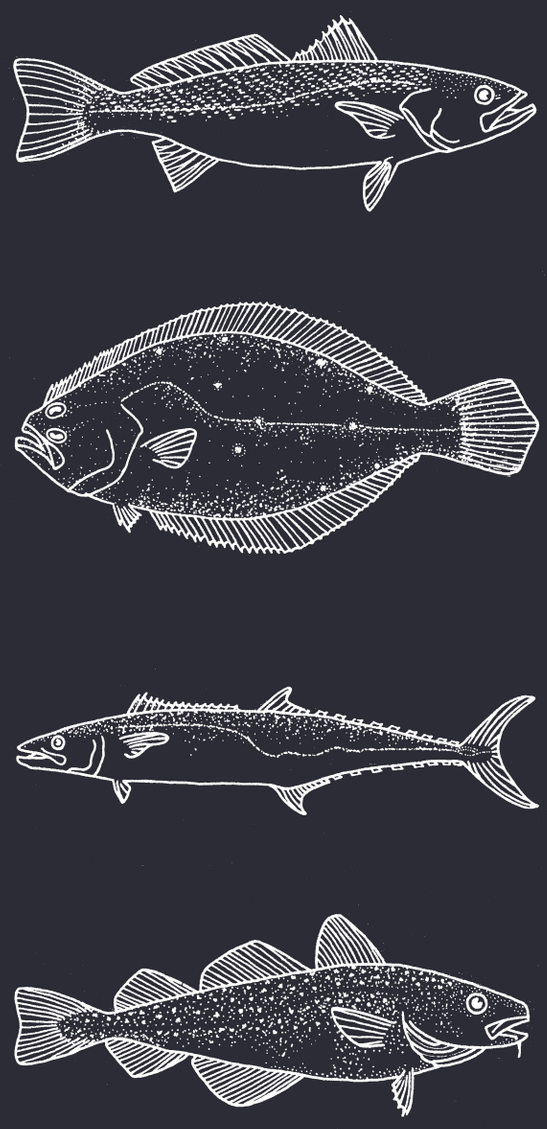
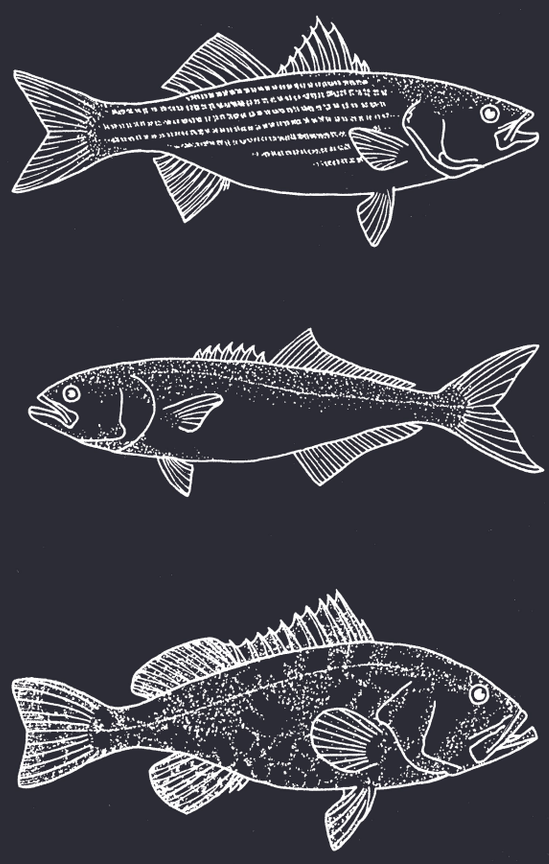
UNITED STATES DEPARTMENT OF COMMERCE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NATIONAL MARINE FISHERIES SERVICE

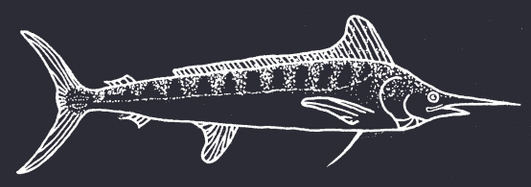


Anglers' Guide TO THE *United States Atlantic Coast*



SECTION V

Chesapeake Bay



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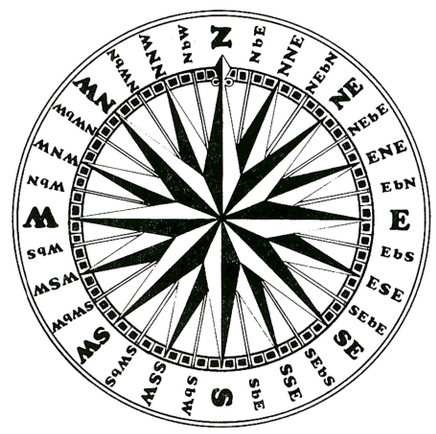
Anglers' Guide

TO THE

United States Atlantic Coast

FISH, FISHING GROUNDS & FISHING FACILITIES



BRUCE L. FREEMAN AND *LIONEL A. WALFORD*

SECTION V

Chesapeake Bay

JULY 1976

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 originally planned, 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 as reported in the first major work of the United States Commission of Fish and Fisheries, the forerunner of the National Marine Fisheries Service.

In gathering information for Chesapeake Bay we have questioned scores of fishermen — operators of charter boats, party boats, gill net boats, pound nets and weirs, beach seines, and bait seines; also, anglers, outdoor writers, and operators of boat liveries, bait and tackle stores, and marinas. Also, we have questioned biologists of the various state and federal laboratories, especially the staff at Sandy Hook. State agencies for parks, forests, and recreational lands, as well as the National Park Service and the United States Bureau of Sport Fisheries and Wildlife, generously supplied us with information. Throughout our task we had the wholehearted 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 and glossary drawings. Robert L. Lippson helped prepare the text for this particular section. Others who have given information or have been otherwise helpful in preparing this section are listed alphabetically below. Without their help this work would not have been possible.

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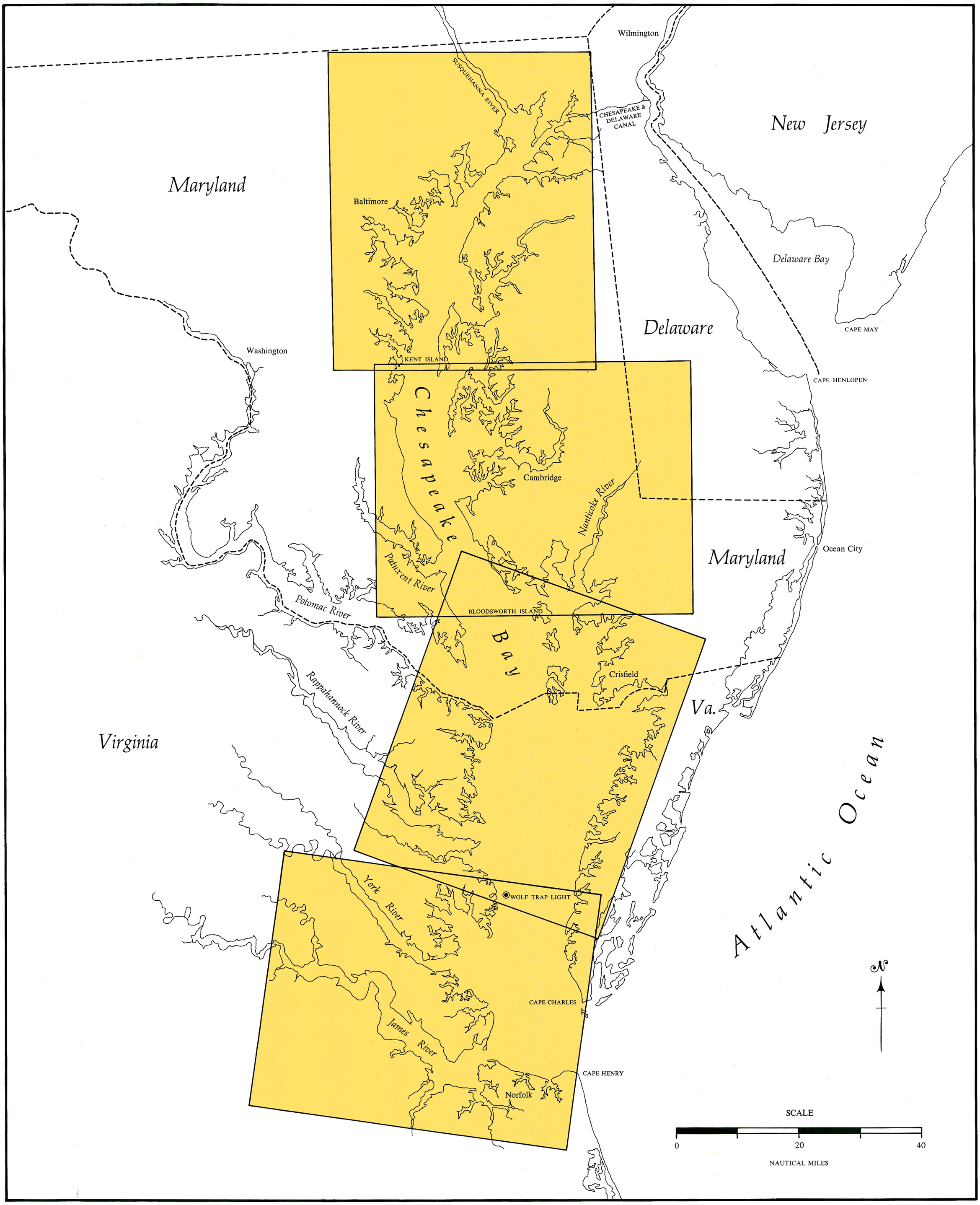
Wilmington
SUSQUEHANNA RIVER
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Maryland
Baltimore
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Washington
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Ocean City
Maryland
Patuxent River
Potomac River
BLOODSWORTH ISLAND
Bay
Crisfield
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NAUTICAL MILES

With the melting of the great ice sheets that had covered much of the northern and southern hemispheres some 12,000 years ago, an enormous volume of water gradually became liberated, causing the sea level to rise all over the world and flood lowlands, including coastal valleys. It was during this period of flooding that the estuaries of our Atlantic coast were formed, much as we know them today. The largest of these, in fact the largest in the United States, is Chesapeake Bay. It covers ground that was the valley through which the Susquehanna River once flowed to the sea when the shore was about 70 miles farther to the east than it is now.

Chesapeake Bay is about 160 miles long from Cape Henry to the Susquehanna River mouth and averages about 10 miles wide. Its main axis runs in a north-south direction, roughly paralled to the sea coast. The tidal shoreline of the Bay measures about 4,600 miles, of which 3,400 miles are in Maryland and 1,200 in Virginia. The shoreline of the Bay with its tributaries measures about 8,100 miles, being almost equally divided between both of these states. The surface area of this vast estuary with its myriad tributaries is about 4,400 square miles.

Chesapeake Bay lies entirely within the coastal plain—a low, nearly flat, sandy expanse of land. Beneath the plain in this region lies a thick sedimentary formation composed mostly of unconsolidated beds of silts, clays, sands, and gravels. Homogeneous gray or black muds form the floor of the main channel of the Bay. This channel was the deepest part of the Susquehanna Valley and now has the greatest deposits of sediment. Broad shoals and extensive flats occur in the Bay about a third of the way up from its mouth around Tangier, Smith, South Marsh, and Bloodsworth Islands, and at the head of the Bay where the Susquehanna River empties.

Both shores of Chesapeake Bay are deeply and irregularly incised by embayments and streams of various sizes. No fewer than 19 principal rivers and 400 lesser rivers and creeks are tributaries to Chesapeake Bay. The western shore rivers are the largest. Three of them, the Susquehanna, Potomac, and James, contribute 80% of the total fresh water flowing into the Bay. Although the eastern shore rivers are relatively small, nearly all are navigable by small craft, the largest and best known of them being the Choptank. The eastern shore rivers flow through low, flat country, draining rich farm and forest land. Vast marshes renowned for the great numbers of waterfowl which inhabit them during autumn and winter are especially characteristic of the eastern shore. But the western shore, too, has large expanses of wetlands, as anyone who has ever boated the upper Patuxent River, for example, can testify. For the most part the western shore is a series of nearly flat peninsulas which gradually rise to rolling uplands. To the north and farther into the interior along the western shore, the land rises in an irregular pattern of progressively higher hills until it reaches the principal range of the Appalachian Mountains.

The mean depth of Chesapeake Bay is less than 30 feet; that of the entire system including tributaries to the farthest extreme of tidal influence is about 20 feet. There are, however, deep holes or troughs which have not yet been filled by sediments. The deepest of these, 174 feet, is located 10 miles southeast of Annapolis, Maryland, in a narrow part of the Bay off Bloody Point Bar.

Like the open sea along the eastern coast, high and low tides occur twice daily in Chesapeake Bay. The tidal range, about 3 feet at the mouth, gradually decreases to 1½ feet in the center of the Bay, then to a foot at the Annapolis Bridge. From there to the head of the Bay near Havre de Grace, it increases to 2 feet. The highest tides are associated with periods of high winds which in turn generate high waves. Since these winds are usually westerly or northwesterly, the wave heights tend to be highest on the eastern shore of the mainland and on the northern and western shores of the islands in the Bay. Consequently, these are the most seriously eroded shores. A 1949 study estimated that the mainland had lost 17,000 acres over an 89-year period. About two-thirds of this loss was from the eastern shore. Islands in the Bay had lost some 7,600 acres. Another study has shown the entire area surrounding Chesapeake Bay to be sinking at an average rate of one eighth of an inch a year.

Although the climate of this region is generally mild, it varies considerably with geographic location because of Chesapeake Bay's great length, which extends over nearly three degrees of latitude. At the Bay's mouth the climate is tempered greatly by the sea; while as the Bay extends farther inland, it becomes increasingly influenced by the more severe continental weather. The general pattern, however, is that summers are relatively long and winters short. From about May to October the weather is warm, the humidity high, and the winds gentle. The prevailing southerly or southwesterly winds bring warm, moist air, and the weather usually remains fairly uniform for weeks at a time. During this period, however, there are frequent showers and thunderstorms, some accompanied by gale force winds which cause serious trouble to small boatmen caught in unprotected water. July is the warmest month, when air temperatures most often rise to 95°F, sometimes to over 100°F, along the shores of the Bay, especially in the upper sections. Over the water of the Bay, however, the air is 5° to 10°F cooler, and still cooler near the sea.

Fall is a brief period lasting only a month and a half or so after summer, when the warm, gentle southerlies gradually give way to more variable winds. Northwest winds gradually become dominant and progressively stronger and colder. Winter which lasts from mid-December to March is a time of unstable weather marked by rapidly changing air masses. As each air mass passes over the area the usual condition of raw, overcast days is interrupted by brief periods of strong, gusty winds followed by a few clear, crisp days, which in turn are usually followed by periods of rain, freezing rain, or snow. Near the mouth of Chesapeake Bay the temperature drops to freezing only briefly at times, while the tributaries and parts of the upper Bay become frozen solid for weeks at a time during most years. Spring is like fall with the pattern reversed. Warm spells, sometimes with abundant rain, alternate with cool, dry weather. By late April the weather has gradually merged into the summer regime.

Average surface-water temperatures in the Bay range from 80° to 82°F in summer, 55° to 60°F in the fall, 34° to 40°F in the winter, and 54° to 57°F in the spring. The deepest parts of the Bay seasonally provide some refuge to fishes during periods of extreme heat or cold, for temperatures there run 1° to 3°F warmer than at the surface in winter, and 1½° to 2½°F cooler in the summer. The salinity of the surface water in the winter ranges from more than 27‰ (parts per thousand) at the mouth of the Bay to less than 3‰ at the head. In the spring the salinity runs about 2‰ less on the average than in the winter, and in the fall when it is most concentrated, 2 to 6‰ higher. At any given latitude the water is saltier on the eastern shore than directly opposite on the western shore. This is caused mostly by the rotation of the earth but also by the greater runoff of fresh water from the western shore. In the deepest parts of the Bay, the salinity is higher by 6 to 8‰ than at the surface.

More than 200 species of fishes have been reported in Chesapeake Bay. About a quarter of these inhabit fresh or brackish water, the rest are more or less limited to water of a salinity greater than 12‰. Because of the peculiarity of the salinity pattern, sea fishes tend to go farther north in the Bay along the eastern shore and to be more numerous there than along the western shore. Their numbers diminish northward beyond the southern end of Kent Island on the eastern side of Chesapeake Bay and Herring Bay on the western side. But tolerance ranges of salinity, like those of temperature, vary from one species to another, and for any given species, from one age to another. Younger fish tend to tolerate, if not require, fresher water than older ones. This has the advantage of protecting the very young from their carnivorous and undiscriminating parents as well as from the adults of other species. A major cause of irregular fish distribution in the Chesapeake Bay is variation in precipitation, which affects the salinity. During the drought conditions which existed in the early 1960's Atlantic bonito and king mackerel were caught as far up the Bay as Baltimore, while during years of normal precipitation these two fishes are usually not found beyond about Tangier Island. Hence, no hard and fast rules can be laid down as to how near the head of the Bay a saltwater fish may be taken during an abnormal year.

Most of the sea fishes and certain of the anadromous ones, shad for example, are seasonal migrants, arriving in Chesapeake Bay during the spring and leaving in the fall. A few species, however, reside in the Bay the year round. Fish have various ways of surviving the winter. Some descend into deeper water in the Bay and hibernate (e.g., eels); others move out of the Bay to varying distances offshore, going even as far as the edge of the continental shelf (e.g., northern fluke, scup, black sea bass, spot, Atlantic croaker); and others travel southward along the continental shelf to areas where temperature, food supply, and the amenities of habitat satisfy their specific needs (e.g., bluefish, gray sea trout).

Chesapeake Bay marks the geographic limit of the ranges for about a dozen typically northern fishes, e.g., yellowtail flounder, squirrel hake, cunner; and 25 or so southern ones, e.g., tongue sole, horse-eye jack, southern kingfish, sand drum. Among northern fishes that are rare south of Chesapeake Bay is the winter flounder; among southern fishes rare north of Chesapeake is the pompano.

Fewer than half a dozen species are found in Chesapeake Bay and nowhere else. Fishes that are more abundant in the Bay than in other sections of the Atlantic coast are alewife, striped bass, and white perch. Those which anglers report catching most often in the Bay are white perch, striped bass, and bluefish in that order. In term of weight, however, striped bass ranks first, white perch second.

Since 1880, the earliest year for which there are any statistics, the commercial catch of food fish (i.e., excluding menhaden) and shellfish in Chesapeake Bay has fluctuated over a wide range. The composition of the catch, however, has changed with the highs and lows in the abundance of the various species. The production of oysters has decreased to less than a quarter of what it was 80 years ago. Nevertheless, the oyster is still the most valuable sea food in the Bay, and Chesapeake Bay still provides more oysters than the rest of the Atlantic seaboard, more than the Gulf of Mexico, and more than the Pacific coast. The Atlantic croaker and the gray sea trout both rose to unprecedented prominence early in this century, reached peaks of production in the 1940's and then dropped sharply to comparatively low levels. The shad, following a cycle of high abundance between 1888 and 1909, declined to a lower level about which it has fluctuated ever since. The striped bass was relatively unimportant until after the 1930's. The dramatic rise in recreational fishing about that time gave very great prominence to this species. The most abundant fish in the Bay and the object of the largest fishery, menhaden, is used only for manufacture into oil which is used for a variety of purposes and into meal which is a valuable component of animal feeds. Chesapeake Bay is particularly important to the young of this species as a nursery ground.

Among all the food fishes and shellfish in Chesapeake Bay, the blue crab has consistently provided the largest commercial production for at least 65 years with only short-term ups and downs. The annual catch, which gives a rough idea of abundance, has wavered since 1930 between about 30 and 97 million pounds. In about half of the years over this period, it has been above 60 million pounds. There is no indication of a declining abundance; indeed, this seems to be a remarkably hardy, resilient species.

Long-term depressions of fish populations, such as have affected the sea trout and croaker, result partly from natural vagaries of environment, but also to a considerable extent from man's activities, of which the most serious are overfishing and damage to nursery grounds in the estuaries. Sea sturgeon is an example of a once valuable seafood that has been depleted to a point of doubtful recovery by overfishing. Sturgeon come in from the sea as early as April and run great distances up tributary streams to clean, swift-flowing water to spawn. There are so few of them now that it is hard to imagine how abundant they must have been when the first Europeans came. Without sturgeon it seems doubtful that Captain John Smith's company could have survived. An account written in 1760 tells of ". . . sturgeons in Chesapeake Bay being of such prodigious numbers that within the space of two miles only, some gentlemen in canoes caught about 600 with hooks." At first the supply was more than the market could bear. Indeed, more were caught by fishermen during the shad and herring runs than could be sold. As a consequence they were considered as pests to be destroyed. Nevertheless, their value gradually became apparent in Chesapeake Bay as the demand rose for their eggs, from which caviar was prepared, and their meat, which was smoked. Sea sturgeon being large and rather sluggish were easily captured in great numbers, and having a slow rate of growth, quickly became overfished so that fewer and fewer were caught each succeeding year. The yield in Chesapeake Bay declined from about 800,000 pounds in 1891 to 23,000 pounds in 1920 and to 2,000 pounds in 1970. It is unlikely that sea sturgeon will ever again approach its former abundance. Indeed, its very existence as a species is threatened.

Overfishing of sturgeon as with other species of fishes could have been corrected by regulating fishing rates and the sizes of fish that could be taken, so as to achieve, on the average, the highest sustained annual catch. Such regulation, however, would have to be done species by species, and because almost all of the sea fishes migrate along the coast and the distances over which they travel increase with age, rational management of fishing would require interstate coordination. This has yet to be achieved.

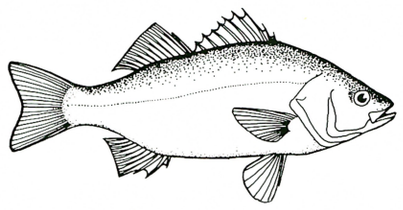
Damage to nursery grounds has accelerated greatly during the last two decades because of increasing and often conflicting demands placed on Chesapeake Bay. Since tidal marshes with their myriad of winding and branching waterways and shoal areas are the most important nurseries for a great majority of the marine and estuarine fishes living in the Bay, any loss of these areas will contribute significantly to a decline in their abundance. Housing and industrial development are the most serious causes of such loss. In the 15 years between 1954 and 1969, a total of 33,000 acres of tidal marshland was destroyed in Maryland and Virginia. At the same time dredging and filling destroyed another 4,000 acres of important shoal-water habitat. Ironically, the damage to nursery areas in the Bay from man's various activities could have been avoided with proper land-use planning. It is not too late to save what remains, but any hope of doing so depends upon timely effective action.

The decline in abundance of Chesapeake Bay oysters is to some extent one of the side effects of deforestation. For as the European settlers cleared away the dense, primeval woods to open up the country for cultivation, they liberated the soil to the creeks and rivers and thence to the Bay. Oyster beds on which the silt accumulated became gradually buried and eventually lost. Other causes contributed even more to the decline: deterioration of public oyster beds resulting from bad harvesting methods; pollution by sewage, which makes oysters unusable; industrial wastes, which affect the health and quality of the oysters; and uncontrolled oyster enemies such as parasitic protozoans and fungi, boring snails and clams, small crabs, etc. Although production could be improved by sophisticated oyster farming on privately leased grounds, the majority of oystermen resist giving up their way of working, handed down from the past.

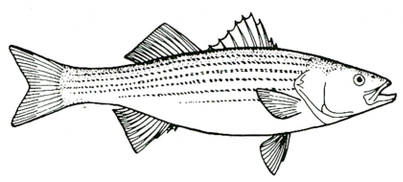
An angler in Virginia and Maryland does not need a license to fish or crab in salt or brackish water. There are, however, some saltwater regulations. Both states have minimum size limits on striped bass. In addition, Maryland has a catch limit for large-size striped bass and a closed season for them during a brief period. These two states also have minimum size limits for a few other fishes. Virginia has a daily catch limit for large red drum. Both of these states have minimum size limits for the hard stage of blue crabs, as well as for peelers, i.e., those with fully developed soft shell under the hard shell, and also for the soft stages of blue crabs; and they prohibit keeping egg-bearing females. Also they have regulations governing the digging and raking of clams and oysters and the capturing of anadromous fishes. Maryland prohibits fishing in the Bay in certain counties and in some of the Bay's tributaries during the gunning season for waterfowl. To obtain copies of the fishing and shellfishing regulations, contact the following: *Virginia*—Marine Resources Commission, P.O. Box 756, 2401 West Avenue, Newport News, 23607; and *Maryland*—Department of Natural Resources, State Office Building, Annapolis, 21401.

Most Commonly Caught Fish

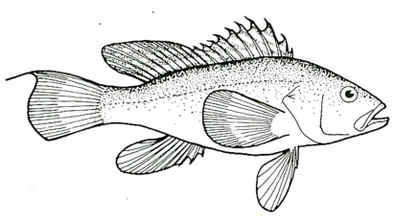
BASSES, SEA



WHITE PERCH, *Morone americanus*. Perch, black perch, stiff-back perch, blue-nosed perch. See silver 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. In the striped bass the dorsal fins are separated and the 2nd spine of the anal fin is shorter than the 3rd. SIZE: Largest recorded 4¾ lbs; avg. ⅓ - ½ lb; over 2 lbs unusual. HABITS: Resident, schooling and anadromous. Occur in fresh, brackish and salt water. During warm months most white perch occur in the lower section of tributary streams. During spring adults move upstream to spawn in fresh water; during winter they retreat downstream to deep water, some to 120 ft in channels and deep holes. SEASON: Taken all year; best fishing mid March—May and October—November. FISHING METHODS: Bottom fishing, live lining, chumming, jigging and casting from shore or boats. BAITS: Shrimp, worms, clams and small silversides or killifish; also small spoons, spinners, jigs and wet or streamer flies.

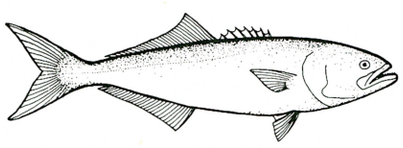


STRIPED BASS, *Morone saxatilis*. Rock, rockfish, striper. See white perch. SIZE: Largest recorded 125 lbs; tackle record 73 lbs; avg. 1-2 lbs; over 40 lbs unusual. HABITS: Schooling and anadromous. Occur in fresh, brackish and salt water over any type of bottom. During spring adult striped bass move towards the upper Bay and into fresh water rivers to spawn. During summer they school in lower portions of tributaries and the open Bay. During fall they usually feed along the shore and in creeks. During winter striped bass concentrate in deep portions of the Bay and lower tributaries, in depths of 20-150 ft, but are active enough to be taken by anglers in water only warmer than 39°F. SEASON: All year; best fishing mid March—May and late September—December. FISHING METHODS: Casting, bottom fishing and live lining from shore; these methods plus trolling, jigging and chumming from boats. Check state regulations on size, quantity and season. BAITS: Worms, clams, soft or shedder crab, shrimp, eels and other live baitfish. Also weighted bucktails, spoons, jigs, feathers, plugs, and imitation eels or worms.



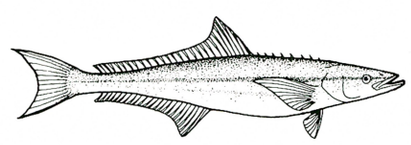
BLACK SEA BASS, *Centropristis striata*. Black Will, sea bass. SIZE: Largest recorded 8 lbs; tackle record 8 lbs; avg. ¼ - ⅓ lb; over ¾ lb unusual. HABITS: Gregarious and migratory. Lives on or near rock or shell bottom and around wrecks, pilings, wharfs, rock jetties or breakwaters. Black sea bass occur in the lower half of the Bay and are most common near the entrance. During warm months they occur in depths to 50 ft; during cold months they migrate out of the Bay and into deeper ocean water. SEASON: May—October. FISHING METHODS: Most caught in water warmer than 55°F from 10-30 ft deep by bottom fishing from drifting or anchored boats. A few taken from shore by bottom fishing. BAITS: Squid, clams, crabs, worms, shrimp and cut fish.

BLUEFISH



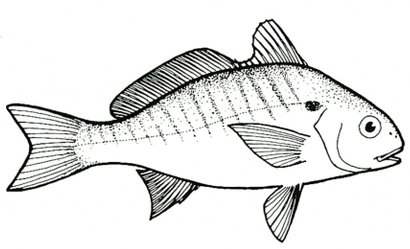
BLUEFISH, *Pomatomus saltatrix*. Blues; small fish called tailors, tailor blues or snappers. SIZE: Largest recorded 35 lbs; tackle record 31 lbs 12 oz; avg. ½-1½ lbs; over 5 lbs unusual. HABITS: Pelagic, schooling and migratory. Bluefish occur usually near the surface but sometimes throughout the water column. Numbers can fluctuate greatly from year to year. In years of abundance, bluefish occur throughout the Bay in salt and brackish water. SEASON: May—October; best fishing September—October. FISHING METHODS: Casting, bottom fishing or live lining from shore; these methods plus trolling, jigging and chumming from boats. Most bluefish are caught in water of 62° — 75°F within 45 feet of the surface. Check state regulations on size limit. BAITS: Spoons, weighted bucktails, jigs, feathers, tube lures and plugs; also worms, clams, eels and small baitfish.

COBIA

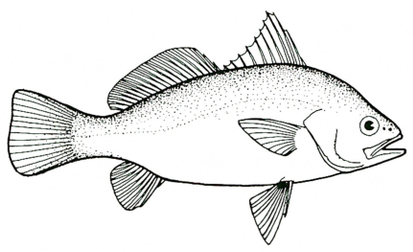


COBIA, *Rachycentron canadum*. Crab-eater, sergeant fish, ling. Sometimes miscalled bonito or black bonito. SIZE: To 120 lbs; tackle record 110½ lbs; avg. 20-30 lbs; over 75 lbs unusual. HABITS: Migratory. Cobia occurring both inshore and offshore, are usually solitary or in small aggregations and often found around buoys, wrecks, debris, rock piles and pilings. Sometimes they are associated with schools of other fish species and with sea turtles or large rays. SEASON: May—mid October; best fishing in July and August. FISHING METHODS: Bottom fishing, live lining, casting, chumming or trolling from boats. BAITS: Whole spot, eel or shedder crab and cut fish; also spoons, plugs and large weighted bucktails.

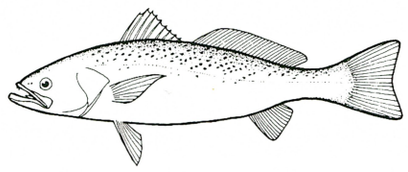
DRUMS



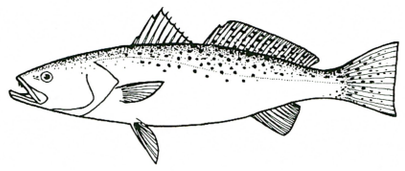
SPOT, *Leiostomus xanthurus*. Norfolk spot, Ocean View spot, Layafette. Distinguished from silver perch by having a dark shoulder spot and a slightly forked tail. In contrast, silver perch have no spot and their tails are nearly square. SIZE: To 2¼ lbs; avg. ¼-½ lb; over 1 lb unusual. HABITS: Most occur in salt and brackish water, a few in fresh water. These bottom feeders usually aggregate according to size, and frequent sand or mud bottom and shellfish beds. Adults are migratory; young fish may remain in the Bay all year, many in deep holes or channels during winter. SEASON: May or June—October or early November; best fishing mid August—early October. FISHING METHODS: Bottom fishing from shore; this method plus chumming from boats. BAITS: Worms, shrimp, soft crab, clams and cut fish.



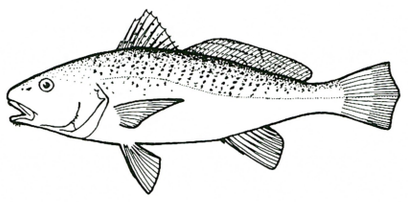
SILVER PERCH, *Bairdiella chrysura*. Sand perch, white sand perch, yellowtail, King William. Often miscalled white perch. See spot. Distinguished from white perch by having 2 anal fin spines and the lateral line extending onto tail. White perch have 3 anal fin spines and lateral line does not extend onto tail. SIZE: to ¾ lb; avg. ¼ – ⅓ lb; over ½ lb unusual. HABITS: Occur in salt and brackish water on sand, mud or shell bottom; especially sandy-mud with eel grass. Adults are migratory; young fish remain year-round in the Bay. SEASON: April—October or mid November; best fishing in September and early October. FISHING METHODS: Bottom fishing from shore, this method plus live lining and chumming from boats. Usually taken as an incidental fish. BAITS: Worms, shrimp, clams, mussels, soft crab and cut fish; also small weighted bucktails.



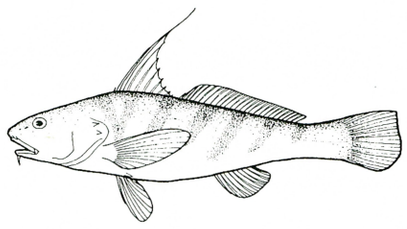
GRAY SEA TROUT, *Cynoscion regalis*. Trout, gray trout, sea trout, weakfish, gray weakfish. See spotted sea trout. SIZE: Largest recorded 30 lbs; tackle record 19½ lbs; avg. ¼-¾ lb; over 4 lbs unusual. HABITS: Schooling and migratory. Most abundant in the brackish water of the Bay and river mouths. They are found over any type of bottom, but favor sandy areas, especially with eel grass beds. SEASON: May or June—October or mid November; best fishing in September and October. Most are caught a few feet off the bottom in depths of 6 to 45 ft. FISHING METHODS: Bottom fishing, live lining, casting, chumming and jigging from shore; these methods plus trolling from boats. Check state regulations on size limits. 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.



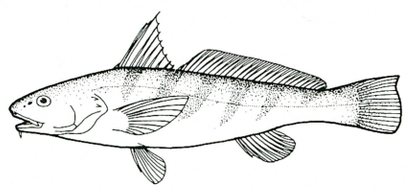
SPOTTED SEA TROUT, *Cynoscion nebulosus*. Speckled trout, trout, salmon trout. Distinguished from gray sea trout by round dark spots on upper half of body as well as on 2nd dorsal fin and tail. Gray sea trout have dark blotches, generally arranged in rows along the back, but without spots on 2nd dorsal fin and tail. SIZE: Largest recorded 16½ lbs; tackle record 15 lbs 3 oz; avg. ¾-1½ lbs; over 4 lbs unusual. HABITS: Schooling and migratory. Occur in salt and brackish water warmer than 50°-54°F, particularly the shallow water of estuaries. Found over any type of bottom but favor areas which abound with eel or other sea grass beds. SEASON: Mid May or June—early December; best fishing late July—early November. FISHING METHODS: Casting, jigging, chumming, and live lining from shore; these methods plus trolling from boats. BAITS: Plugs, weighted bucktails, jigs and spoons; also shrimp, silversides, mullet, killifish and soft or shedder crab.



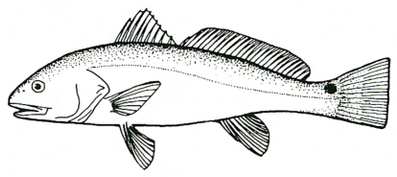
ATLANTIC CROAKER, *Micropogon undulatus*. Croaker, hardhead. SIZE: To 5 lbs; avg. ½-¾ lb; over 3 lbs unusual. HABITS: Migratory. A few occur in nearly fresh water, but most in salt and brackish water from a few feet below the tide-line to depths of 45 ft. This bottom feeder occurs on mud, sand, gravel or rock bottom and around shellfish beds, rock piles and wrecks. SEASON: Mid April or May—late September or October; best fishing June—early July. FISHING METHODS: Bottom fishing, jigging and chumming from anchored or drifting boats. Some caught by bottom fishing from shore. Check state regulations on size limit. BAITS: Shrimp, soft or shedder crab, clams and cut fish; also small jigs and weighted bucktails.



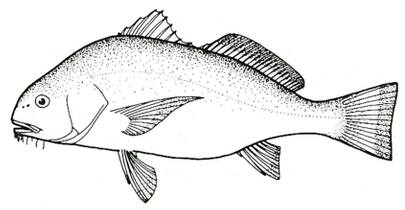
NORTHERN KINGFISH, *Menticirrhus saxatilis*. Kingfish, roundhead, whiting, king whiting. Miscalled mullet and sea mullet. See southern kingfish. SIZE: To 3⅓ lbs; avg. ⅓-⅔ lb; over 2 lbs unusual. HABITS: An inshore fish occurring from the tide-line to depths of 45 ft in salt and brackish water warmer than 46°-50°F. Aggregate on sand, shell or gravel bottom, especially near sand bars or along the edges of channels. SEASON: Late April or May—mid November; best fishing August—October. FISHING METHODS: Bottom fishing from shore; this method plus chumming from anchored or drifting boats. BAITS: Worms, squid, clams, mussels, shrimp, silversides, soft or shedder crab and cut fish.



SOUTHERN KINGFISH, *Menticirrhus americanus*. Kingfish, roundhead, whiting, king whiting. Miscalled mullet and sea mullet. Distinguished from northern kingfish by having 7, rarely 8, soft anal rays; the longest spine of the 1st dorsal fin in an adult fish extends to just beyond origin of 2nd dorsal fin, and the obscure, oblique bars along the side do not form a V just behind the head. In contrast, northern kingfish usually have 8, sometimes 9, soft anal rays; the longest spine of the 1st dorsal fin in an adult extends far beyond origin of 2nd dorsal fin, and the dark, oblique bars along the side form a V just behind the head. SIZE: To 3 lbs; avg. ⅓—⅔ lb; over 1¾ lbs unusual. Northern and southern kingfish are so similar that they are considered the same species by most anglers. HABITS, SEASON, FISHING METHODS and BAITS are the same as for northern kingfish.



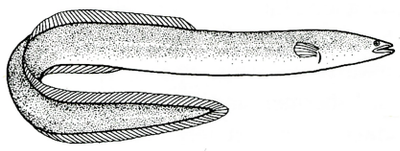
RED DRUM, *Sciaenops ocellata*. Channel bass; small ones sometimes called puppy drum. SIZE: Largest recorded 90 lbs; tackle record 90 lbs; small fish average 1-2 lbs and large fish 20-30 lbs; over 55 lbs unusual. HABITS: Migratory and schooling. During spring migrations, schools occur in the open Bay away from shore; during summer and fall they usually occur close to shore. SEASON: Late April or May—November; best fishing for large fish mid May—mid June, for small fish August—October. FISHING METHODS: Most are caught by bottom fishing, casting and trolling from boats; some by bottom fishing and casting from shore. BAITS: Soft or shedder crab, shrimp, clams, squid and cut mullet, spot or menhaden; also spoons, jigs and weighted bucktails.



BLACK DRUM, *Pogonias cromis*. Drum; fish less than 8 lbs called puppy drum. The young are characterized by 4 to 6 broad, black bars on their sides. SIZE: Largest recorded 146 lbs; tackle record 111 lbs; puppy drum average ¾-2 lbs; and large fish 25-35 lbs; over 80 lbs unusual. HABITS: Migratory. In large aggregations during the spring migrations but usually solitary during fall. These bottom feeders occur on any type of bottom but prefer mussel, clam or oyster beds. Often around breakwaters, jetties, pilings, bridge abutments and piers. SEASON: April—October or mid November; best fishing for large fish in May and June, for small fish in September and October. FISHING METHODS: Bottom fishing, live lining or chumming from shore or boats. Casting or trolling is also effective for small fish but large fish do not ordinarily take a fast moving bait. BAITS: Clam, soft or shedder crab, shrimp and cut fish; also spoons, jigs and weighted bucktails.

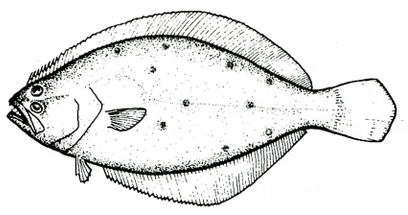
Chesapeake Bay

EEL

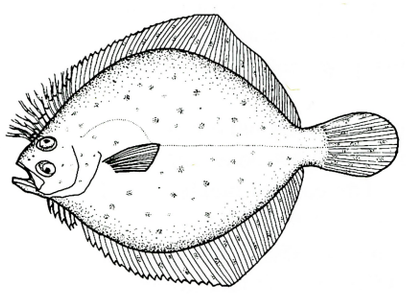


EEL, *Anguilla rostrata*. SIZE: Largest recorded 16 lbs; avg. ½-2 lbs; over 5 lbs unusual. HABITS: Catadromous. Young (elvers) enter estuaries in the spring. Some remain in estuaries while others migrate varying distances, sometimes hundreds of miles, up rivers and streams. Occur on any type of bottom in ponds, rivers, estuaries and near the ocean shore. Active during warm months; embedded in mud during cold months. After living in fresh or brackish water, sometimes as long as 20 years, they return to the deep ocean to spawn and subsequently die. SEASON: Late March—December; best fishing for large eels in September and October. FISHING METHODS: Bottom fishing from shore; this method plus jigging from boats. BAITS: Any natural bait; also small jigs and weighted bucktails.

FLOUNDERS, LEFT-EYED

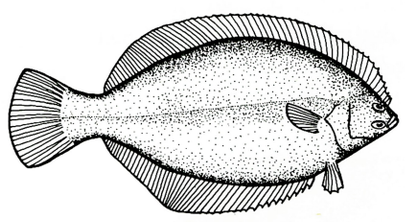


NORTHERN FLUKE, *Paralichthys dentatus*. Flounder, summer flounder. See windowpane flounder. SIZE: Largest recorded 30 lbs; tackle record 20½ lbs; avg. ¾-1¼ lbs; over 8 lbs unusual. HABITS: Migratory. Lives on mud, sand, sand-shell, gravel or rock bottom and around wrecks. During warm months most occur in the lower portion of the Bay to depths of 50 ft; during cold months they retreat to deeper ocean water, some to depths of 500 ft or more. Small fish occur in brackish water, a few in fresh water; large fish occur in salt water. Usually feed near bottom but will pursue prey to the surface. SEASON: Late April or May—October or November; best fishing late May—September in water warmer than 61°F. FISHING METHODS: Bottom fishing and casting from shore; these methods plus chumming, live lining and trolling near bottom from boats. BAITS: Killifish, squid, silversides, clams, worms, and cut fish; also spinners, jigs and weighted bucktails.



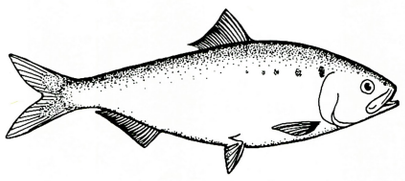
WINDOWPANE, *Scophthalmus aquosus*. Flounder, sand flounder, sand dab, spotted flounder. Distinguished from the summer flounder by the first 10-12 dorsal fin rays elongated and branched to form a fringed crest. Summer flounder have no fringed crest. SIZE: To 2 lbs; avg. ¼-½ lb; over ¾ lb unusual. HABITS: Year-round residents in salt or brackish water. Frequent sand, sand-mud, sand-shell, gravel and soft mud or clay bottom. Most occur from the tide-line to 50 ft; a few to 150 ft. SEASON: Most are caught from March—December, a few the year round. FISHING METHODS: Bottom fishing from shore, this method plus jigging, chumming and trolling near bottom from boats. Usually taken incidentally with other fishes. BAITS: Shrimp, worms, killifish, silversides, squid, clams, mussels and cut fish; also jigs and weighted bucktails.

FLOUNDERS, RIGHT-EYED

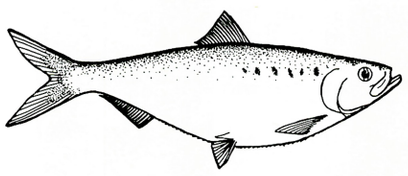


WINTER FLOUNDER, *Pseudopleuronectes americanus*. Flounder. Miscalled halibut and halibut flounder; many anglers mistake winter flounder for young summer flounder. SIZE: To 8 lbs; avg. ⅓—⅔ lb; over 2 lbs unusual. HABITS: Year-round bottom residents on mud, sand, shell or gravel bottom; especially mud-sand around eel grass. A few ascend streams to fresh water, but most occur in salt and brackish water from the tide-line to depths of 175 ft. Small fish usually live close to shore and large fish away from shore. SEASON: Most are caught from September—May; a few the year round. Best fishing March—April and October—December. FISHING METHODS: Bottom fishing and chumming from shore and boats. BAITS: Worms, shrimp, clams, mussels, squid and cut fish.

HERRINGS AND SHADS

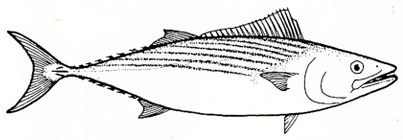


AMERICAN SHAD, *Alosa sapidissima*. Shad, white shad. Adult females are called roe or roe shad; adult males are called bucks or buck shad. SIZE: Largest recorded 14 lbs; males average 2-3½ lbs and females 3-4½ lbs; over 6 lbs unusual. See hickory shad. HABITS: Pelagic, schooling, migratory, anadromous. Although shad spend most of their lives in the ocean, adults ascend to fresh water in the spring to spawn when river temperatures reach 55°F. During the spawning run they take little or no food but will strike some artificial lures. Spawning over, spent fish return to the ocean. SEASON: March—June or July; best fishing late April—early June. FISHING METHODS: Casting from shore; this method plus trolling and jigging from boats. Angling is usually confined to the fresh water portion of tidal rivers. BAITS: Spoons, spinners, jigs, weighted bucktails and shad darts.

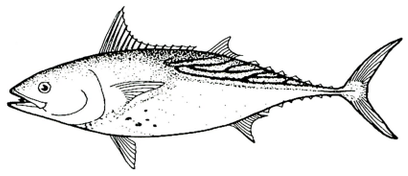


HICKORY SHAD, *Alosa mediocris*. Shad, hicks. Adult females are called roes; adult males are called bucks. Distinguished from American shad and other herring by the tip of the lower jaw extending noticeably beyond the upper when mouth is closed. SIZE: To 4½ lbs; avg. 1½-2½ lbs; over 3¾ lbs unusual. HABITS: Pelagic, schooling, migratory, anadromous. Occur in salt, brackish and fresh water. The spring spawning run of hickory shad into fresh water usually precedes the run of American shad by a few weeks. SEASON: Late February—November; best fishing late March—early May. A small run usually occurs late August—early October. FISHING METHODS: Casting from shore; this method plus trolling and jigging from boats. Most are caught incidentally with American shad. BAITS: Spoons, spinners, plugs, weighted bucktails and shad darts.

MACKERELS, TUNAS AND BONITOS

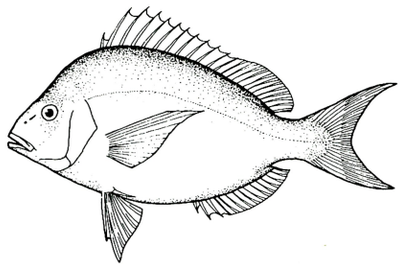


ATLANTIC BONITO, *Sarda sarda*. Bonito. SIZE: To 15 lbs; avg. 2-4 lbs; over 7 lbs unusual. HABITS: Pelagic, schooling and migratory. Rapid swimmers which feed mainly at or near the surface; they often jump clear of the water when in pursuit of prey. Abundance fluctuates greatly. SEASON: Late May or June—October; best fishing in August and September. FISHING METHODS: Caught by trolling at or near the surface in water warmer than 65°F; some by casting, jigging or chumming from boats. Usually caught incidentally with other pelagic fishes. BAITS: Feathers, spoons, plugs, jigs, stripbait, feather-stripbait or skirt-stripbait combination and cut fish.

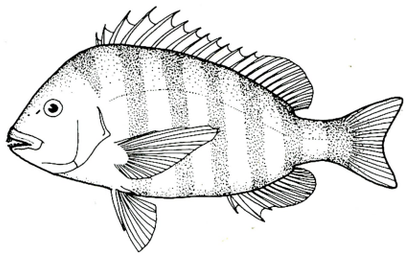


LITTLE TUNA, *Euthynnus alletteratus*. False albacore, tuna, school tuna. Miscalled albacore. SIZE: To 26 lbs; avg. 11-15 lbs; over 20 lbs unusual. HABITS: Pelagic, schooling and migratory. These rapid swimmers usually occur in salt water but at times in brackish water. They travel in aggregations varying from three or four individuals to schools of many hundreds. SEASON: Late May or June—November; best fishing in September and October. FISHING METHODS: Most are caught by trolling and casting from boats in water warmer than 65°F. BAITS: Feathers, stripbait, feather-stripbait or skirt-stripbait combination, spoons, jigs and plugs.

PORGIES

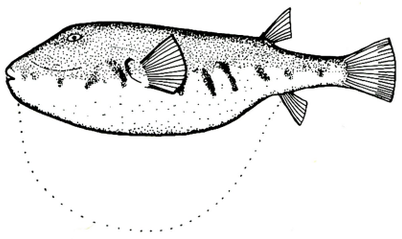


SCUP, *Stenotomus chrysops*. Porgy, Nelly Hunt, fair maid. SIZE: Largest recorded 5 lbs; avg. ¼ — ⅓ lb; over ¾ lb unusual. HABITS: Migratory and gregarious. Occur on sand, gravel or rock bottom and around shellfish beds, pilings or wrecks in the lower part of the Bay. Usually near bottom during daylight but move towards mid-depths at night. SEASON: May—October. Scup are never abundant and taken incidentally with other bottom fishes. FISHING METHODS: 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, silversides and killifish.



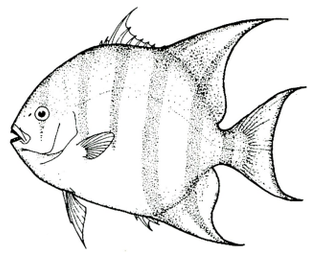
SHEEPSHEAD, *Archosargus probatocephalus*. Sheephead. SIZE: To 30 lbs; avg. 3-6 lbs; over 15 lbs unusual. HABITS: Aggregate in salt and brackish water on sand, shell, gravel or rock bottom and around jetties, breakwaters, rock piles and wrecks. SEASON: Late May—October. Owing to their small numbers and the skill required to hook them, sheepshead are taken only occasionally. FISHING METHODS: Most are caught by bottom fishing and chumming from boats or shore; some by jigging from boats. BAITS: Crabs, clams, mussels, shrimp and sand bugs; also small jigs and weighted bucktails.

PUFFERS



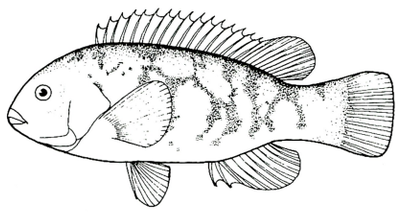
NORTHERN PUFFER, *Sphaeroides maculatus*. Blow toad, swell toad, blowfish, swellfish. SIZE: To 2½ lbs; avg. ⅓ — ⅔ lb; over 1½ lbs unusual HABITS: Aggregate on or a few feet above mud, sand, shell or gravel bottom in salt or brackish water. Abundance fluctuates yearly. Puffers have the ability to inflate themselves with water or air as a self-defense mechanism. SEASON: April or May—October or early November; best fishing late April—early 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.

SPADEFISHES



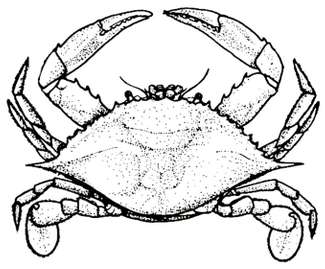
ATLANTIC SPADEFISH, *Chaetodipterus faber*. Bay porgy, porgy, angelfish. SIZE: To 16 lbs; avg. 2-4 lbs; over 10 lbs unusual. HABITS: Occur in salt water on sand, shell, gravel or rock bottom and around wrecks, rock piles, bridges, jetties and breakwaters. SEASON: May—October. Never abundant, spadefish are caught during the summer only occasionally. FISHING METHODS: Bottom fishing from boats or shore. BAITS: Clams, worms, mussels, shrimp, crabs and cut fish.

WRASSES



TAUTOG, *Tautoga onitis*. Blackfish, tog, Molly George, chub. SIZE: To 22½ lbs; tackle record 21½ lbs; avg. 1-4 lbs; over 13 lbs unusual. HABITS: These gregarious year-round residents live in salt water but occasionally enter brackish water. Occur on rock, gravel, shell or sand bottom and around wrecks, jetties, breakwaters, stone piles, bridge abutments or pilings. Active from the tide-line to depths of at least 120 ft, especially in water of 46° — 65°F; inactive when the water temperature is less than 46°F. SEASON: All year; best fishing in October and November. FISHING METHODS: Bottom fishing from shore or anchored boats. Most abundant fish in catches made by underwater spear fishermen. BAITS: Clams, worms, mussels, shrimp, crabs and sand bugs.

CRABS



BLUE CRAB, *Callinectes sapidus*. Crab, blue claw crab. Males are called Jimmies; females, sooks; those bearing eggs, sponge crabs. Crabs about to shed their shells are called shedders or peelers; immediately after shedding and before the new shell hardens, they 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. 5-6 inches; over 8½ inches unusual. HABITS: Occur in salt, brackish and a few in fresh water on mud, sand, sand-shell and gravel bottom. Especially abundant in mouths of streams and rivers 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. Adult males tend to concentrate in the upper reaches of creeks and rivers; adult females tend to remain in the open Bay. SEASON: Mid March or April—mid November; best crabbing late July—October. Check state laws governing size limit and the taking of egg-bearing females. FISHING METHODS: Hand lines and crab traps from shore or boats. BAITS: Whole and cut fish or scrap meat.

Cape Henry to Wolf Trap Light

LAND CONFIGURATION AND WATER DEPTH

Two mainland points mark the ocean entrance to Chesapeake Bay—Cape Charles to the north and Cape Henry to the south. Cape Charles, located about a mile north of Fisherman Island, is a low, sandy spit. The most prominent feature seen from a vessel sailing into Chesapeake Bay along the eastern side is the 4 miles of sandy cliffs at Kiptopeke Beach rising up to 60 feet. A dozen miles to the west, across the mouth of the Bay, lies Cape Henry. It is distinguished by a prominent range of relic sand dunes rising 40 to 80 feet, the highest of which are about a mile back from the shore. Jutting 163 feet above the beach near the turn of the cape is the modern, functioning Cape Henry Light. Several hundred feet south of this black and white structure stands an abandoned gray lighthouse built in 1791.

Today most people cross the mouth of the Chesapeake Bay not by boat but by car via the Chesapeake Bay Bridge and Tunnel. This is an impressive 15-mile long structure of causeways, bridges, and artificial rock and cement islands connected by two tunnels, each a mile long. The tunnels are buried under the two principal passages—Thimble Shoal Channel and Chesapeake Channel—which lead from the Bay to the sea. North Channel, skirting Fisherman Island, a passage smaller than the other two, is crossed by a fixed bridge 75 feet high. Because it is the highest part of the Bay Bridge and Tunnel and can be seen for a considerable distance, fishermen call it High Bridge. The riprap forming the artificial islands, as well as thousands of concrete columns, are centers about which a rich variety of aquatic life concentrates. The passage of tides causes eddies to form on the lee sides of the columns and islands, with resulting local concentrations of plankton. Encrusting organisms such as barnacles and mussels, which feed on the plankton, and algae have formed a thick growth on the concrete and stones, providing habitat for communities of free-living invertebrates. And of course fishes gather about these structures to feed on the accumulations of organisms. At night the lights along the Bay Bridge and Tunnel intensify the effect, for they attract swarms of actively swimming small organisms; and these in turn attract the larger fishes which anglers seek.

Tidal currents, freshets, and wind-driven currents act together to distribute sediments and shape the bottom. The strong tidal currents at the mouth of the Chesapeake Bay have created a series of alternating shoals and channels running nearly parallel to the shoreline and continuing with diminishing amplitude 15 miles up the Bay.

FISH AND FISHING

Early in the spring, fish entering from the sea usually move into Chesapeake Bay via the channels where they remain until the water becomes warm enough at the surface and on the shoals. Later, during summer when the water temperature gets too high in shallow areas, they return to the cooler, deeper water. With fall cooling of the surface water, many species, especially active swimmers, move onto the shoals and flats before winter cold drives them out of the Bay. Permanent residents of the Bay, such as white perch and many striped bass, spend the winter in the deep areas where they find the water a few degrees warmer than at the surface. Knowledgeable anglers, of course, shift their activities according to where the fish are.

Here, in the lowest part of the Chesapeake Bay, the salinity ranges closer to that of seawater than anywhere else in this large estuary. It is to be expected, therefore, that the abundance of sea fishes would be greater here than in the more northerly, less saline parts of the Bay. This is true of gray sea trout and its relatives, as well as bluefish, cobia, northern fluke, scup, black sea bass, northern puffer, tautog, spadefish, sheepshead, Atlantic bonito, and little tuna. These are seasonal migrants, arriving mostly in spring or summer and departing in the fall. Many of these fishes favor warm, temperate water; and their abundance diminishes north of Chesapeake Bay.

As we travel from north to south, it is in Chesapeake Bay where we can begin to appreciate the variety of species belonging to the drum family *(Sciaenidae),* which gets its name from the drumming noises they make. Three species of sea trouts occur here, as well as spot, croaker, silver perch, three species of kingfishes, black drum, red drum, banded drum, star drum, and sand drum. Some of these are only rare visitors to Chesapeake Bay, and others are too small to be of popular interest, being relegated to that limbo which fishermen call trash fish. Only one, the northern kingfish, is more numerous north than south of the Bay in summer, though it is nowhere as abundant as the sea trouts. Southward of Chesapeake Bay the drum family gains in prominence and diversity. While 10 species occur in the Bay fairly consistently, there are no fewer than 22 along the coast of southern Florida. And the greatest abundance of drums in the western Atlantic, if we can judge from catch statistics, is along the coast of Brazil where four to five times as many are taken for market as along the Atlantic and Gulf coasts of the United States.

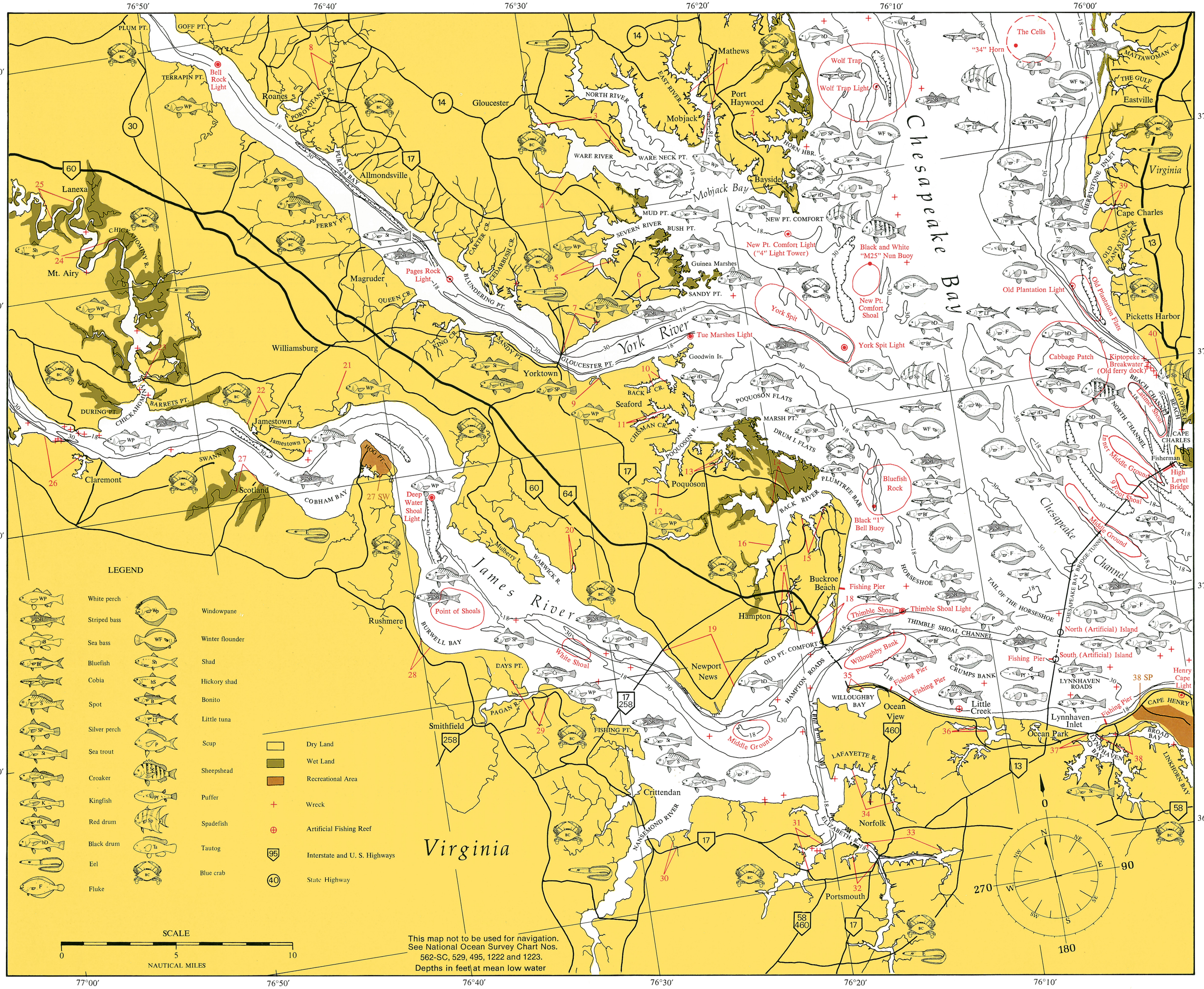
Among all the members of this family that have been caught in Chesapeake Bay, those that have been most numerous are the gray sea trout, spot, and croaker. The quantity of all three, however, has been remarkably unsteady. In the only period for which we have continuous records, that is, between 1929 and 1970, they have all run a gamut between extremes of scarcity and abundance. For the years before 1929, information is sporadic and most of it not quantitative; but from what we have, it seems quite clear that these fishes have a long history of wavering abundance both in this area and along the coast north of here.

The causes of the changes occurring in this century, however, cannot be identified with certainty. Fishing, both by commercial fishermen and by anglers is probably a very important element affecting abundance, but certainly not the only one, and perhaps not always the critical one. Degradation of the Chesapeake Bay environments by pollution, together with diminution of estuarine areas by indiscriminate land use, has been another important influence. In addition causes quite apart from man's activities play a heavy role in affecting abundance of these fishes in the Chesapeake Bay. They are warm-temperate fishes and Chesapeake Bay approaches the northern end of their respective ranges. True, the gray sea trout extends farther north than the others—to southern New England, but its fluctuations in northern waters are much more pronounced than in Chesapeake Bay. In this hemisphere, migratory fishes tend to push northward during spring and summer as far as they find tolerable conditions and to return southward in fall and winter. A process of natural selection is involved, the largest, strongest, and fastest swimmers going farthest. Some may spawn in a northern area beyond the optimal range of the species as gray sea trout do as far north as Long Island. The surviving progeny from such spawning establish populations which become more or less attached to the region and return there year after year to reproduce. These prosper so long as conditions are favorable to the survival of their young; but the young of these species are more vulnerable than the hardier temperate water species to anomalous environmental conditions, such as a sudden and prolonged cold spell, and their numbers fluctuate to a greater degree. A series of such episodes in successive years can be disastrous, especially in conjunction with excessive fishing. It may then take many years for a fish population so affected to reach its former abundance.

Black drum, the noisiest of the drum family, are common throughout most of Chesapeake Bay. It is in the lower part, however, that the largest ones, i.e., those weighing 25 to 60 pounds or more, are most common. The current tackle record shows that a specimen weighing 111 pounds and measuring some 4½ feet was caught in the Cape Charles area. Just across the Chesapeake Bay at New Point Comfort catches have been made of black drum weighing over 100 pounds. In fact the entire area from Fisherman Island to the Cells, thence over to Wolf Trap down to Old Point Comfort and the mouth of the James River provides good fishing for this species. Black drum feed along the bottom using the sensitive chin barbels to locate their food, which consists largely of shellfish and crabs. They break these into small digestible pieces with the heavy crushing teeth located in their throat. It is the black drum's manner of feeding that dictates that anglers use natural bait fished along the bottom, especially if they want to catch large fish.

		BOAT RENTALS					LAUNCH'G			DEPTH			SUPPLIES			SERVICES			
No.	Location	Boating Facilities Per Location	Rowboat – Outboard	Charter Boat	Party Boat	Runabout – Skiff	Ramp: Surfaced – Natural	Hoist: Fixed – Portable	Marine Railway	Tidal Range – Ft.	Approach – Ft.	Alongside – Ft.	Bait – Tackle	Fuel: Gasoline – Diesel	Water – Ice – Grocery	Moorings – Berths – Elec.	Repair: Motor – Hull	Food – Lodging	Toilet – Shower
1	East River	3					S							G	WI	BE			TS
2	Horn Harbor	1					S		R					GD	WI	BE	MH		TS
3	Ware River	2					S												
4	Wilson Creek	1	R				N									B			T
5	Severn River	2		C			S	P	R	2.5			BT	GD	WIG	BE	MH	F	TS
6	Perrin River	2		C			S	P	R	2.3			BT		WI	BE	MH	F	TS
7	Gloucester Pt.	6	RO	C			S	FP	R	2.4			BT	GD	WIG	BE	MH	F	TS
8	Tanyard-Millers Ldgs.	2					SN												
9	Wormley Creek	1					S	P		2.4			T	G		BE	MH		TS
10	Back Creek	2					S	P					BT	GD	WI	BE	MH	F	T
11	Chisman Creek	3					S		R	2.4				GD	WI	BE	MH	F	T
12	Poquoson River	1							R					GD	WI	BE	MH		T
13	White House Cove	4		C			S		R	2.4			BT	GD	WIG	BE	MH	F	TS
14	Tin Shell-Messick Pts.	4		C			S			2.3	5	5	BT	GD	WI	E		F	T
15	Back River	4	RO	C			SN	FP	R	2.3	3	2	BT	GD	WI	BE	MH	F	TS
16	Langley Field	1																	
17	Hampton	17	RO	C			S	FP	R	2.5	6	3	BT	GD	WIG	BE	MH	FL	TS
18	Old Pt. Comfort	2	RO				S			2.5	3	2	BT	G	WIG	B		F	T
19	Newport News	6	RO	C			S	F		2.6			BT	GD	WIG	MB	MH	F	T
20	Deep Creek	4		C			S		R				BT	GD	WIG	MBE	MH	F	TS
21	College Creek	1					S									B	MH		
22	Powhatan Creek	3	RO				S	P					BT	G	WIG	BE	MH	F	TS
23	Chickahominy R.	1	RO				S						BT	G	WIG	BE		FL	TS
24	Mt. Airy	3	RO				S						BT	G	WIG	BE		F	TS
25	Lanexa	3	RO				S						BT	G	WIG	E		FL	TS
26	Claremont	2					S						B	G	WIG			F	TS
27	Scotland	2					S						BT	G	WI	BE		F	T
28	Burwell Bay	2	RO				S						BT	G	WI	MBE	MH	F	T
29	Days Pt.-Goodwin Pt.	5	R				S	P					BT	GD	WIG	BE	MH	F	T
30	Nansemond River	2	R				S		R				BT	G	WIG	BE	MH	F	T
31	West Norfolk	5					SN	FP	R	2.6	7	7	BT	GD	WIG	BE	MH	F	TS
32	Scott Creek	3					S	F	R	2.8				GD	WIG	BE	MH	FL	TS
33	Elizabeth River	4					S	FP		2.8	20	10	BT	GD	WIG	BE	MH	F	TS
34	Lafayette River	9		C			S	FP	R	2.7	1	1	BT	GD	WIG	BE	MH	F	TS
35	Willoughby Spit	4	RO	C			S	FP	R	2.5	6	2	BT	GD	WI	BE	MH	FL	TS
36	Little Creek	8	RO	C			S	FP	R	2.6	4	4	BT	GD	WIG	BE	MH	FL	TS
37	Pleasure House Cr.	2	RO				S			2.0	3	2	BT		WI	B		F	T
38	Lynnhaven Bay	11	RO	C			SN	P	R	2.0	4	4	BT	GD	WIG	BE	MH	FL	TS
39	Cape Charles	4		C					R	2.8			BT	GD	WIG	BE	MH	FL	TS
40	Butlers Bluff	1	RO				N			2.7			BT						

		RECREATIONAL AREAS					ACTIVITIES			
No.	Location	County – City – Town: Park	State: Park-Wildl. Area – Forest	Natl.: Park-Wildl. Area – Forest	National Seashore	Use: Day-Wknd-Vacation	Fishing	Boating	Picnicking	Camping
27SW	Hog Island		SW			DW	F	B		
38SP	Seashore		SP			DWV	F	B	P	C


Chesapeake Bay
York River
James River
Virginia
Mobjack Bay
Chesapeake Channel
Gloucester
Yorktown
Williamsburg
Jamestown
Jamestown I.
Claremont
Scotland
Smithfield
Rushmere
Newport News
Hampton
Poquoson
Seaford
Mathews
Port Haywood
Mobjack
Bayside
Roanes
Allmondsville
Magruder
Lanexa
Mt. Airy
Eastville
Cape Charles
Picketts Harbor
Virginia
Buckroe Beach
Crittendan
Norfolk
Portsmouth
Ocean View
Little Creek
Lynnhaven Inlet
Ocean Park
Willoughby Bay
Fisherman I.
Kiptopeke
Cape Charles
Cape Henry
Wolf Trap
Wolf Trap Light
The Cells
"34" Horn
New Pt. Comfort Light ("4" Light Tower)
Black and White "M25" Nun Buoy
New Pt. Comfort Shoal
York Spit
York Spit Light
Tue Marshes Light
Old Plantation Light
Old Plantation Flats
Cabbage Patch
Kiptopeke Breakwater (Old ferry dock)
Larmer Shoal
Inner Middle Ground
9 Foot Shoal
Middle Ground
High Level Bridge
Bluefish Rock
Black "1" Bell Buoy
Fishing Pier
Thimble Shoal
Thimble Shoal Light
North (Artificial) Island
South (Artificial) Island
Willoughby Bank
Henry Cape Light
Bell Rock Light
Pages Rock Light
Deep Water Shoal Light
Point of Shoals
White Shoal
Middle Ground
Chesapeake Bay Bridge-Tunnel
Horseshoe
Tail of the Horseshoe
Thimble Shoal Channel
Crumps Bank
Lynnhaven Roads
Hampton Roads
Old Pt. Comfort
Mud Pt.
Bush Pt.
Sandy Pt.
Guinea Marshes
Goodwin Is.
Poquoson Flats
Marsh Pt.
Drum I. Flats
Plumtree Bar
Back Cr.
Chisman Cr.
Poquoson R.
Back River
Mulberry I.
Warwick R.
Burwell Bay
Days Pt.
Pagan R.
Fishing Pt.
Nansemond River
Elizabeth R.
Lafayette R.
Lynnhaven Bay
Broad Bay
Linkhorn Bay
Cape Henry
Plum Pt.
Goff Pt.
Terrapin Pt.
Poropotank R.
Puritan Bay
Ferry Pt.
Chickahominy R.
During Pt.
Barrets Pt.
Swann Pt.
Cobham Bay
Hog Pt.
Queen Cr.
King Cr.
Sandy Pt.
Gloucester Pt.
Blundering Pt.
Carter Cr.
Cedarbush Cr.
North River
East River
Ware River
Ware Neck Pt.
Severn River
Horn Hbr.
Mattawoman Cr.
The Gulf
Cherrystone Inlet
Old Plantation Cr.
Beach Channel
North Channel
Kiptopeke Beach
Cape Charles
Lynnhaven Inlet
Lynnhaven Roads
Willoughby Bay
Ocean View
Little Creek
Ocean Park
Norfolk
Portsmouth
Hampton
Newport News
Yorktown
Williamsburg
Jamestown
Claremont
Scotland
Smithfield
Rushmere
Crittendan
Poquoson
Seaford
Gloucester
Mathews
Port Haywood
Mobjack
Bayside
Roanes
Allmondsville
Magruder
Lanexa
Mt. Airy
Eastville
Cape Charles
Picketts Harbor
Buckroe Beach
Fisherman I.
Kiptopeke
Cape Charles
Cape Henry
LEGEND
White perch
Striped bass
Sea bass
Bluefish
Cobia
Spot
Silver perch
Sea trout
Croaker
Kingfish
Red drum
Black drum
Eel
Fluke
Windowpane
Winter flounder
Shad
Hickory shad
Bonito
Little tuna
Scup
Sheepshead
Puffer
Spadefish
Tautog
Blue crab
Dry Land
Wet Land
Recreational Area
Wreck
Artificial Fishing Reef
Interstate and U. S. Highways
State Highway
SCALE
0
5
10
NAUTICAL MILES
This map not to be used for navigation.
See National Ocean Survey Chart Nos.
562-SC, 529, 495, 1222 and 1223.
Depths in feet at mean low water
76°50′
76°40′
76°30′
76°20′
76°10′
76°00′
77°00′
37°30′
37°20′
37°10′
37°00′
36°50′
0
90
180
270
N
NE
E
SE
S
SW
W
NW

Wolf Trap Light to Bloodsworth Island

LAND CONFIGURATION AND WATER DEPTH

In this section both shores of Chesapeake Bay are alike in being exceptionally incised by a profusion of rivers, streams, creeks, and small bays. They differ, however, in the character of the land. The eastern shore is nearly all flat and low, rarely rising as high as 20 feet, and is broadly bordered by saltmarshes. In addition, the long chain of islands situated near the center of Chesapeake Bay, i.e., Tangier, Smith, South Marsh, and Bloodsworth, are almost entirely made of saltmarshes. Indeed, these island marshes and those along the mainland of the eastern shore account for the most extensive complex of saltmarshes in Chesapeake Bay. In contrast, the land of the western shore is low for only a mile or so, then rises to a series of rolling hills between 20 and 100 feet high. In only a few places along the shore are there saltmarshes between dry land and the Bay's open water.

The floor of Chesapeake Bay is sandy along the shore as are the extensive shallows surrounding the marshy islands located near the Bay's center. Moving out from shore into deeper depths, the bottom sediments consist of sand mixed with mud, while those in the channels and deep holes are entirely of soft mud. This soft, homogeneous black and gray mud accumulates as sediments wash continuously into Chesapeake Bay from the surrounding land.

The main channel, which continues in about the center of the Bay from the previous map section, divides into two branches at about Tangier Island. One branch extends through Tangier Sound into the head of the Nanticoke River, the other extends up the Potomac River. While the deepest depth in the Potomac branch is just over 60 feet, that of the Tangier branch is over 100 feet. Moving up the Bay within this map section, the depth in the main channel increases from about 80 feet off Wolf Trap Light, to 110 feet off Great Wicomico Light, to 150 feet off Hooper Island Light.

The salt content of Chesapeake Bay's water increases with depth and often the deep channels serve as pathways for migrating marine fishes. The salinity of the water also differs from shore to shore, the eastern shore being saltier than the western at any given latitude. Even though there is greater freshwater runoff from the western side, the principal cause of this variation is the earth's rotation. It deflects the water in the Bay to the right of its course of motion, so that salt water moving up the Bay on an incoming tide tends to move along the eastern shore while fresh water draining from the rivers tends to move down along the western shore. The occurrence of clams is an example of how the salinity affects the distribution of aquatic animals. Hard clams or quahogs are found only in water having a salinity greater than about 15‰ (parts per thousand). Since salinities this high persist the year round in Pocomoke and Tangier Sounds, hard clams are found this far up the Bay, even in commercial quantities. Across from Tangier Sound is the Potomac River where soft-shell clams, also called maninose, are abundant. These clams occur in much lower salinities, many in water of only 5‰. Since hard clams cannot survive long in this low salinity, they do not occur in the Potomac River.

FISH AND FISHING

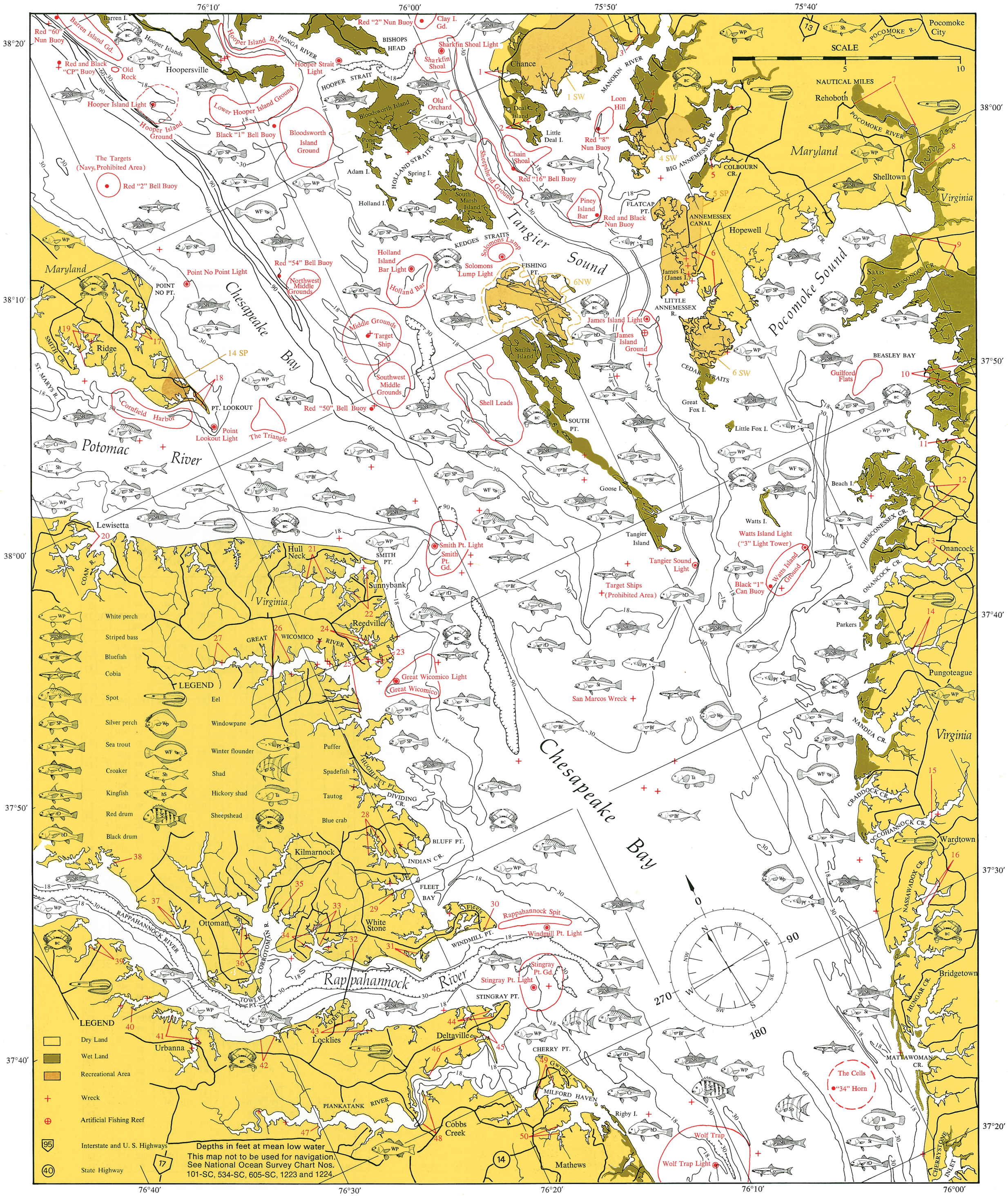
Cobia, one of the most prestigious fishes of Chesapeake Bay, occur within this map section, especially during summer in the relatively warm, salty water that extends over the flats surrounding Tangier and Smith Islands. This large, hard fighting, delectable fish occurs throughout the lower part of the Bay to about Hooper Island. Each year anglers catch hundreds of cobia weighing over 40 pounds, even a few twice this size. And though the Bay's tackle record is 102 pounds, one weighing 120 pounds was reported taken in a pound net at the mouth of the Bay in 1964. Cobia come into the Bay about May when the surface water reaches about 68°F. They gradually work their way into this area by June and remain here until fall when they leave for the sea as the water cools. Males seem to be more numerous than females along the eastern shore, less so along the western shore, especially southward of Smith Point. Spawning takes place in the lower part of the Bay and in the sea outside the mouth from June to August. Cobia grow rapidly, though after their first year females more so than males. Their approximate length in inches at different ages are as follows: Females, first year, 14; third year, 32; sixth year, 44; ninth year, 50. Males first year, 14; third year, 29; sixth year, 38; ninth year, 42. Live baits work well to catch large cobia, and among the best are whole spot, eel, and shedder crabs, locally called peelers. Sometimes referred to as crab-eaters, cobia may very well be attracted to this section of the Bay because of the abundance of shedder crabs here during the warm months.

The shallow water around Tangier, Smith, South Marsh, and Bloodsworth Islands is a concentrating area for shedder crabs. Indeed, the most important soft crab industry in Chesapeake Bay has become established here. Blue crabs, like other crustaceans, must shed their shells to grow. For a short time immediately after shedding, their new shell remains soft and it is at this time that the crabs are extremely vulnerable to their predators—fishes as well as man.

Beginning in April and continuing into October, blue crabs mate, mostly in the middle and upper Chesapeake Bay and tributaries. This is an elaborate process involving a kind of courtship and mate selection. The female, ready to shed for her last time, is cradle-carried beneath the male to shallow water where she finally casts off the old shell and mating occurs. After mating the male continues to cradle-carry the female about for a few days, presumably to protect her. For the female there is only this one mating in her life, at which time she receives enough sperm to last at least a year for use as often as she produces a batch of eggs. The pair then separates, the male remaining behind for further matings while the female migrates down to the saltier south end of the Bay. There, 3 to 9 months later, depending on the mating time, she produces the first batch of 1 to 2 million eggs, attaching these by a sticky substance to long hairs beneath the infolded abdomen, which is called the apron. She carries this egg mass or sponge for about 15 days, after which the eggs hatch and the larval young are swept away by currents. For a month and a half or so after hatching, the infants pass through several molts and at least two larval stages before taking the form of a crab. They are then about one tenth of an inch wide. Early in August, the young crabs begin to migrate from the southern end of the Bay and the nearby sea coast towards the upper end of the Bay and into the rivers. About the time they reach Tangier Island and are 1½ to 2½ inches wide, cold weather halts their migration and they gradually become torpid for their winter hibernation. In the spring, when they become active again, they continue their migration up the Bay and into the tributaries. The males penetrate far into water ranging from low salinity to completely fresh, while the females tend to remain in saltier water. In their growing process, after shedding their old shells, the soft body absorbs water and swells before a new shell is formed. The amount of expansion decreases with salinity of the water. Crabs that were hatched early in a spawning season, i.e., in late May, are adults by August of the following year when they are about 5 inches wide. Those that were hatched late, however, i.e., in August or September, do not reach that size until May of the third year. If unmolested, blue crabs live about 3 years, but few of them survive that long.

		BOAT RENTALS			LAUNCH'G		DEPTH			SUPPLIES			SERVICES						
No.	Location	Boating Facilities Per Location	Rowboat – Outboard	Charter Boat	Party Boat	Runabout – Skiff	Ramp: Surfaced – Natural	Hoist: Fixed – Portable	Marine Railway	Tidal Range – Ft.	Approach – Ft.	Alongside – Ft.	Bait – Tackle	Fuel: Gasoline – Diesel	Water – Ice – Grocery	Moorings – Berths – Elec.	Repair: Motor – Hull	Food – Lodging	Toilet – Shower
1	Chance	6	R	C			S	FP					BT	GD	WIG	BE	MH	F	T
2	Deal Island	5					S		R				BT	G	WIG	BE	MH	F	
3	Champ-Peters Cr.	1					S							G	WIG	BE			
4	Rumbley-Fairmount	2					S												
5	Colbourn Creek	1					S												
6	Crisfield	5	RO	C			S	FP	R	2.0			BT	GD	WIG	BE	MH	FL	TS
7	Rehobeth	2					S												
8	Shelltown	1					S			2.4									
9	Saxis	4					SN												
10	Guilford-Youngs Cr.	2					S												
11	Hunting Cr.-Lee Mont	2					S		R						W	BE	MH		
12	Deep Cr-Chesconessex	4		C			S		R				BT	G	W G	BE	MH	F	
13	Onancock	1					S			1.8									
14	Harborton	3					S						BT	G	WI				
15	Wardtown	1					S												
16	Nassawadox Cr.	2					S		R				BT	G	WIG	BE	MH		T
17	St. Jerome Cr.	2	R	C			SN			0.9	4	3	B	G	WI	MBE			TS
18	Point Lookout	2	RO				S				2	2							T
19	Smith Creek	10	RO	C	P		SN	FP	R	1.5	5	4	BT	GD	WIG	MBE	MH	FL	TS
20	Coan River	4	RO	C			S		R	1.4	10	9	BT	GD	WIG	BE	MH	F	TS
21	Little Wicomico R.	2		C			N		R	0.8	7	6	BT	GD	WIG	BE	MH		T
22	Sunnybank	4	R	C			SN	P	R	0.8	4	5	BT	GD	WIG	BE	MH	FL	TS
23	Fleeton	2	RO	C			S	P	R	1.1	9	10	BT	GD	WIG	BE	M	F	TS
24	Cockrell Cr.	2	R	C					R	1.1	9	7	BT	GD	G	E	H	F	
25	Fairport	2							R	1.1	10	10		GD	WIG	BE	MH		TS
26	Ferry Pt.-Glebe Pt.	4	RO	C			S		R	1.2	9	6	BT	GD	WIG	BE	MH		TS
27	Great Wicomico R.	2	RO				S						T	G		BE	MH		TS
28	Indian Creek	3	RO	C			S		R	1.1	7	6	T	GD	WI	BE	MH		TS
29	Poplar Neck Cr.	1							R	1.1	14	11		GD	W	BE	MH		T
30	Windmill Point	2		C			S			1.1	6	8	BT	GD	WIG	BE		FL	TS
31	Mosquito Creek	3	RO				S	P	R	1.2	5	4	BT	GD	W G	BE	H	F	T
32	White Stone	1	RO				S			1.2	7	7	BT	G	WI	E		FL	TS
33	Irvington	7	RO	C			S	P	R	1.3	10	8	BT	GD	WIG	BE	MH	FL	TS
34	Weems	6	RO				S		R	1.3	12	8	BT	GD	WIG	BE	MH	F	T
35	Taylor Creek	1							R	1.3	8	6					MH		
36	Town Creek	2	RO		P		S	P		1.3	2	3	B	G	WIG	BE			T
37	Greenvale Cr.	2	RO	C			S	P	R	1.6	3	3	BT	G	WIG	BE	MH	FL	TS
38	Deep Creek	1								1.7	1	3	B	GD	WIG				T
39	Waterview	3		C			S		R				B		WI	B	MH		
40	Lagrange Creek	1					S	P	R	1.6	4	4	T	G	W	BE	MH		TS
41	Urbanna	6	RO	C			S	P	R	1.6	8	8	BT	GD	WI	MBE	MH	FL	TS
42	Cooper	2					S												
43	Locklies Creek	5	RO	C			S		R	1.2	3	2	BT	G	WIG	BE	MH	F	T
44	Broad Creek	11	RO	C			SN	FP	R	1.2	4	1	BT	GD	WIG	BE	MH	FL	TS
45	Jackson Creek	4					S		R	1.2	9	6	BT	GD	WIG	BE	MH		TS
46	Ruark	7	RO	C			SN	P	R	1.2	6	6	BT	GD	WIG	MBE	MH		TS
47	Freeport	1	R				N			1.3	6	5	BT		W G				
48	Cobbs Creek	2					S		R	1.2	5	4	B	GD	WI	BE	MH		T
49	Gwynn Island	9	RO	C			SN	P	R	1.2	2	1	BT	GD	WIG	MBE	MH	FL	TS
50	Stutts Creek	2	RO	C			N			1.2	5	5				BE		FL	TS

		RECREATIONAL AREAS					ACTIVITIES			
No.	Location	County – City – Town: Park	State: Park-Wildl. Area–Forest	Natl.: Park-Wildl. Area–Forest	National Seashore	Use: Day-Wknd-Vacation	Fishing	Boating	Picnicking	Camping
1SW	Deal Island		SW							
4SW	Fairmount		SW							
5SP	Janes I.-(James I.)		SP			DWV	F	B	P	C
6SW	Cedar Island		SW							
6NW	Martin			NW		DW	F	B		
14SP	Point Lookout		SP			DWV	F	B	P	C


76°10′
76°00′
75°50′
75°40′
38°20′
38°00′
38°10′
37°50′
37°40′
37°30′
37°20′
76°40′
76°30′
76°20′
Red "60" Nun Buoy
Barren Island Gd.
Barren I.
Hooper Islands
Hoopersville
Red and Black "CP" Buoy
Old Rock
Hooper Island Light
Hooper Island Ground
Lower Hooper Island Ground
Hooper Island Bar
HONGA RIVER
Red "2" Nun Buoy
Clay I. Gd.
BISHOPS HEAD
Hooper Strait Light
HOOPER STRAIT
Sharkfin Shoal Light
Sharkfin Shoal
Chance
MANOKIN RIVER
Pocomoke City
POCOMOKE R.
SCALE
0
5
10
NAUTICAL MILES
Rehoboth
POCOMOKE RIVER
Maryland
Virginia
Shelltown
Saxis
MESSONGO CR.
Pocomoke Sound
Bloodsworth Island
Old Orchard
Deal Island
Little Deal I.
Loon Hill
Red "8" Nun Buoy
1 SW
4 SW
5 SP
6 SW
6NW
14 SP
Black "1" Bell Buoy
Bloodsworth Island Ground
Pone I.
Adam I.
Spring I.
HOLLAND STRAITS
Holland I.
South Marsh Island
Sheepshead Ground
Chain Shoal
Red "16" Bell Buoy
Piney Island Bar
Red and Black Nun Buoy
FLATCAP PT.
BIG ANNEMESSEX R.
COLBOURN CR.
ANNEMESSEX CANAL
Hopewell
EAST CR.
James I. (Janes I.)
LITTLE ANNEMESSEX R.
The Targets (Navy, Prohibited Area)
Red "2" Bell Buoy
Tangier Sound
KEDGES STRAITS
Solomons Lump
Solomons Lump Light
FISHING PT.
Smith Island
Holland Island Bar Light
Holland Bar
Red "54" Bell Buoy
Northwest Middle Grounds
Point No Point Light
POINT NO PT.
Chesapeake Bay
Middle Grounds
Target Ship
Southwest Middle Grounds
Red "50" Bell Buoy
Shell Leads
James Island Light
James Island Ground
CEDAR STRAITS
Great Fox I.
Little Fox I.
BEASLEY BAY
Guilford Flats
SMITH CR.
Ridge
ST. MARYS R.
Cornfield Harbor
PT. LOOKOUT
Point Lookout Light
The Triangle
Potomac River
SOUTH PT.
Goose I.
Beach I.
Watts I.
Watts Island Light ("3" Light Tower)
Watts Island Ground
Black "1" Can Buoy
CHESCONESSEX CR.
Onancock
ONANCOCK CR.
Parkers I.
Lewisetta
COAN R.
Hull Neck
Smith Pt. Light
Smith Pt. Gd.
SMITH PT.
Tangier Island
Tangier Sound Light
Target Ships (Prohibited Area)
Sunnybank
Reedville
GREAT WICOMICO RIVER
Great Wicomico Light
Great Wicomico
San Marcos Wreck
Pungoteague
NANDUA CR.
HUGHLETT PT.
DIVIDING CR.
BLUFF PT.
INDIAN CR.
FLEET BAY
Kilmarnock
CRADDOCK CR.
OCCOHANNOCK CR.
Wardtown
NASSAWADOX CR.
Rappahannock Spit
Windmill Pt. Light
WINDMILL PT.
White Stone
Ottoman
CORROTOMAN R.
RAPPAHANNOCK RIVER
Rappahannock River
Stingray Pt. Gd.
Stingray Pt. Light
STINGRAY PT.
TOWLES PT.
GREY PT.
Bridgetown
HUNGAR CR.
Urbanna
Locklies
Deltaville
CHERRY PT.
Gwynn I.
MILFORD HAVEN
MATTAWOMAN CR.
The Cells
"34" Horn
PIANKATANK RIVER
Cobbs Creek
Rigby I.
Wolf Trap
Wolf Trap Light
Mathews
CHERRYSTONE INLET
LEGEND
White perch
Striped bass
Bluefish
Cobia
Spot
Silver perch
Sea trout
Croaker
Kingfish
Red drum
Black drum
Eel
Windowpane
Winter flounder
Shad
Hickory shad
Sheepshead
Puffer
Spadefish
Tautog
Blue crab
LEGEND
Dry Land
Wet Land
Recreational Area
Wreck
Artificial Fishing Reef
Interstate and U. S. Highways
State Highway
Depths in feet at mean low water
This map not to be used for navigation.
See National Ocean Survey Chart Nos.
101-SC, 534-SC, 605-SC, 1223 and 1224

Bloodsworth Island to Kent Island

LAND CONFIGURATION AND WATER DEPTH

Within this section both shores of Chesapeake Bay are strikingly different. For the most part, the western shoreline is more even than the eastern and the land rises higher. In the 25 miles between the only large river emptying from the western shore, the Patuxent, and Herring Bay, the shoreline is nearly continuous except where a few small freshwater streams flow into Chesapeake Bay. Along here, high, sandy hills and rugged cliffs rise abruptly from Chesapeake Bay, some jutting nearly straight up over 125 feet. These cliffs are well known to scientists for their rich deposits of fossilized sharks teeth and other animal remains, perhaps as old as 20 million years. Above Herring Bay the land flattens and is incised by streams and creeks, a form more typical of the rest of Chesapeake Bay's shoreline.

The eastern shore of Chesapeake Bay here is incised by hundreds of rivers, creeks, coves, and small bays. In the 50 miles, as measured in a straight line from the bottom border of this map to the top, the eastern shore has over 1,400 miles of tidal shoreline. The land bordering the shore is nearly flat, rarely rising more than 10 feet or so. Even the gently rolling hills which rise in succession for some distance away from the shore reach only about 60 feet high. Where the land rises gradually from the water, such as from Bloodsworth Island to about Taylors Island, there are extensive saltmarshes. But where it rises abruptly, even though for only a few feet as it does beyond Taylors Island, there are very few saltmarshes. The Choptank is the principal river flowing into this side of the Bay. Smaller rivers, such as the Little Choptank, Tred Avon, Miles, and Wye, are really arms of the Bay rather than free-flowing streams of fresh water.

As in the previous map section, the floor of Chesapeake Bay is generally sandy along shore, grading to a sand-mud mixture in deeper depths, then to soft mud in the channels and deep holes. The main channel continuing along about the center of the Bay deepens as it approaches Kent Island. There are several places in the channel between Bloodsworth Island and Kent Island with depths of over 100 feet. Off Bloody Point Bar it is 174 feet, the deepest depth in the Bay.

FISH AND FISHING

Because fish and shellfish lack a highly developed temperature regulatory mechanism comparable to that of mammals, their body temperature and activity rate diminish as the water gets colder. Fishes that remain in Chesapeake Bay throughout the winter move to deeper depths where the water is slightly warmer. Striped bass and white perch, for example, generally move down the various rivers and away from the shallows during fall into deeper depths as the water cools. Their depth distributions in winter seem to depend on the size of the fish and temperature of the water. Although their activity decreases greatly, they remain moving about the bottom through the winter and even feeding at times. But a sharp enough rise in water temperature, as may follow a few days of mild weather, stimulates them to move into shallower water until the temperature drops again.

Most menhaden migrate southward in the fall, but some of the youngest ones stay behind and spend the winter in the deep parts of Chesapeake Bay. These are joined in the spring by the returning migrants as well as the new hatchlings coming in from the ocean; and then menhaden becomes by far the most abundant fish species in Chesapeake Bay. This immensely prolific member of the herring family occurs in coastal waters from the Gulf of Maine to eastern Florida. Along this extensive range, its abundance fluctuates variously in different sections of the coast, periods of great abundance alternating with periods of relative scarcity, especially in New England waters, where at times they are almost totally absent. Menhaden travel in very large schools, at the surface on still, sunny days, and in deeper water during bad weather. As they swim, they can strain 6 or 7 gallons of water a minute through their remarkably constructed gill rakers, thus extracting the minute plants and animals which then are transformed into their oily flesh.

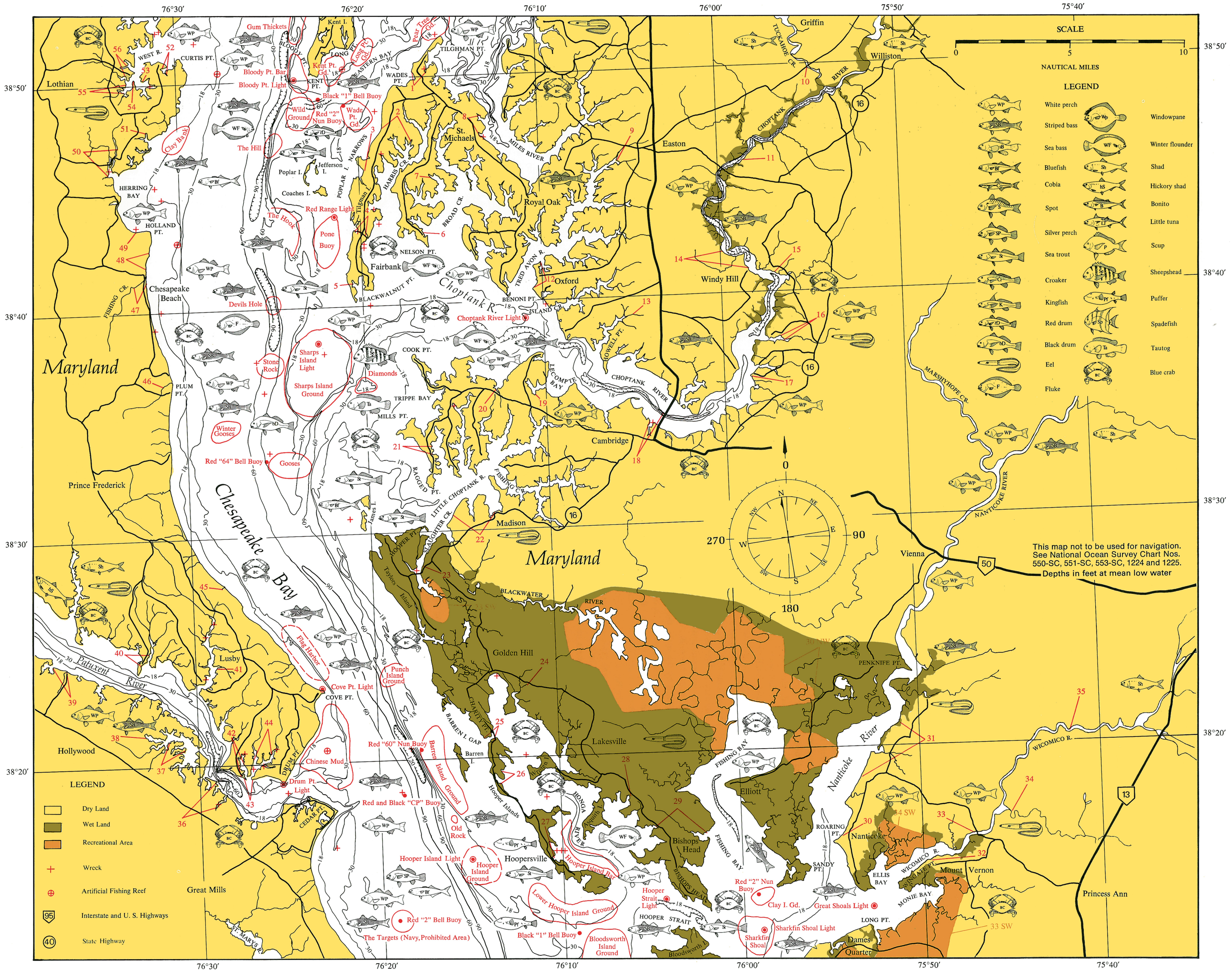
Off Chesapeake Bay menhaden spawn from fall through spring. The eggs and hatchlings move toward shore presumably with the help of ocean currents and through the inlets into the bays and sounds by tidal currents. The juvenile fish move into the upper reaches of Chesapeake Bay, often going into slightly brackish or nearly fresh water. As they grow older, they move downstream into the Bay and towards the sea. Some of the juveniles as well as a few yearlings and still fewer 2-year olds overwinter in deep parts of the Bay; but others of the same age enter the sea in the fall and migrate to waters south of Cape Hatteras where most of the menhaden from other areas spend the winter. In the spring these fish migrate northward; the distance which they travel increasing with size. Few fish older than 3 years are taken in the Chesapeake fishery.

Menhaden are preyed upon by all sorts of fish-eating animals, such as sharks, rays, bluefish, sea trouts, striped bass, and tunas. At the same time, they are the object of the largest commercial fishery of this coast, which in Chesapeake Bay alone, during favorable periods, may be between 300 and 400 million pounds in a year. Anglers use a few million pounds for bait, but the great bulk of the catch is manufactured into meal for animal feed, protein concentrates, and oil. The oil is used in the manufacture of many diverse products. In European countries, it is used for margarine and cooking oils; in the United States, for paints, putty, caulking compounds, lubricants, soaps, cosmetics, and pharmaceuticals.

In early days, people considered menhaden to be useful mostly for fertilizer. At first whole fish were plowed directly into the soil, then later only the meal left from the whole fish after the oil had been extracted. But during the present century, menhaden products have become much too valuable to use as fertilizer. The history of this fishery with its large fluctuating catch goes back over a century. The quantity of menhaden caught and the technique of spotting them with airplanes and of catching them with purse seines have troubled conservation-minded anglers. However, no correlation can be demonstrated between the catches of menhaden and those of game fish species, either in Chesapeake Bay or anywhere else along the Atlantic coast. Short-term fluctuations in the abundance of menhaden probably reflect year to year variations in the number of surviving offspring which are probably determined by vagaries of environment. Management of fishing rates and the sizes of fish caught can correct diminution of abundance that results from overfishing; and this can be accomplished only by cooperation among all the Atlantic coastal states where menhaden fishing is conducted.

		BOAT RENTALS			LAUNCH'G		DEPTH			SUPPLIES				SERVICES					
No.	Location	Boating Facilities Per Location	Rowboat – Outboard	Charter Boat	Party Boat	Runabout – Skiff	Ramp: Surfaced – Natural	Hoist: Fixed – Portable	Marine Railway	Tidal Range – Ft.	Approach – Ft.	Alongside – Ft.	Bait – Tackle	Fuel: Gasoline – Diesel	Water – Ice – Grocery	Moorings – Berths – Elec.	Repair: Motor – Hull	Food – Lodging	Toilet – Shower
1	Claiborne	2		C			S		R	1.1	10	6		GD	W	BE	MH		
2	Wittman	5	RO				SN		R	1.5	4	3	B	GD	W G	E	MH		T
3	Lowes Wharf	1					S			1.0	8	6	B	G	WI	BE			T
4	Knapps Narrows	7	RO	C	P		S	P	R	1.3	6	5	BT	GD	WIG	MBE	MH	FL	TS
5	Blackwalnut Cove	1	RO				S			1.3	3	3	BT	G	W	BE			
6	Nelson Point	1					S												
7	Bozman	2	R				S		R	1.5	7	5	B	GD	WI	MBE	MH		
8	St. Michaels	8	RO	C			S	P	R	1.2	10	9	BT	GD	WIG	BE	MH	FL	TS
9	Easton	1					S	P		1.6	10	5		G	WI	BE	MH		TS
10	Tuckahoe Creek	1					S												
11	Dover Bridge	1					S			1.7									
12	Oxford	10		C			S	FP	R	1.4	5	2	BT	GD	WIG	MBE	MH	FL	TS
13	Trappe Landing	1					S												
14	Windyhill-Lloyds Ldg.	2					S												
15	Choptank	1					S			1.6				G		BE	MH		T
16	Cabin Creek	3					S							G	WI	BE		F	T
17	East New Market	1	RO	C					R				BT	G		BE	MH		T
18	Cambridge	8					S	FP	R	1.6	7	7	T	GD	WI	BE	MH	F	TS
19	Lecompte Creek	1					S		R	1.5		3				E	MH		
20	Cornersville	1							R	1.5	3	3		G	W	E	MH		
21	Hills Point Neck	2					S		R	1.4		2	B	G	W	BE	MH		
22	Madison	3	R	C			S			1.4	3	5	BT	G	WI	BE	MH		T
23	Slaughter Creek	1	R				S	P	R	1.3	6	6	T	GD	WIG	BE	MH	F	TS
24	Wallace Creek	1	RO				S	P			3	5	BT	G	WIG	BE	MH	F	T
25	Honga	2					SN		R	1.3	3	4		GD	WI	BE	MH		T
26	Back Creek	4							R	1.4	3	3	BT	G	WIG	E	MH	F	T
27	Hoopersville	1	R				S						BT	GD	WIG	BE			T
28	Fox Creek	1					S		R								MH		
29	Wingate-Goose Creek	2					S						B	GD	WIG	BE	MH		T
30	Nanticoke	1					S		R					G	WI	E	MH		
31	Wetipquin	4	R				S						BT	G	W G	BE			TS
32	Mt. Vernon	2					S							G	WI	BE		F	T
33	Whitehaven	1					S			2.4				G	WI	BE			T
34	Wicomico Creek	2					S	P						G		BE	MH		
35	Upper Ferry	1						P								E	MH		
36	Lewis Creek-Town Pt.	8	RO	C			SN	P	R	1.2	10	6	BT	GD	WIG	BE	MH	FL	TS
37	Cuckold Creek	6	RO	C	P		S	FP	R	1.2	3	5	BT	GD	WIG	BE	MH	FL	TS
38	Forrest Landing Cove	1					S												
39	Sandgates	2	R				S	P		1.5	4	5	BT	GD	WI	BE	MH	FL	TS
40	Broomes Island	4	RO	C			S		R	1.4	2	2	BT	G	WIG	BE	H	FL	TS
41	St. Leonard Cr.	1	RO				S				15	12		GD	WI	BE	M	FL	TS
42	Back Creek	10	RO	C			SN	FP	R	1.2	5	3	BT	GD	WIG	MBE	MH	FL	TS
43	Solomons Island	6	RO	C			S	P		1.2	10	8	BT	GD	WIG	BE	MH	FL	TS
44	St. John Cr.-Mill Cr.	5					S		R	1.2	16	8		GD	W G	MBE	MH		T
45	Long Beach	1					SN			1.0	6	5		GD	W	BE			T
46	Plum Pt.-Breezy Pt.	1	RO				S			0.9	5	8	BT	GD	WI	BE		FL	TS
47	Chesapeake Beach	4	RO	C	P		SN	P	R	1.0	4	7	BT	GD	WIG	BE	MH	F	TS
48	North Beach	2	RO				S			1.0	2	2	B	G	W	BE		F	T
49	Rose Haven	2		C			S	FP	R	0.9	7	8	BT	GD	WIG	BE	MH	FL	TS
50	Deale	17	RO	C	P		S	FP	R	0.9	3	3	BT	GD	WI	MBE	MH	F	TS
51	Churchton	1	RO	C			S			0.9	2	3		G	W	BE	M		TS
52	Shady Side	4	R		P		S	FP	R	0.9	5	4	BT	G	WI	BE	MH		TS
53	Avalon Shores	1								0.9	8	8		G	WI				
54	Chalk Point	1							R	0.9	8	5			WIG	BE	MH		
55	Johns Cr.-Smith Cr.	2					S	FP	R	0.9	8	6		GD	WIG	MBE	MH		TS
56	Galesville	6	RO	C			S	FP	R	0.9	6	4	BT	GD	WIG	BE	MH	F	TS

		RECREATIONAL AREAS					ACTIVITIES			
No.	Location	County – City – Town: Park	State: Park-Wildl. Area – Forest	Natl.: Park-Wildl. Area – Forest	National Seashore	Use: Day-Wknd-Vacation	Fishing	Boating	Picnicking	Camping
23SW	Taylors Island		SW							
30NW	Blackwater			NW		DW	F		P	
33SW	Deal Island		SW							
34SW	Ellis Bay		SW							


SCALE
0
5
10
NAUTICAL MILES
LEGEND
White perch
Striped bass
Sea bass
Bluefish
Cobia
Spot
Silver perch
Sea trout
Croaker
Kingfish
Red drum
Black drum
Eel
Fluke
Windowpane
Winter flounder
Shad
Hickory shad
Bonito
Little tuna
Scup
Sheepshead
Puffer
Spadefish
Tautog
Blue crab
This map not to be used for navigation.
See National Ocean Survey Chart Nos.
550-SC, 551-SC, 553-SC, 1224 and 1225.
Depths in feet at mean low water
Maryland
Chesapeake Bay
Choptank R.
Lothian
Chesapeake Beach
Prince Frederick
Hollywood
Great Mills
Lusby
St. Michaels
Royal Oak
Fairbank
Oxford
Easton
Griffin
Williston
Windy Hill
Cambridge
Madison
Golden Hill
Lakesville
Elliott
Bishops Head
Hoopersville
Nanticoke
Vienna
Mount Vernon
Princess Ann
Dames Quarter
Gum Thickets
Bloody Pt. Bar
Bloody Pt. Light
Kent Pt. Gd.
Long Pt. Gd.
Pear Tree Gd.
Black "1" Bell Buoy
Wild Ground
Red "2" Nun Buoy
Wade Pt. Gd.
Clay Bank
The Hill
The Hook
Red Range Light
Pone Buoy
Devils Hole
Stone Rock
Sharps Island Light
Sharps Island Ground
Diamonds
Winter Gooses
Gooses
Red "64" Bell Buoy
Choptank River Light
Flag Harbor
Punch Island Ground
Cove Pt. Light
Chinese Mud
Drum Pt. Light
Red "60" Nun Buoy
Barren Island Ground
Red and Black "CP" Buoy
Old Rock
Hooper Island Light
Hooper Island Ground
Hooper Island Bar
Lower Hooper Island Ground
Red "2" Bell Buoy
The Targets (Navy, Prohibited Area)
Black "1" Bell Buoy
Bloodsworth Island Ground
Hooper Strait Light
Red "2" Nun Buoy
Clay I. Gd.
Great Shoals Light
Sharkfin Shoal Light
Sharkfin Shoal
34 SW
33 SW
30 SW
LEGEND
Dry Land
Wet Land
Recreational Area
Wreck
Artificial Fishing Reef
Interstate and U. S. Highways
State Highway
76°30′
76°20′
76°10′
76°00′
75°50′
75°40′
38°50′
38°40′
38°30′
38°20′

Kent Island to Susquehanna River

LAND CONFIGURATION AND WATER DEPTH

This section of the Chesapeake Bay is characterized by low, gently rolling country. Save for only a few places where hills rise to over 150 feet, the land is no higher than 60 feet above sea level; and along the shore of the Bay, it is usually less than 20 feet. The shoreline of the Bay appears jagged because of the incisions made by hundreds of rivers, creeks, and small bays. Many of the so-called rivers extending 6 to 8 miles into the interior are actually arms of Chesapeake Bay into which fresh water flows from a few to several dozen small streams. This is especially true along the western shore. At the very upper part of this map section, however, the largest river of all, the Susquehanna, flows into the Chesapeake Bay. Though not as wide as the Potomac or James Rivers farther down Chesapeake Bay or even half a dozen other lesser rivers, the Susquehanna is by far the most important river in this region. After draining about half of Pennsylvania, a large part of New York, and part of Maryland, and after cutting over 400 miles across the full breadth of the Appalachian Mountains, forming as it flows a series of water gaps in passing through each successive range, it empties an average of 22½ billion gallons of fresh water a day into the Bay. This amounts to over 50% of the fresh water entering the entire Bay. Not only does its discharge determine the salinity of the upper Bay, and thus the distribution of fishes, but also to a great extent the composition and shape of the bottom as well.

FISH AND FISHING

Because of the great number of tributary streams to Chesapeake Bay, the fishes that divide their lives between fresh water and the sea are exceptionally abundant here. These are generally grouped into two types according to habits. Species that spend most of their lives in the sea or in the Bay and must go up rivers to spawn, such as the shad, alewife, striped bass, and sea sturgeon, are referred to as anadromous. Those that spend most of their lives in rivers or in the Bay and must go to sea to spawn, such as the common eel, are spoken of as catadromous. However, there are degrees of both types, for the demands of fish species vary widely in their requirements for suitable spawning areas.

An example of a highly anadromous fish is the shad, which enters Chesapeake Bay from the sea as early as February or March. Arriving in waves, they find and ascend their home rivers, traveling upstream considerable distances to locate the areas where they themselves had been hatched. After the semibouyant eggs are extruded by the female and fertilized by the male, they roll about on the bottom for 6 to 10 days of incubation. As soon as spawning is over, the adults return to the sea, the last wave leaving about the end of May. By the end of fall, all the young shad have left their spawning rivers, and with winter cooling, some enter the ocean while others remain in the Bay until they are a year or more old.

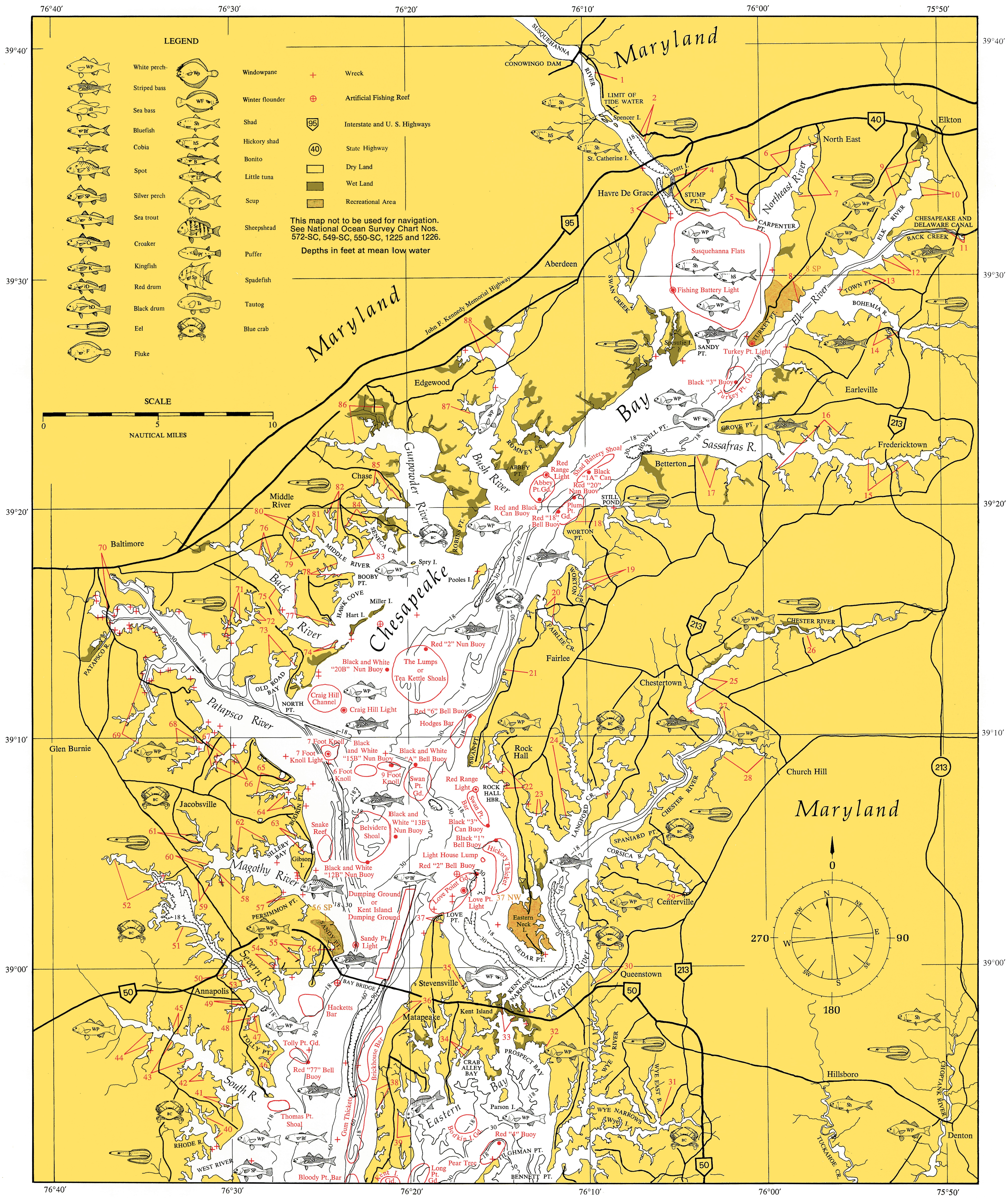
Striped bass, one of the most sought after and popular fish in Chesapeake Bay, is another anadromous fish that spawns in the spring. The mature fish move in from the sea, or emerge from the channels and deep holes where they have overwintered in the Bay, and swim upstream to spawn. Most of the spawning takes place within the first 25 miles of fresh water. Because survival of the eggs, which are semibouyant, depends on their being in turbulent water, they must be continuously buffeted by movements of the water and so kept drifting downstream. Some of the adult striped bass remain within their home tributaries after spawning; others travel considerable distances in the Bay; and some large ones leave the Bay, either through the Bay entrance or through the Chesapeake and Delaware Canal, and make long northward coastal migrations as far as the Gulf of Maine.

The white perch, a congener of the striped bass, is essentially a resident of Chesapeake Bay rather than of the sea. In the spring, mature fish move upstream, going farther than the stripers do, though the spawning grounds of the two species overlap. Unlike striped bass eggs, those of the white perch sink and stick together in masses on the bottom or to objects such as debris, old trees, overhanging branches, etc. Thus, after hatching and metamorphosis, the fry are more or less separated from those of striped bass whose eggs are kept moving downstream during development. After spawning, the adults move downstream back to the estuary and the adjacent Bay waters for the summer. As winter approaches, they move into deeper areas where the water is warm enough for them to remain active through the cold months.

The classical example of a catadromous fish is the common eel, which lives at least 7 years in brackish or river waters, sometimes very far from the sea before becoming mature. The common eel then migrate to the ocean, out beyond the continental shelf to an area east of Florida and the Bahamas and south of Bermuda, where they spawn, probably in very deep water, and die. The larvae, ribbon-shaped, colorless and clear as glass, spend about 10 or 11 months at sea while they make their way mysteriously towards land. When they arrive early in the year at Chesapeake Bay they are still transparent "glass eels," but they gradually shrink, change their shape, and darken to become the elvers as we know them. They then remain in the Bay or its tributaries until mature, when they start the cycle again.

No.	Location	Boat Rentals: Boating Facilities Per Location	Boat Rentals: Rowboat – Outboard	Boat Rentals: Charter Boat	Boat Rentals: Party Boat	Boat Rentals: Runabout – Skiff	Launch'g: Ramp-Surfaced – Natural	Launch'g: Hoist: Fixed – Portable	Launch'g: Marine Railway	Depth: Tidal Range – Ft.	Depth: Approach – Ft.	Depth: Alongside – Ft.	Supplies: Bait – Tackle	Supplies: Fuel: Gasoline – Diesel	Supplies: Water – Ice – Grocery	Services: Moorings – Berths – Elec.	Services: Repair: Motor – Hull	Services: Food – Lodging	Services: Toilet – Shower
1	Octoraro Creek	1					S			2.1									
2	Port Deposit	4	RO				SN	FP		2.1	18	4	BT	G	WI	MBE	MH	F	TS
3	Havre De Grace	7	RO	C			S	FP	R	1.7	6	3	BT	GD	WIG	MBE	MH	FL	TS
4	Perryville	6	RO				S	FP	R	1.7	20	8	BT	G	WI	BE	MH	FL	TS
5	Carpenter Point	3	RO				S	P		1.8	4	3	BT	G	WIG	BE	MH	FL	TS
6	Charlestown	7		C			SN	FP	R	1.9	4	4	BT	GD	WIG	MBE	MH	FL	TS
7	North East	7	RO	C			S	FP	R	1.9	7	6	T	GD	WIG	MBE	MH	F	TS
8	Timber Point	1	R				S								WI				TS
9	Elkton-Plum Pt.	4					SN	P	R	2.3	5	3	B	G	WI	MBE	MH	F	TS
10	Elkton-Locust Pt.	3	RO				S	P		2.3	6	3	B	G	WI	MBE	MH	F	TS
11	Chesapeake City	5	RO				S	FP	R	2.6	10	6	BT	GD	WIG	MBE	MH	F	TS
12	Courthouse Pt.	2					S	P		2.2	7	5	BT	GD	WIG	BE	MH	F	TS
13	Town Point Neck	4	RO				S	FP	R	2.2	3	3	BT	GD	WIG	BE	MH	F	TS
14	Bohemia River	6	RO				S	FP	R	2.2	5	4	BT	GD	WIG	MBE	MH	F	TS
15	Georgetown	8	RO	C			SN	FP	R	2.0	6	6	BT	GD	WIG	MBE	MH	FL	TS
16	Turner Cr.-Back Cr.	2	R				S			2.0	3	2	BT	G	WIG	B	MH		TS
17	Betterton	7	R	C			SN			1.7	15	3	BT	G	WIG	BE		FL	TS
18	Worton Point	1		C															
19	Worton Creek	2	R	C			S	P	R	1.2	7	7	BT	GD	WIG	MBE	MH	F	TS
20	Fairlee Creek	2	RO	C			S			1.2	8	6	BT	GD	WIG	MBE		FL	TS
21	Tolchester	1					S	P		1.2			BT	GD	WIG	MBE	MH		TS
22	Rock Hall	13	RO	C	P		SN	FP	R	1.1	2	1	BT	GD	WIG	MBE	MH	FL	TS
23	Herringtown Cr.	3					S		R	1.4	8	8		GD	WI	BE	MH		TS
24	Long Cove-Davis Cr.	5	R				S	F	R	1.4	5	4	BT	GD	WI	MBE	MH		TS
25	Chestertown	4	RO				S	P	R	1.8			T	G	WIG	MBE	MH		TS
26	Deep Landing	1					S												
27	Rolphs Point	1					S	P						GD	WIG	BE	MH	F	TS
28	Southeast-Island Crs.	2					SN	P						G	WI	BE			TS
29	Centreville	1					S			1.6						B			
30	Queenstown	1								1.3						B			
31	Wye Landing	2	R				N			1.3	4	5	B	G	WI				
32	Cabin Creek	1					S												
33	Kent Island Narrows	11	RO	C	P		S	FP	R	1.2	4	5	BT	GD	WIG	MBE	MH	FL	TS
34	Dominion	3	RO				S	FP	R	1.1	3	3	BT	GD	WI	BE	MH		
35	Chester	1	RO				S	P	R	1.1	8	8	BT	GD	WIG	BE	MH	F	TS
36	Matapeake	2					S						BT	GD	WI	BE	MH	FL	TS
37	Love Point	2	R	C			S			1.1	4	4		GD	WI	B			T
38	Stevensville	2		C			S	FP		1.1	5	5	BT	GD	WIG	MBE	MH	FL	TS
39	Mattapex-Romancoke	2	RO				N			1.1	2	2	B	G	WI	BE		F	T
40	Rhode River	5	R	C			S	FP	R	0.9	4	4		GD	WI	BE	MH	L	TS
41	Selby Beach	11	R	C			SN	FP	R	0.9	5	2	BT	GD	WIG	BE	MH	F	TS
42	Pocahontas Cr.	3					S	P	R	0.9	4	3	BT	G	WIG	BE	MH	F	TS
43	Woodland Beach	4	RO	C			S	FP	R	0.9	8	10	BT	GD	WIG	BE	MH	FL	TS
44	Riva	2	R						R	0.9	14	4			WI	MBE	MH	F	T
45	Edgewater	5	RO	C			S	P		0.9	12	10	BT	GD	WI	BE	MH	F	TS
46	Tolly Point	1					S												
47	Back Creek	4	RO	C			SN	FP	R	0.9	4	7	BT	GD	WIG	MBE	MH		TS
48	Eastport	20	RO	C			S	FP	R	0.9	4	5	B	GD	WI	MBE	MH	F	TS
49	Annapolis	6						F	R	0.9	10	10	BT	GD	WIG	MBE	MH	FL	TS
50	West Annapolis	1					S				0.9								
51	Sherwood Forest	1		C			S	P						G	WI	BE	MH	F	T
52	Severna Pk.-Indian Ldg.	3	R				S		R				BT	GD	WI	MBE	MH	F	T
53	Ferry Farms	1	R				S			0.9	20	12	BT	G	WIG	MBE		F	T
54	Mill Creek	3		C					R	0.8	10	10		G	WIG	BE	MH	F	T
55	Whitehall Creek	2		C			S	FP	R	0.8	10	12		G	WI	BE	MH		TS
56	Sandy Point	2	RO				SN			0.8	10	3	BT	GD	WI	B		F	TS
57	Deep Creek	2	RO	C			S	P		0.8	8	5	BT	G	WI	BE	MH		T
58	Stony Point	1					S	P	R	0.8	14	9		G	WIG	BE	MH	F	TS
59	Allenville	5	RO				S	P	R	0.8	3	2	BT	GD	WIG	BE	MH	FL	TS
60	Severna Park	2								0.8	9	9	T	GD	WI	BE	MH		T
61	Magothy R-Old Man Cr	2	RO				S	FP		0.8	4	4	BT	G	WI	BE	MH		T
62	Blackhole Cr-Grays Cr	3	R				S	FP	R	0.8	6	4		G	WI	BE	MH		TS
63	Cornfield Cr-Gibson I.	3	R				N		R	0.8	8	6	B	GD	W	MBE	MH		T
64	Graveyard Point	3					S	P	R	1.0	6	8		GD	WI	BE	MH	F	T
65	Pasadena	6	RO	C			S	P	R	1.1	3	2	BT	G	WIG	BE	MH	F	TS
66	Fairhaven Beach	5	RO	C			SN	FP	R	1.1	12	8		GD	WI	BE	MH	F	TS
67	Rock Creek	2		C			N	P	R	1.1	12	13	B	GD	WI	BE	MH		TS
68	Stony Cr.-Nabbs Cr.	4	R	C				P	R	1.1	6	5		GD	WI	BE	MH	F	TS
69	Glen Burnie	3						F	R					G		BE	MH		TS
70	Baltimore	2					N		R	1.2	25	11		GD	WI	BE	MH		T
71	Bear Creek	6					S	FP	R					GD	WIG	BE	MH	F	TS
72	Dundalk	8							R					G		MBE	MH		T
73	Old Road Bay	6	R	C			SN	FP	R	1.0				GD	WI	BE	MH	F	TS
74	Cuckold Point	7	RO	C			S			1.1	5	3	BT	G	WI	BE	M	F	T
75	Todd Pt-Stansbury Pt	4					SN	P	R	1.1	8	4		G	WI	BE	MH		T
76	Cox Pt.-Deep Cr.	4	RO				S	P	R	1.1	5	4		G	WIG	BE	MH	F	TS
77	Muddy Cut-Rocky Pt.	3		C			S	P		1.1	6	6		G	WI	MBE	MH	F	T
78	Sue Creek	9	R				SN	P	R	1.2	3	4	B	G	WI	BE	MH	F	TS
79	Hopkins Creek	8					S	FP	R	1.2	8	5	BT	GD	WIG	BE	MH	F	TS
80	Essex	6					S	FP	R	1.2	10	9	BT	G	WI	BE	MH	FL	TS
81	Dark Head Creek	1					S	P		1.2	12	11	B	G	WI	BE	MH		TS
82	Frog Mortar Cr.	6			P		SN	P	R	1.2	9	8	BT	GD	WI	BE	MH	F	TS
83	Galloway Creek	3	R				S	P	R	1.2	12	12		G	WI	BE	MH	F	TS
84	Seneca Creek	3	R				SN	FP	R	1.2	6	6	B	G	WI	BE	MH	F	TS
85	Dundee Creek	2	R				S			1.2				G		BE			T
86	Joppatowne	2	R				S	FP					B	GD	WI	BE	MH	F	TS
87	Lauderick Cr.	1									3	5		G	W				T
88	Bush River	5	R				S	P	R	1.5	3	3	BT	G	WIG	BE	MH		TS

No.	Location	Recreational Areas: County – City – Town: Park	State: Park-Wildl. Area – Forest	Natl.: Park-Wildl. Area – Forest	National Seashore	Use: Day-Wknd-Vacation	Activities: Fishing	Boating	Picnicking	Camping
8SP	Elk Neck		SP			DWV	F	B	P	C
37NW	Eastern Neck			NW						
56SP	Sandy Point		SP			DWV	F	B	P	C


LEGEND
White perch
Striped bass
Sea bass
Bluefish
Cobia
Spot
Silver perch
Sea trout
Croaker
Kingfish
Red drum
Black drum
Eel
Fluke
Windowpane
Winter flounder
Shad
Hickory shad
Bonito
Little tuna
Scup
Sheepshead
Puffer
Spadefish
Tautog
Blue crab
Wreck
Artificial Fishing Reef
Interstate and U. S. Highways
State Highway
Dry Land
Wet Land
Recreational Area
This map not to be used for navigation.
See National Ocean Survey Chart Nos.
572-SC, 549-SC, 550-SC, 1225 and 1226.
Depths in feet at mean low water
SCALE
0 5 10
NAUTICAL MILES
76°40′
76°30′
76°20′
76°10′
76°00′
75°50′
39°40′
39°30′
39°20′
39°10′
39°00′
Maryland
Maryland
Maryland
Chesapeake
Bay
John F. Kennedy Memorial Highway
SUSQUEHANNA RIVER
CONOWINGO DAM
LIMIT OF TIDE WATER
Spencer I.
St. Catherine I.
Garrett I.
Havre De Grace
STUMP PT.
CARPENTER PT.
Northeast River
North East
Elkton
ELK RIVER
CHESAPEAKE AND DELAWARE CANAL
BACK CREEK
Susquehanna Flats
Fishing Battery Light
8 SP
TOWN PT.
BOHEMIA R.
Elk River
TURKEY PT.
Turkey Pt. Light
Black "3" Buoy
Turkey Pt. Gd.
SANDY PT.
Spesutie I.
SWAN CREEK
Aberdeen
Edgewood
Earleville
GROVE PT.
Fredericktown
Sassafras R.
HOWELL PT.
Betterton
ROMNEY CR.
ABBEY PT.
Bush River
Red Range Light
Abbey Pt.Gd.
Shad Battery Shoal
Black "1A" Can
Red "20" Nun Buoy
Plum Pt.
Red and Black Can Buoy
Red "18" Gd. Bell Buoy
STILL POND
WORTON PT.
WORTON CR.
FAIRLEE CR.
Fairlee
Gunpowder River
Chase
Middle River
ROBINS PT.
SENECA CR.
MIDDLE RIVER
Spry I.
Pooles I.
BOOBY PT.
HAWK COVE
Miller I.
Hart I.
Baltimore
Back River
PATAPSCO R.
OLD ROAD BAY
NORTH PT.
Patapsco River
Red "2" Nun Buoy
Black and White "20B" Nun Buoy
The Lumps or Tea Kettle Shoals
Craig Hill Channel
Craig Hill Light
Red "6" Bell Buoy
Hodges Bar
7 Foot Knoll
7 Foot Knoll Light
Black and White "15B" Nun Buoy
Black and White "A" Bell Buoy
6 Foot Knoll
9 Foot Knoll
Swan Pt. Gd.
SWAN PT.
Red Range Light
Swan Pt. Bar
ROCK HALL HBR.
Rock Hall
Chestertown
CHESTER RIVER
Church Hill
LANGFORD CR.
SPANIARD PT.
CORSICA R.
Centerville
Glen Burnie
Jacobsville
BODKIN PT.
SILLERY BAY
Gibson I.
Snake Reef
Belvidere Shoal
Black and White "13B" Nun Buoy
Black "3" Can Buoy
Black "1" Bell Buoy
Light House Lump
Red "2" Bell Buoy
Hickory Thicket
Magothy River
Black and White "12B" Nun Buoy
Dumping Ground or Kent Island Dumping Ground
Love Point Gd.
Love Pt. Light
LOVE PT.
37 NW
Eastern Neck I.
CEDAR PT.
PERSIMMON PT.
56 SP
SANDY PT.
Sandy Pt. Light
BAY BRIDGE
Severn R.
Annapolis
Stevensville
KENT I. NARROWS
Chester River
Queenstown
Kent Island
Matapeake
Hacketts Bar
Tolly Pt. Gd.
TOLLY PT.
Red "77" Bell Buoy
Brickhouse Bar
CRAB ALLEY BAY
PROSPECT BAY
South R.
Thomas Pt. Shoal
Gum Thickets
Eastern Bay
Parson I.
Bodkin I. Gd.
Red "4" Buoy
TILGHMAN PT.
BENNETT PT.
RHODE R.
WEST RIVER
Bloody Pt. Bar
Kent I. Gd.
Long Pt. Gd.
Pear Tree
WYE RIVER
WYE EAST R.
WYE NARROWS
Wye I.
Hillsboro
TUCKAHOE CR.
CHOPTANK RIVER
Denton
N NE E SE S SW W NW
0 90 180 270

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.

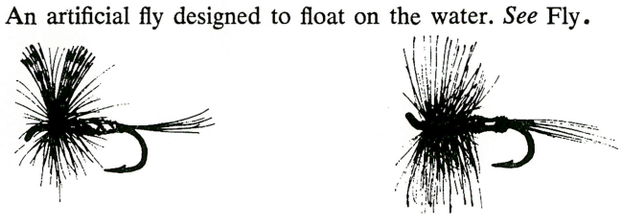
CONTINENTAL SHELF. A submarine plain extending out from shore to a depth of about 600 feet, beyond which the ocean bottom begins a relatively steep descent to the deep ocean floor.

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.

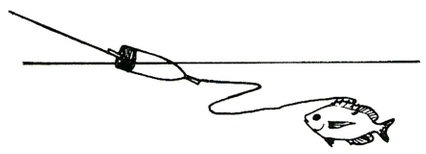
FEATHER. Also called a trolling feather. An artificial bait or lure made to simulate a baitfish and used for trolling. The feather is made of a round or bullet-shaped metal head to which is attached a feather, hair, nylon or other synthetic material body.

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.

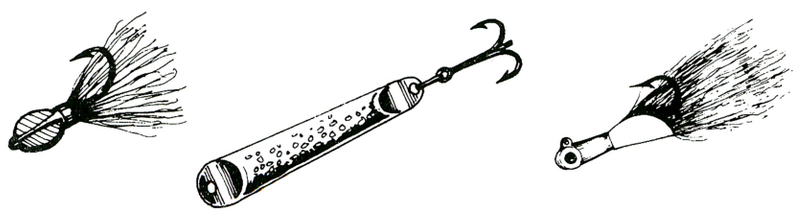
HEADLAND. A high point of land or rock projecting into the sea.

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.

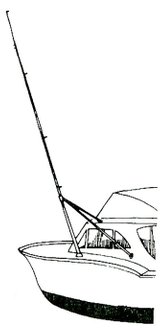
MOP. An artificial bait or lure made to simulate a natural bait and trolled in the water. It consists of a small-linked brass chain 6 to 14 inches long with tufts of thread tied or glued into each link. Attached to the front of the chain is either a swivel or a weight, and to the rear end a hook. This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



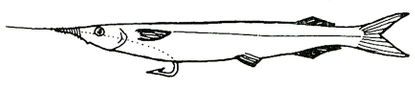
PARTY BOAT. Also called head boat, open boat, ground-fishing boat, deep sea-fishing boat, drift-fishing boat, and packet or party packet. A fishing boat, usually carrying 10 to 60 anglers. Space is sold to the general public until either the boat is filled to capacity or the scheduled sailing time is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

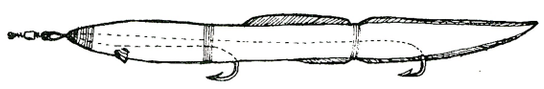
PASS. A term used in the Florida Keys and along the coast of the Gulf of Mexico for an inlet. As used in the Florida Keys, it is the passageway from the sea to Florida Bay and ranges in width from a fraction of a mile to 7 miles.

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.

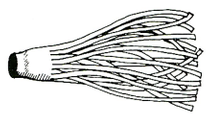
SALT WATER. Applied in this book to water having more than 17 parts per thousand, by weight, of dissolved salts. Average sea water for all oceans has about 35 parts per thousand of dissolved salts.

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.

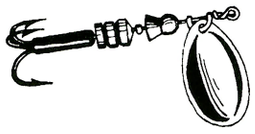
SHAD DART. A small jig, usually a weighted bucktail, weighing about ¼ ounce or less. Darts are used primarily to catch shad and similar fishes.

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.

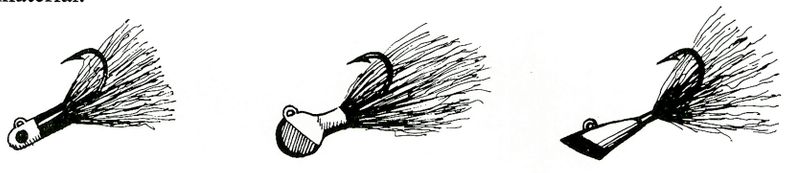
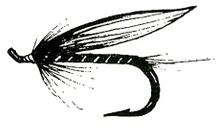
TIDE-LINE. The water level at the shore, which changes with the tide.

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.