaries which is usually several miles wide. By tradition the irregular shaped saltmarshes are called meadows or sedges and the large patches of open estuarine water, bays and sounds. Narrow interconnecting waterways, often called thoroughfares, form a kind of lattice work as viewed drom a high flying airplane. Along this stretch of coast there are only two places where sizable rivers join and flow to the sea. One, the Mullica River and its important tributaries, Wading and Bass Rivers, flows into Great Bay. The other, Great Egg Harbor River, is joined by the Middle and Tuckahoe Rivers near its mouth before flowing into Great Egg Harbor Bay.

Off this section of New Jersey, the sea bottom slopes downward at a moderate rate to a depth of 35 feet about a mile offshore. From there to about the 300-foot bottom contour, located 60 miles farther offshore, the descent is very gradual. For the most part the bottom over this part of the continental shelf is virtually a level sandy plateau, interrupted by scattered shoals, the most famous and extensive of which is Five Fathom Bank. This series of gullies and sand mounds, some of which rise to within 17 feet of the surface, has been an excellent fishing ground for nearly 300 years.

HISTORY

In precolonial and colonial times, people fished mostly in the brackish and salt water at the mouths of the various rivers and bays, where fish as well as crabs and clams tend to concentrate. For over two centuries after the first colonial settlement in 1648, most of the people living near the shore depended largely on the bays for their livelihood. Those that "followed the bay" during the entire year, oystering and soft clamming during cold months and fishing, crabbing, and quahauging during warm ones, became known as *baymen.* During this period the bays provided a good living.

Unfortunately, catches of many species today fall far short of those in the past. For example, even though striped bass and white perch still overwinter in the Mullica and Great Egg Harbor Rivers, their present abundance yields far less than the catch of 250,000 pounds such as was usual during the late 1800's. Although the weakfish, more often called gray sea trout, have been returning to this area recently after about 15 years of scarcity, this excellent game fish is still far less abundant than it was a century ago when 2½ million pounds were caught yearly, and by hook and line at that! Only limited demand kept the catch from exceeding even that amount. Sheepshead, a species now rarely occurring in New Jersey, were caught by the thousands of pounds and ranked next to weakfish in importance. Although hard-shell clams or quahaugs are important today, the total harvest is only about half its former amount of about 200,000 bushels. Great Bay alone once yielded 40,000 bushels annually; Lakes Bay, behind Atlantic City, 18,000 bushels; and Little Egg Harbor, 25,000 bushels.

During the latter part of the 1800's and the first 20 years of the 1900's, large summer resorts such as Ocean City, Sea Isle City, Avalon, and Wildwood came into being. Hotels with rooms for hundreds, sometimes even thousands, of visitors were the order of the day. As more and more people spent their summers along the shore, the demand for seafood gradually surpassed the local supply. To meet it, fishermen sailed longer distances in the bay to increase their catches; after a while they found it necessary to go out to sea. Before long, fishing smacks were sailing from Atlantic City to catch black sea bass in summer and cod in winter. Gradually fall fisheries developed along the ocean beaches for weakfish weighing 2 to 8 pounds. And during the summer and fall hundreds of small boats trolled, or squidded as it was called, for bluefish, some sailing from the various inlets and others being launched through the surf.

Although sport fishing, or pleasure fishing as it was then called, existed since the mid-1750's, perhaps even before that, it was not until the latter part of the 1800's that it supported a substantial industry. Then almost every village had small yachts for carrying pleasure parties on fishing excursions; Tuckerton and Beach Haven had 30, and Atlantic City had 80. In all, along this stretch of coast there were over 200 boats engaged in pleasure fishing from June to September. During the first third of the 20th century, railroads ran "Fisherman's Specials" each weekend from Philadelphia to New Jersey's shore. The cost of a one-day round trip was a dollar.

As fishing pressure increased, pleasure-boat captains were forced to go farther to make consistently good catches. In the early 1930's some of the captains in the Cape May and Wildwood areas conceived a brilliant plan to improve fishing. Their idea was "to construct a fishing ground by planting in the bed of the ocean, within an area of four square miles, old boats, automobiles, weighted pilings, railroad ties, cedar trees, tanks, steel drums and any other form of debris upon which shellfish and minute salt water organisms might cling and build up vast colonies of the various species of aquatic life." Called a fishing preserve when the idea became a reality in 1935, this undertaking became the first large-scale artificial fishing reef ever to be constructed in the Atlantic Ocean. This reef, located about 10 miles southeast of Cape May Inlet, is still a favorite fishing spot.

FISH AND FISHING

As the cold, strong northwest winds of winter subside and the weather becomes milder, ocean temperatures begin to rise. When the water over the inner third of the continental shelf reaches about 45° or 46°F, sometime early in April, Atlantic mackerel usually arrive inshore. After overwintering at middepths in the warm band of water overlying the outer edge of the continental shelf, they migrate inshore and begin feeding on the profusion of zooplankton, primarily copepods.

Within the western North Atlantic there are two groups of Atlantic mackerel, northern and southern, which have a combined distribution ranging from Newfoundland to North Carolina. These have different wintering and summering areas and different routes to reach them. The southern group, which occurs off this stretch of coast, comes in from offshore towards New Jersey during spring, beginning to spawn en route over the continental shelf. The spawning is heaviest, however, off New Jersey and Long Island where the adults pause for a month or so before passing eastward to Nantucket Shoals and eventually, about midsummer, into the western part of the Gulf of Maine.

Unlike the adults, juvenile mackerel spawned off New Jersey remain through the summer, apparently in or near the area where they were hatched. We know this because tuna and other large pelagic fishes caught off Cape May, Atlantic City, and Beach Haven are often gorged with mackerel 2 to 6 inches long. Sometimes these juveniles swim inshore, entering the bays and sounds along this stretch of coast in great quantities, especially in the fall.

During some years, chub mackerel, a closely related species, are plentiful throughout the summer. This fish prefers water that is generally too warm for adult Atlantic mackerel.

In the fall, as the coastal water begins to chill, chub mackerel and the juvenile Atlantic mackerel, by now as long as 8 inches, move offshore and southward. At the same time or soon thereafter, larger Atlantic mackerel again appear along the shore. This fall run is smaller than that of the spring and lasts only about 2 or 3 weeks. It is during this run that we can see how much these fish have grown and fattened during the summer. One-year-old fish that had measured 10 inches and weighed about one-half of a pound in the spring are now 13 or 14 inches and just less than a pound. Two-year-olds that had measured 14 inches and weighed about a pound after spawning for the first time are 14½ inches and 1¼ pounds in the fall. After mackerel reach maturity, they grow very slowly, for although some often live to be 8 years old, they rarely exceed 18 inches or 2½ pounds.

		BOAT RENTAL				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	Big Thorofare	1	R								2.9			BT			B			
2	Great Bay	3	RO	C			S		R	3.3	4	3	BT	G	I	BE	MH		T
3	Holgate	6	RO	C			S	FP		2.6	4	3	BT	GD	WIG	BE	MH	FL	TS
4	Mystic Islands	1								3.4									
5	New Gretna (Bass R.)	2	RO				S	FP	R	3.3	4	3	BT	G	WI	BE	MH	F	TS
6	Mullica R. (Green Bank)	4					S	F					BT	G	I	MBE		FL	T
7	Mullica River	1	RO				S	P		3.3	9	6	BT	G	WI	BE	MH	F	T
8	Nacote Creek	2							R	3.3	6	12		G	WI	BE	MH		T
9	Mott Creek	2	R	C			S			3.3	6	4	BT	G	WI	BE		F	T
10	Oyster Creek	3	RO	C			SN			3.3	4	2	BT	GD	WI	B		F	T
11	Steelman Bay	5	RO				S	FP		3.4	6	6	BT	G	WI	BE	MH	F	TS
12	Brigantine	12	RO	C			S	FP		3.4	4	2	BT	G	WIG	BE	MH	FL	TS
13	Absecon	3					SN	FP	R	3.3	2	2	BT	G	WI	BE	MH		T
14	Atlantic City	22	RO	C	P		SN	FP	R	3.8	5	2	BT	GD	WIG	BE	MH	FL	TS
15	Ventnor	4	RO	C		R	SN	F	R	3.9	10	10	BT	GD	WIG	MBE	MH	FL	T
16	Northfield	4	RO				SN	F		3.8	6	4	BT	G	WIG	BE	MH	F	TS
17	Margate City	9	RO	C			S	F		3.8	6	2	BT	GD	WIG	BE	MH	FL	TS
18	Longport	2	RO					F		3.9	12	15	BT	G	W	BE	MH	F	T
19	Somers Point	16	RO	C			S	FP	R	3.7	5	1	BT	GD	WIG	BE	MH	FL	TS
20	Scullville	4	RO				S	F		3.7	3	3	BT	G	WI	BE	MH	FL	TS
21	May's Landing	4	R				S	FP		3.7	4	4	BT	G	WI	BE	MH	F	TS
22	Ocean City	15	RO	C	P		S		R	3.8	5	2	BT	GD	WIG	MBE	MH	FL	TS
23	Peck Beach	2					S	P	R	3.7	6	4	BT	GD	WI	BE	MH	FL	TS
24	Strathmere	6	RO				N	F		3.9	10	9	BT	GD	WIG	BE		FL	TS
25	Sea Isle City	10	RO	C	P			F	R	3.8	4	2	BT	G	WI	BE	MH	F	T
26	Townsend Inlet	3	RO		P		N			3.8	18	12	BT	GD	WIG	BE	H	F	
27	Avalon	9	RO	C	P		S	F	R	3.8	3	3	BT	GD	WIG	BE	MH	FL	TS
28	Stone Harbor	7	RO	C			S	FP	R	4.1	4	5	BT	GD	WIG	BE	MH	FL	TS
29	Scotch Bonnet	3	RO				SN	F	R	4.0	5	2	BT	G	W	B	M		T
30	Grassy Sound	3	RO				S		R	4.1	10	5	BT	G	WI	BE		FL	TS
31	Wildwood	22	RO	C	P		S	FP	R	4.3	4	3	BT	GD	WIG	BE	MH	FL	TS
32	Cape May	14	RO	C	P		SN	FP	R	4.4	5	4	BT	GD	WIG	BE	MH	FL	TS

		RECREATIONAL AREAS				ACTIVITIES				
		Town-City-County: Park	State: Park – Wildl. Area – Forest	National: Park – Wildl. Area – Forest	National Seashore	Use: Day – Wknd – Vacation	Fishing	Boating	Picnicking	Camping
No.	Location									
6SF	Green Bank		SF			DW	F		P	
9NW	Brigantine			NW		D	F	B		
14SM	Atlantic City		SM*			DWV		B		

*State Marina

74°30′ 74°20′ 74°10′ 74°00′ 73°50′

39°30′ 39°20′ 39°10′ 39°00′ 38°50′

74°50′ 74°40′ 74°30′ 74°20′

This map not to be used for navigation.
See National Ocean Survey Chart Nos.
826-SC, 1216, 1217, 1219 and 1108.

SCALE
0 5 10
NAUTICAL MILES

Wreck
Artificial Fishing Reef
95 Interstate Highway
28 State Highway

New Jersey

Atlantic Ocean

BASS RIVER
WADING RIVER
MULLICA RIVER
GREAT EGG HBR. RIVER
MIDDLE RIVER
TUCKAHOE RIVER
GREAT EGG HBR. BAY
LITTLE EGG HBR.
Hither I.
Story I.
GRAVELING PT.
Great Bay
JACOBS CR.
MOTT CR.
Pullen I.
LITTLE BAY
REED BAY
ABSECON CR.
ABSECON BAY
LAKES BAY
Great
Pork I.
Rainbow Is.
SOMERS PT.
PECK BAY
Beesleys Pt.
Gull I.
Nummy I.
GREAT SOUND
JENKINS SOUND
GRASS SOUND
JARVIS SOUND
LUDLAM BAY
CAPE MAY CANAL
CAPE MAY HBR.
CAPE MAY PT.

Garden State Parkway

Oceanville
Absecon
Pleasantville
Ocean View
Sea Isle City
Ocean City
Cape May Court House
Cape May
Wildwood
Stone Harbor
Avalon
Townsend Inlet
Hereford Inlet
Corson Inlet
Great Egg Harbor Inlet
Absecon Inlet
Atlantic City
Brigantine Inlet
Little Egg Inlet
Beach Haven Inlet
Cape May Inlet

Beach Haven Sea Buoy (Red "2BH" bell)
Little Egg Sea Buoy (Black and white "LE" bell)
Atlantic City Hooter (Red "2BS" whistle buoy)
Red Nun "4BS" Buoy
Fishing Pier
Brigantine Shoal
Absecon (Atlantic City) Sea Buoy (Black "1A" gong)
Fishing Pier
Great Egg Sea Buoy (Black and white "GE" bell)
Glory Wreck
Lobster Hole
Atlantic City Ridge
Inshore Stone Bed
Sea Isle Lump
Sea Isle Shoal
Avalon Shoal Buoy (Red "2" gong)
Avalon Shoal
The Fingers
Wreck Buoy (Red and black "WR6A")
Northeast End or "2FB" Buoy (Red whistle)
"3FB" Buoy (Black bell)
Hereford Sea Buoy (Red "8" whistle)
Gibson Wreck
Five Fathom Bank
Northeast Lump
"FFB" Buoy (Red and black nun)
Buck Ridge
Middle Lump
East Lump
Sanctuary
"2TS" Buoy (Red nun)
Cape May Sea Buoy (Red "2CM" bell)
20 Minute Slough
Eph Shoal
Hotel Slough
28 Mile Wreck
20 Fathom Curve

LEGEND

SB Striped bass
WP White perch
sB Black sea bass
WM White marlin
Bf Bluefish
Cd Atlantic cod
PL Pollock
HK Squirrel hake
SH Silver hake
Tc Tomcod
D Dolphin
St Gray sea trout
K Northern kingfish
E Eel
F Northern fluke
Wp Windowpane
WF Winter flounder
M Atlantic mackerel and Chub mackerel
bf Bluefin tuna
B Atlantic bonito
LT Little tuna
sf Skipjack tuna
P Scup
Pf Northern puffer
Df Smooth dogfish
SB Sandbar shark
Sk Blue shark
Sw Swordfish
Ta Tautog
Cu Cunner
BC Blue crab

Cape Cod to Ocean City, Maryland

LAND CONFIGURATION AND WATER DEPTH

Below Cape Cod the shoreline extends more or less westerly for about 200 miles to the mouth of the Hudson River near New York City. Thence, it bends nearly 90° to follow a southerly course for almost 150 miles as far as Ocean City, Maryland. The islands and mainland along Vineyard Sound, Buzzards Bay, Rhode Island Sound, and Block Island Sound are fringed with boulders and rocks while the rest of this low lying coast is mostly sandy.

Extending out from shore for 70 to over 100 miles lies the gently sloping submarine plateau of the continental shelf. Through time this submerged edge of the North American land mass alternated as dry land and sea floor with advances and retreats of the great ice sheets. When the world's climate was warm and no ice sheets existed, the sea was more than 300 feet above its present level. But as its climate cooled, vast amounts of moisture in the air, most of it resulting from evaporating sea water, were transformed into snow which accumulated in the cold regions to heights of several miles. This process withdrew water from the sea, thus lowering its level.

Moving towards the sea, the great tonguelike glaciers at the edge of the ice sheet quarried the land over which they passed, leaving most of the bottom deposits north of Long Island about as we find them today and probably even the coarse sand and patches of gravel which blanket the Great South Channel, east of Nantucket Shoals. Rivers have been the transporting agent of the sand and silt which covers the rest of the shelf. Heavy sediments, such as gravel and coarse sand, settle out close to shore while lighter ones, such as clay and silt, remain in suspension and are carried far offshore before settling. But this is by no means a hard and fast rule; for we find in some places gravel beds as far out as the edge of the shelf, and in one area clay and silt only 10 miles from shore, at the head of the Hudson Gorge.

The ancient bed of the Hudson River extends all the way across the continental shelf. As it nears the shelf's edge, it deepens into a great canyon, the Hudson Canyon, with walls descending more than 2,000 feet below the surrounding sea floor. The Hudson Canyon continues its course to the abyssal floor of the ocean, a distance of 150 miles beyond the edge of the shelf. Along the edge of the continental shelf are numerous smaller canyons which are the relics of ancient rivers whose beds have long been filled with sediments.

West of the series of constantly shifting sand bars called Nantucket Shoals, the bottom slopes seaward very gently, on the average about 7 feet every mile to the edge of the shelf. Sharp changes in relief along the bottom usually serve as gathering places for fishes. Thus, rises or "banks" such as Cox Ledge, Cholera Bank, Barnegat Ridge, Five Fathom Bank, Old Ground, and Southeast Lump, as well as depressions such as the Mud Hole (off Rhode Island), Outside Hole, Mud Hole (off New Jersey), Lobster Hole, and Lummis Slough, make for fine fishing.

HISTORY

Fishing for recreation in the Old World was a pleasure costing far too much money for most people, but in the New World it was free to everyone. Even though necessity compelled the early settlers to work long hours, many fished for recreation as well as food when they found time. Although most fishing was from shore, some was carried on in estuaries and along protected areas of the coast, at least by people with enough money to own or rent dories or small sailing boats. Pleasure-fishing boats for hire existed during the 1700's, for an article dated 1790 tells of President George Washington fishing on one of these boats off Sandy Hook for sea bass and tautog.

By the mid-1800's, trolling, then called squidding, for bluefish was in vogue off Sea Bright and Galilee, New Jersey. At about the same time, an old technique used by mackerel fishermen working out of Gloucester, Massachusetts, called still baiting, was adopted in western Long Island and northern New Jersey to catch bluefish, as well as bonito, Spanish mackerel, and other pelagic fishes. It was usually conducted by two men in a small boat, one chopping fresh menhaden and throwing it overboard to attract the fish, and the other handlining in the ones that bit the hook baited with strips of menhaden. Today this technique, called chumming, is still the favorite one in the area for catching bluefish.

Although the catches by saltwater anglers were not recorded for large geographical areas until the mid-1900's, a few government reports recognized its importance. For example, in 1894 the United States Fish Commission reported that in the middle Atlantic coastal states, especially in New York and New Jersey, anglers took "an enormous quantity" of fishes, mostly bluefish, gray sea trout (weakfish), sea bass, and flounders. Seventy years later over 1 million anglers who fished along these states caught about 120 million pounds of flounders, bluefish, scup (porgies), sea bass, striped bass, and other species.

Until the beginning of the 1960's, recreational fishing was almost exclusively confined to within 25 miles of shore, even for tuna and swordfish. Encouraged by reports of commercial fishermen seeing large numbers of tuna and billfish near the heads of offshore submarine canyons, a few private boats took on fuel and supplies needed to run the 200 miles out and back. Their information was correct, for they caught not only swordfish, giant bluefin tuna, and white marlin, but also yellowfin tuna, albacore, wahoo, and blue marlin, several of which had been considered uncommon north of Virginia. Fishing along the bottom they caught tilefish, some weighing 50 pounds. Within the last few years both charter and party boats have sailed to canyons such as Hudson, Wilmington, and Baltimore, where they have taken not only tilefish but white marlin near the bottom!

FISH AND FISHING

Of all the cosmopolitan big game fishes, swordfish rank among the most valued trophies. While saltwater anglers in this section of the coast have long thought of them as strictly summer visitors coming from southern water, research biologists recently found them to be here in winter also, residing in the water beyond the edge of the continental shelf. During spring, large numbers of swordfish, lean and hungry, move shoreward, being concentrated at the interface of the Gulf Stream eddies flowing into and mixing with continental-shelf water. Swordfish are usually seen at the surface on calm summer days lying quietly or swimming lazily, the tips of their dorsal fin and upper lobe of their tail projecting several inches out of the water. This is when swordfish anglers try to entice them with elaborately baited hooks. They rarely succeed, for the simple reason that swordfish usually are at the surface for some other purpose than feeding. This becomes clear when the stomach contents of many specimens harpooned at the surface are found to be full of food, and this consists of organisms that normally inhabit great depths. Evidently swordfish feed at deep levels and presumably rise to the surface to rest, perhaps to digest their food, or perhaps even to just sun themselves. Although surface-swimming swordfish do occasionally take anglers' baits, usually they only strike at them, almost as though annoyed.

During the warm months two species closely related to the swordfish, the white marlin and blue marlin, migrate from southern areas and occupy the offshore water. The commoner and smaller of the two is the white marlin. Although white marlin roam the entire shelf during the summer, they tend to concentrate in certain areas such as the Southeast Lump and the Jack Spot off Ocean City, Maryland, and the Baltimore, Wilmington, Hudson, and Block Canyons off Maryland, New Jersey, and New York. In this section of the coast blue marlin were most unusual catches until about 10 years ago. Then, as canyon fishing became more popular, and more and more boats fished farther offshore, catches increased until 15 or 20 may be landed during a season.

Bluefin tuna, a favorite among anglers because of their size and stamina, occur off these shores the year round. During late fall and winter, bluefin, like swordfish and other large pelagic species, inhabit the oceanic water between the shelf edge and the Gulf Stream. Yellowfin tuna *(Thunnus albacares),* bigeye tuna *(T. obesus),* and albacore *(T. alalunga)* (not to be confused with little tuna, the one anglers call the false albacore) also inhabit this oceanic water, many occupying the water over the outer part of the shelf during the summer and early fall, when it is the warmest. Although it is not definitely known where bluefin tuna are spawned in the Northwest Atlantic, some as small as 6 inches are taken off New Jersey and Long Island during June. They grow rapidly during their first year—nearly 2 inches in length and a half pound in weight each month. The schools of 1- to 3-pounders seen migrating south along this coast during September are only about 4 months old. By the end of the following summer they are 15 pounds and the summer after that 30 pounds. Giant tuna weighing 500 to 700 pounds are probably 12 to 13 years old and those weighing over 1,000 pounds may be 20 years old or more.

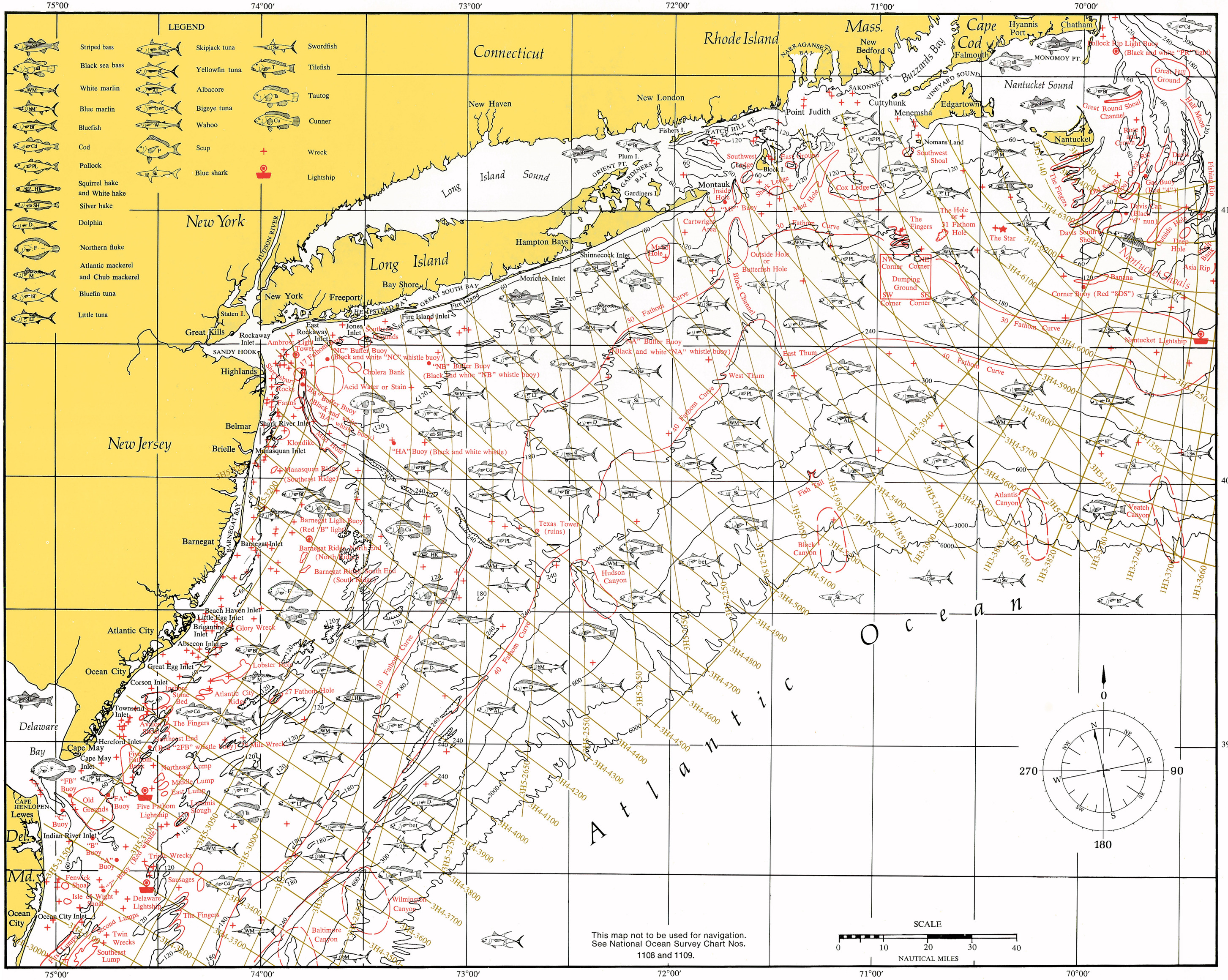
Little tuna, skipjack tuna, and bonito spend the winter in warm semitropical or tropical regions and migrate north into coastal water as it warms during the summer. Unlike the large species of tunas, these small ones seem to be confined to continental-shelf water, for rarely are they found in the sea beyond the 600-foot contour. During the summer and fall any of these species may be found schooling with other pelagic fishes of like size, such as other kinds of tunas and bluefish.

Blue sharks have become increasingly accepted as game fish in recent years owing in part to their abundance, especially off Long Island, Block Island, Martha's Vineyard, and Nantucket. The popularity of blue sharks is also based on the fact that they readily bite natural baits, or even artificial ones occasionally; and when hooked on light line, they fight strongly, often making long runs. They are among the first of the pelagic sharks to migrate into coastal water in early summer in search of food. Blue sharks frequently precede the arrival of swordfish, most of them being inshore of the 600-foot contour line by mid-June. All through the summer they may be found anywhere over the shelf from the shore seawards, although they seem to be most abundant near the surface in depths of 120 to 240 feet. Like swordfish, they are often seen resting at the surface or swimming lazily along with their first dorsal fin and upper tip of the tail out of the water. Unlike swordfish, however, they often feed at the surface.

Beside the array of pelagic fishes inhabiting the shelf, there are a number of bottom or near-bottom dwelling ones that are of great interest to anglers. Of these, cod is probably the most important species. While most of them migrate to Nantucket Shoals for the summer, some remain in depths of 150 feet or more the year round, most of them living about sunken ships or other underwater wreckage. The affinity of cod to the area of wreckage is so great that offshore wreck fishing, as fishermen call it, is synonymous with cod fishing. Pollock weighing up to 40 pounds also live in these areas. While at times swimming near the bottom, they often range from there to the thermocline during warm months and to the surface, especially in spring and fall, when the temperature is uniform throughout the water column.

Another bottom-dwelling species inhabiting offshore water the year round is the tilefish. Seldom, if ever, do they stray into depths less than 300 feet. They are most concentrated between Nantucket and Delaware in a narrow band between the 350-and 750-foot contours, where the prevailing temperature is 47° to 56° F.

During 1879 Captain William Kirby, a market fisherman, made an exploratory cruise to check a rumor that large quantities of hake could be caught in deep water south of Nantucket Shoals. Judged only by his catch of hake, the trip was a failure; but he did get fish nevertheless, strange and colorful such as he had never seen. The leading ichthyologists at the National Museum had never seen them either, for they were unknown to science and therefore a new species for which the common name tilefish was coined. Unfortunately the new fishery which the publicity stimulated lasted only 2 years before disaster struck. In the spring of 1882, vessels sailing offshore of New York and New Jersey reported traveling miles through dead and dying fishes. Many of these were tilefish, numbering, it was estimated, over a billion. It seems that abnormally cold water temporarily displaced the 47° to 56° F bottom water which sustains tilefish, thus causing the colossal fish kill. Their destruction was so nearly complete that fishing trials carried on periodically failed to catch a single one of them until about 1890. Gradually, however, the population has become restored, so that now tilefish are probably as abundant as they ever were.


LEGEND
Striped bass
Black sea bass
White marlin
Blue marlin
Bluefish
Cod
Pollock
Squirrel hake and White hake
Silver hake
Dolphin
Northern fluke
Atlantic mackerel and Chub mackerel
Bluefin tuna
Little tuna
Skipjack tuna
Yellowfin tuna
Albacore
Bigeye tuna
Wahoo
Scup
Blue shark
Swordfish
Tilefish
Tautog
Cunner
Wreck
Lightship
75°00′
74°00′
73°00′
72°00′
71°00′
70°00′
41°00′
40°00′
39°00′
New York
Connecticut
Rhode Island
Mass.
New Jersey
Delaware Bay
Md.
Atlantic Ocean
Long Island Sound
Long Island
Nantucket Sound
Cape Cod
HUDSON RIVER
NARRAGANSETT BAY
BUZZARDS BAY
VINEYARD SOUND
SAKONNET PT.
WATCH HILL PT.
ORIENT PT.
GARDINERS BAY
GREAT SOUTH BAY
HEMPSTEAD BAY
BARNEGAT BAY
New Haven
New London
Fishers I.
Plum I.
Gardiners I.
Montauk
Point Judith
New Bedford
Falmouth
Hyannis Port
Chatham
MONOMOY PT.
Cuttyhunk
Menemsha
Edgartown
Nomans Land
Nantucket
Block I.
Hampton Bays
Bay Shore
Shinnecock Inlet
Moriches Inlet
Fire Island
Fire Island Inlet
New York
Freeport
Staten I.
Great Kills
Rockaway Inlet
East Rockaway Inlet
Jones Inlet
SANDY HOOK
Highlands
Belmar
Shark River Inlet
Manasquan Inlet
Brielle
Barnegat
Barnegat Inlet
Barnegat Light Buoy (Red "B" light)
Barnegat Ridge North End (North Ridge)
Barnegat Ridge South End (South Ridge)
Beach Haven Inlet
Little Egg Inlet
Brigantine Inlet
Atlantic City
Absecon Inlet
Great Egg Inlet
Ocean City
Corson Inlet
Townsend Inlet
Hereford Inlet
Cape May
Cape May Inlet
CAPE HENLOPEN
Lewes
Indian River Inlet
Ocean City Inlet
Ambrose Light Tower
17 Fathom Hole
"NC" Buffer Buoy (Black and white "NC" whistle buoy)
"NB" Buffer Buoy (Black and white "NB" whistle buoy)
"NA" Buffer Buoy (Black and white "NA" whistle buoy)
"BA" Buffer Buoy (Black and white "BA" whistle buoy)
"HA" Buoy (Black and white whistle)
Southeast Shoals
Cholera Bank
Acid Water or Stain
Sunken Farms
Klondike
Mud Hole
Manasquan Ridge (Southeast Ridge)
Glory Wreck
Lobster Hole
Atlantic City Ridge
27 Fathom Hole
Ice Dore Stone Bed
The Fingers
Mile Wreck
Five Fathom Bank
Northeast Lump
Middle Lump
East Lump
Lumpis Slough
Five Fathom Lightship
"FA" Buoy
"FB" Buoy
"C" Buoy
"B" Buoy
"A" Buoy
Old Grounds
Triple Wrecks
Sausages
Fenwick Shoal
Isle of Wight Shoal
Delaware Lightship
Second Lumps
Twin Wrecks
Southeast Lump
Five Lumps
Texas Tower (ruins)
Hudson Canyon
Baltimore Canyon
Wilmington Canyon
Block Canyon
Atlantis Canyon
Veatch Canyon
Cox Ledge
Southwest Ledge
East Ground
Southwest Shoal
Inside Hole
"MP" Buoy
Mud Hole
Cartwright Area
Outside Hole or Butterfish Hole
Block Channel
30 Fathom Curve
40 Fathom Curve
NW Corner
NE Corner
SW Corner
SE Corner
Dumping Ground
East Thum
West Thum
Fish Tail
The Hole or 31 Fathom Hole
The Star
Pollock Rip Light Buoy (Black and white "PR" light)
Great Hill Ground
Great Round Shoal Channel
Rose and Crown
Great Rip
Half Moon
Fishing Rip
Davis Bank
Gas Buoy (Red "4")
Davis Can (Black "6" nun)
Davis South Shoal
Outside Hole
Deep Hole
Asia Rip
Nantucket Shoals
Banana
Corner Buoy (Red "8DS")
Nantucket Lightship
3H4-1140 The Fingers
3H4-6300
3H4-6200
3H4-6100
3H4-6000
3H4-5900
3H4-5800
3H4-5700
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3H5-2050
3H5-1950
3H5-1850
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3H5-1350
3H5-1250
1H3-3940
1H3-3900
1H3-3860
1H3-3820
1H3-3780
1H3-3740
1H3-3700
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270
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SCALE
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30
40
NAUTICAL MILES
This map not to be used for navigation.
See National Ocean Survey Chart Nos.
1108 and 1109.

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).

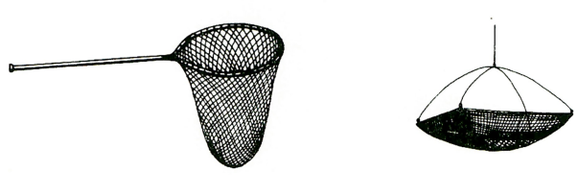
COASTAL. Spoken of marine fishes which spend most of their lives within a few miles of shore.

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.

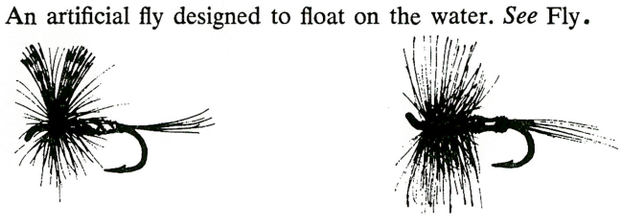
CUT. A term used in southern Florida for an inlet.

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.

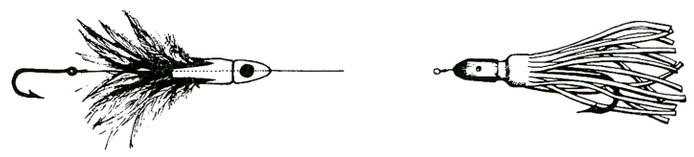


DRY FLY. An artificial fly designed to float on the water. *See* Fly.



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.

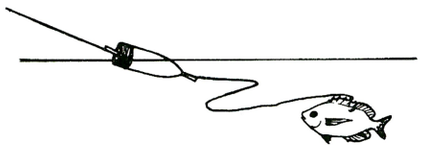


FIRE LIGHTING. Also called night lighting, gigging and floundering. Locating or attracting fish in shallow water at night with lights either held above or below the surface. Once a fish is located, it is usually speared.

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.

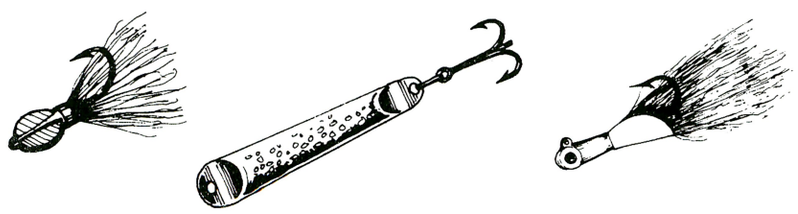
HEADLAND. A high point of land or rock projecting into the sea.

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.

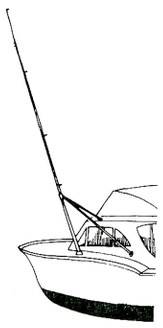
MOP. An artificial bait or lure made to simulate a natural bait and trolled in the water. It consists of a small-linked brass chain 6 to 14 inches long with tufts of thread tied or glued into each link. Attached to the front of the chain is either a swivel or a weight, and to the rear end a hook. This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



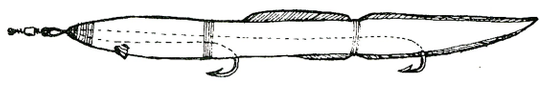
PARTY BOAT. Also called head boat, open boat, ground-fishing boat, deep sea-fishing boat, drift-fishing boat, and packet or party packet. A fishing boat, usually carrying 10 to 60 anglers. Space is sold to the general public until either the boat is filled to capacity or the scheduled sailing time is 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.

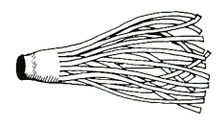
SALT WATER. Applied in this book to water having more than 17 parts per thousand, by weight, of dissolved salts. Average sea water for all oceans has about 35 parts per thousand of dissolved salts.

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.

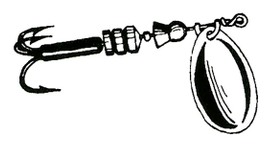
SHAD DART. A small jig, usually a weighted bucktail, weighing about ¼ ounce or less. Darts are used primarily to catch shad and similar fishes.

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

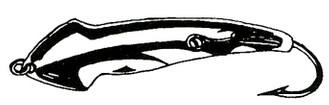
SKIRT. An artificial bait or lure consisting of a brightly colored shredded plastic tube 4 to 8 inches long and fitted over a feather, stripbait, rigged bait or other trolling lure.



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.

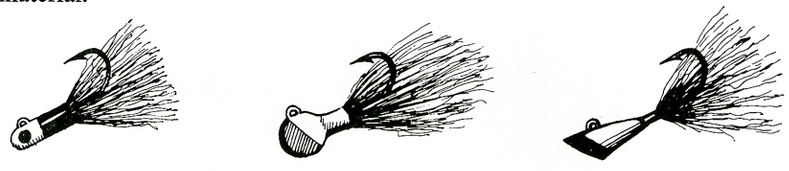
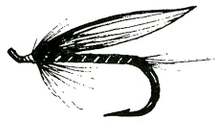
TIDE-LINE. The water level at the shore, which changes with the tide.

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.