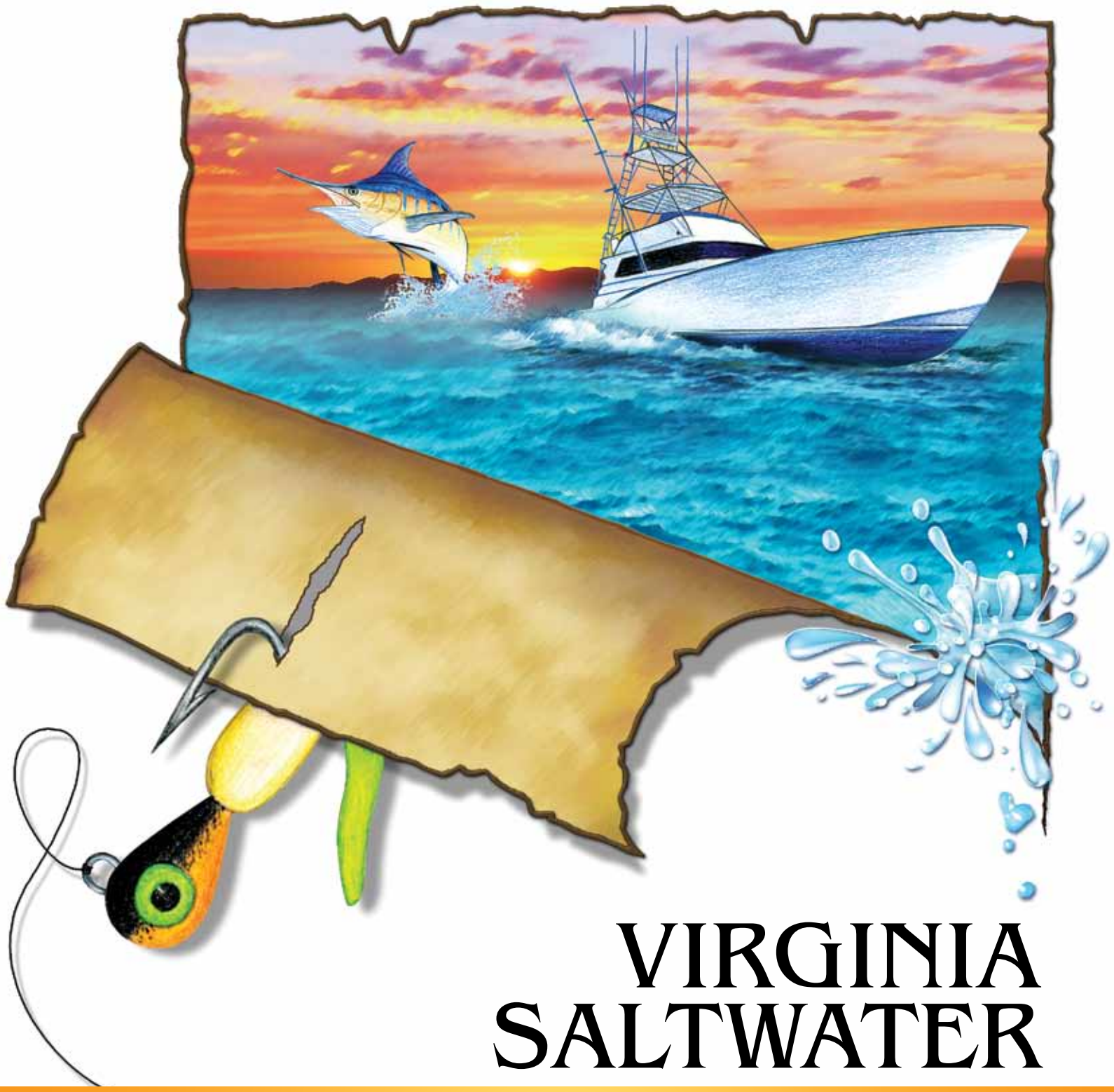
VIRGINIA SALTWATER

ANGLER'S GUIDE



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Cover artwork by Alicia Slouffman. Back Cover artwork by Terre Ittner. Fish illustrations by Duane Raver.
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ANGLER'S GUIDE GREETINGS

Welcome to the Virginia Angler's Guide, a free publication of the Virginia Marine Resources Commission to help recreational saltwater anglers become better fishermen and to encourage responsible stewardship of our natural resources.

Here you will learn what you can catch, as well as where and when to catch it. Here you will find useful angling tips and help identifying that mysterious fish you pulled in.

We'll also show you where to find public boat launches, and give the locations of our man-made reefs. They're fish magnets!

If you land an exceptional fish of a particular species, you may be eligible for a plaque through our Saltwater Fishing Tournament. We'll tell you who to contact about that.

Virginia has some of the world's best fishing in the mighty Chesapeake Bay and its tributaries as well as in the ocean off our beautiful shores. Some record-setting fish have been caught in Virginia waters in recent years, including bluefin tuna, striped bass, king mackerel and croaker.

The biggest fish are yet to be caught. They're out there.

As an avid angler and outdoorsman, I am proud of the conservation efforts we take at the Virginia Marine Resources Commission to ensure our fish populations not only survive but thrive.

So please fish responsibly. Be respectful to others and to nature. Be safe on the water. Abide by the fishing regulations. They're there for good reasons.

Above all, please be stewards of our natural resources so our children and grandchildren can experience the same joy of fishing that we do.

Steven G. Bowman
Commissioner
Virginia Marine Resources Commission

P.S. Thanks for all you do to conserve our marine resources

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VIRGINIA'S MARINE WATERS AND FISHERIES

A series of natural phenomena have combined off the Virginia coast to create some of the richest marine waters in the world. The bounty of these waters is readily apparent to recreational fishermen who pursue a seemingly endless variety of finfish species.

The Chesapeake Bay and its major tributaries join to form the largest and most productive estuarine complex in North America. They supply a vast amount of nutrients into coastal waters and provide a huge spawning and nursery area for many species of fish.

The warm waters of the Gulf Stream flow north along the East Coast until they collide with the cool, plankton-rich waters of the Labrador Current flowing south. The intermixing of these currents occurs near Cape Hatteras, North Carolina, and in adjacent waters. This puts the southern coast of Virginia in the dynamic area where the Mid-Atlantic Bight and South Atlantic Bight are joined, which brings a huge mix of finfish species into local waters. In fact, Virginia is the southernmost range of real abundance for many temperate species of fish and the northern range of abundance for many subtropical species.

The large peninsula that forms the Eastern Shore of Virginia is flanked by a chain of uninhabited and unspoiled barrier islands. These islands protect a rich complex of marshes, bays and sounds that provide a haven for a variety of marine life.

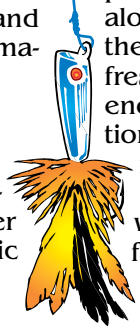
THE CHESAPEAKE BAY

The main portion of the Chesapeake Bay follows the ancient bed of the Susquehanna River and extends for more than 185 miles. Dramatic forces during the Ice Age, which helped shape the Susquehanna Valley, and the rising waters caused by the melting ice cap as the Ice Age ended, transformed the southern portion of this river valley into the vast estuarine complex that today is the Chesapeake Bay.

The Chesapeake Bay continues as the place where several of the great rivers in the eastern United States meet the ocean. The Susquehanna River has the greatest impact on the Bay, contributing, on average, almost 50% of the freshwater flowing into the Bay. The Potomac and the James Rivers provide more than 15% each, leaving less than 20% for the combined contribution from more than a dozen other rivers. The rivers and adjacent lands comprising the Chesapeake Bay watershed cover more than 64,000 square miles, and the shoreline extends for more than 11,000 miles (approximately 4500 miles on the main portion of the Bay).

Water also flows into the Chesapeake Bay from the Atlantic Ocean. A relatively constant inward flow of ocean water occurs along the bottom. These ocean waters, rich with salts and minerals, are heavier and denser than the freshwater flowing down the rivers into the Bay and out its mouth in the upper portions of the water column.

The mixing of ocean and river waters in the Chesapeake Bay produces waters that are variably salty and fresh, often changing based upon short term weather phenomena, long term weather or climatic patterns, tides, depth and location. Certain patterns, however, remain constant. Bay waters along its eastern side are saltier than waters along the western shore. This is due to large inflows of freshwater from the western rivers and a phenomenon called the Coriolis force – a result of the rotation of the earth that "pulls" the denser saltwater north along the eastern side of the Bay.



Tides, which are the rise and fall of ocean waters caused primarily by the gravitational forces of the sun and moon, create variations in

Many anglers believe the Gulfstream waters harbor the most magnificent game fish found anywhere in the world. For a combination of power, speed and "greyhounding" jumps, no fish in the ocean can match the magnificent blue marlin.

salinity. Tidal movements originate at the mouth of the Bay and, during periods of high or incoming tides, move up the Bay in a "wave" to the upper portions and into the tributary rivers. As the ocean water rises toward high tide the salinity increases, while the opposite occurs as the tide falls or ebbs. The "wave" of tidal water takes time to physically move up and down the Bay, causing differences in the times of high and low tide among places near the mouth of the Bay and those farther up the Bay or in the tidal portions of the tributary rivers. The variation in time can be as much as 5 to 6 hours.

Events with seemingly little connection to the Bay can have major impacts upon salinity levels and water flows. Heavy rains in the western Virginia, Maryland and Pennsylvania mountains may create flash floods which can send pulses of nutrient-laden freshwater down major rivers, dramatically affecting salinity levels. These pulses are called "freshets" as they reach the brackish waters of the rivers near the Chesapeake Bay, and these sudden changes in salinity can have pronounced impacts upon marine life. In fact, the torrential rains in Pennsylvania associated with Hurricane Agnes in 1972, which created epic flooding from the Susquehanna River, had catastrophic effects upon the Bay. This may have been the "triggering mechanism" for the disappearance of vast areas of underwater sea grasses in the Bay. Unfortunately, the sea grasses have never recovered, probably due to a combination of pollution, turbidity and excess nutrients associated with the Bay's water quality problems.

Changing salinity levels and water flows are not the only dynamic forces impacting the Bay environment. Water temperatures vary dramatically on an annual basis, probably having the highest average annual variance of any location on the East Coast. Winter often produces skim ice and even harder freezes on the lower Bay tributary rivers, and several times in the last century portions of the main stem of the Chesapeake Bay have been covered with ice. Summertime surface water temperatures in shallow bays may approach, or exceed, 90 degrees. Sudden changes in temperature, which may occur during extended cold snaps in the fall or early winter, can cause water temperatures to drop dramatically. This is particularly true when the cold weather is accompanied by heavy snows or cold rains, which directly enter the Bay. Heavy snows as far away as adjacent mountains, which lower the water temperatures in the tributary rivers, can affect the Bay. Surges in water flow and sudden water temperature changes can result in severe stress to fish and other marine life.

Climatic forces with seemingly no connection to the Chesapeake Bay can have major impacts on long-term salinity levels, water flows and temperatures. Scientists now know that the El Nino cycle, the warming of the water moving north in the Pacific Ocean, produces greater precipitation in parts of the eastern United States, including part of the Bay's watershed.

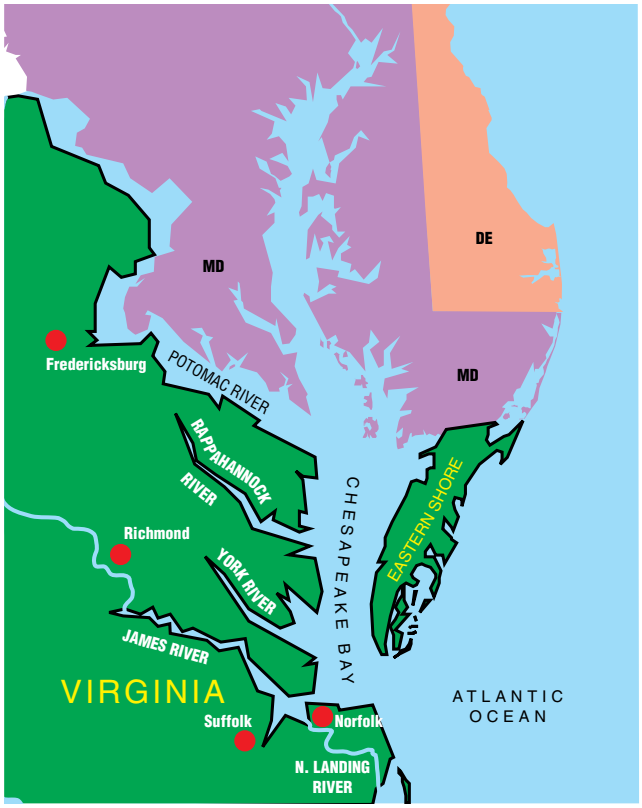
La Nina, the opposite situation involving cooling Pacific waters, creates drier conditions in these same eastern U. S. areas. These cycles may last for periods spanning several years.

The North Atlantic Oscillation, a cycle involving the location of the predominant high and low pressure systems over the Atlantic Ocean that may last for a decade or longer, can affect the Bay. When the pressure over Iceland is low and is high over the Azores, wetter weather results in the eastern United States. Drier weather occurs when the pressure is high over Iceland and low over the Azores.

Long-term increases in freshwater flowing into the Bay system during "wet" climatic periods not only affect salinity, but also the delivery of nutrients and pollutants. The more freshwater runoff into the Bay watershed, the greater the amount of nutrients delivered to the system, and this can have an adverse impact on water quality.

Because this environment can change so quickly, exhibits such extremes on an annual basis, and can vary dramatically over extended periods of time, the marine life found in the Chesapeake Bay is among the hardiest and most adaptable found anywhere in the world. And, while life in these dynamic surroundings is not easy, estuarine environments are extraordinary in their richness and diversity of life. Most of the commercially and recreationally important finfish species of Virginia spend a portion of their lives in an estuarine environment.

Estuarine communities begin with intertidal salt marshes. These low areas, characterized



by muddy tidal flats, spartina grasses, and small creeks, are nature's "buffer" zones. They provide filtering areas that trap nutrients and, in recent years, pollutants, preventing them from overburdening the tidal rivers and bays. The tidal marshes are teeming with life from the ever-present snails, fiddler crabs and worms to shrimps, "fundulus" minnows, blue crabs and juvenile fish.

Unfortunately, intertidal salt marshes and wetlands have been disappearing in modern times due to the increasing pressure to develop waterfront properties caused by the desire of more people to live near the coast. While this trend continues, the rate at which marshes and wetlands have been declining is slowing, as regulations have focused efforts on environmentally "friendly" development which provides some protection for these critical and sensitive areas. Continued protection of tidal marshes and wetlands is a key component in maintaining the water quality of the Chesapeake Bay and preserving much of the marine life in the Bay.

Forests are another key element in the Bay watershed. Much of the surrounding land was forested in years past, providing another mechanism to help control soil erosion, flooding, and runoff. As forests were cut down to make way for farms, towns and housing, soil erosion and runoff increased, resulting in the increased delivery of nutrients and pollutants into the Bay. Preserving and creating vegetated and forested "buffer" zones around the shoreline are another key component in restoring the water quality of the Chesapeake Bay.

Seagrasses, mainly eelgrass, thrive in shallow waters, often growing best in waters that are somewhat protected from excessive wave and current movements. Seagrass provides protection for many small fish and molting blue crabs, making this habitat attractive for numerous game fish.

In addition, seagrass beds serve a filtering role, helping sediments to trickle to the bottom, which produces better water clarity. Seagrass beds dissipate wave energy, which helps to reduce shoreline erosion and improve water clarity. Ironically, many scientists believe excessive runoffs, a form of non-point source pollution which causes increased water turbidity, were responsible for killing many seagrass beds in the Chesapeake Bay during the 1970's. This may have been exacerbated by the huge impact of the torrential rains and massive floods associated with Hurricane Agnes in 1972. So, while seagrasses are important in preserving and improving water quality, it may have been poor water quality that killed massive seagrass beds 30 years ago.

During the last twenty years, however, the Chesapeake Bay clean-up initiatives have focused on controlling agricultural and urban runoff, and seagrass beds began making comebacks. Unfortunately, the recovery seemed to level off in recent years, and the warmer than normal Bay water temperatures during the summer of 2005 caused a significant defoliation that may have impacted recovery efforts and natural seagrass processes. In many ways the health of seagrass beds may be a good measure of the health of the Bay, since thriving seagrass beds require good water quality—specifically low levels of suspended sedimentary runoff, nutrients, pollutants and phytoplankton, to thrive. Healthy seagrass beds are crucial to a healthy Bay.

Another issue affecting the Bay is the level of dissolved oxygen (DO) in the water column. In recent years there has been an apparent increase in size and time span of Bay "dead zones" – areas with low oxygen levels (hypoxic) or no dissolved oxygen (anoxic). This is an acute problem, occurring most often in summer months in upper portions of the Bay, since fish and shellfish need water rich in oxygen to breathe. The cause is increased blooms of algae in Bay waters – a result of too many nutrients, mainly nitrogen, appearing in the runoff entering the water. As the algae die and fall to the bottom, the decomposition process uses oxygen creating hypoxic areas near the bottom. Since the 1960's the area in the Bay affected by hypoxic water has more than tripled, affecting as much as 40% of the mainstem of the Bay. The time span of the dead zones also has increased, appearing earlier in the spring and remaining later into the fall.

Oyster rocks and bars are the major type of natural "reef communities" in the Chesapeake Bay and were once a trademark landmark in the Bay ecosystem. A myriad of small inverte-

brates are attracted to the oyster rocks and contribute to the food chain. In turn, these "live bottom" areas attract a host of small finfish, which are sought out by even larger game fish.

Oysters are filter feeders and acquire their food by straining plankton and nutrients from the water column. This has proven to be an important component of maintaining the Chesapeake Bay's water quality. At the start of the 20th century oyster rocks rising ten feet off the bottom were not uncommon. Oysters were so numerous they possessed the capacity to filter an amount of water equivalent in volume to the entire Chesapeake Bay in less than a week. Disease, pollution and overharvesting have reduced oyster populations to a fraction of that level, and today's population of oysters would take nearly a year to filter the water volume of the Chesapeake Bay. Rebuilding the oyster population is a major priority of fishery managers and a key component to water quality improvement in the Bay.

Another concern in recent years has been the key ecological role played by some of the Bay's prime forage fish, especially menhaden and bay anchovies. Menhaden are the other major filter feeder associated with the Bay, thus serving both as forage for many important recreational fish and a component in the Bay's water quality equation. Since menhaden also support an industrial reduction plant in Reedville, the status of the menhaden population has become a major management and political issue in recent years. Efforts are being mobilized for more detailed study of menhaden in an effort to determine how to best manage this ecologically important fish.

The Chesapeake Bay offers a tremendous variety of recreational fishing opportunities, and no fish is more symbolic of the Bay than the striped bass. The Chesapeake Bay is the largest spawning and nursery area for striped bass on the East Coast. As much as 80% of the coastwide migratory population is thought to have been spawned within the tributaries of the Chesapeake Bay.

Striped bass, like shad and herring, are anadromous; this means they spend the majority of their lives in saltwater but return to freshwater rivers to spawn. They can be caught in virtually every portion of the Chesapeake Bay and its tributary rivers. In addition, stripers can be found at some place in the Bay every day of the year. The resurgence of striped bass populations in recent years from the population collapse in the 1970's, which nearly culminated in their listing as a threatened species, is one of the spectacular success stories of modern fisheries management.

But even this success story carries some warning signs. In recent years, mycobacteriosis has been recognized as a concern for the Bay's stripers. This is a disease caused by bacteria in the same family as tuberculosis and "chronic wasting disease". Scientists believe as much as 70% of the Bay's striped bass population may be infected. Most fish evidence the disease in internal organs, such as the liver, but at its more acute level red sores develop on the flesh and skin of the fish. There is no evidence that eating properly cooked fish infected with the disease is harmful to humans, however handling acutely diseased fish with sores can cause a serious infection. Typically, the bacteria enter the human body through cuts in the skin and cause a painful and persistent infection that must be treated with a comprehensive antibiotic regimen. Left undiagnosed and untreated the infection can progress to the point of causing large-scale death of tissue, resulting in the possibility of gangrene. Fish with red sores should be treated carefully, with minimal handling. Use of rubber gloves and an antibacterial, antiseptic wash are prudent precautions. If an infection is suspected, professional medical assistance should be sought immediately.

Striped bass provide just one of several opportunities for small boat fishermen to do battle with adversaries who may weigh 50 pounds or more. In addition, the Bay offers seasonal runs of cobia, red drum and black drum. Red drum and black drum appear in Bay waters in mid-April, while cobia usually appear near the Memorial Day weekend.

The recurrence of seagrass beds in several locations in the Bay may be the reason speckled trout populations have grown in recent years. Speckled trout populations surged in the late 1980's, peaking in the middle 1990's. A fall in the population in the latter part of the decade probably coincided with several cold winters, but large numbers of small fish from 2002-2006 hold the promise of another population surge. Fishing in the fall and winter of 2008 was the best for trophy-sized speckled trout in more than 20 years. The favorite haunts of this popular game fish are shallow water flats with sea grass beds, including those located on the Eastern Shore seaside, and the warm water discharges on the Elizabeth and York rivers.

The Chesapeake Bay is a summertime home for many species of "panfish". Summer flounder, croaker, spot, and small gray trout are the favorite targets for many anglers bouncing baits along the bottom. Small bluefish and Spanish mackerel can be taken by a variety of methods using artificial lures and bait, and in recent

years anglers have learned the methods that are productive for catching the visiting populations of spadefish and sheepshead.

Tautog can be found over wrecks and obstructions in the lower Chesapeake Bay all year but are most active when the water is cool. They remain active throughout the winter, as long as water temperatures remain in the low 40's, or higher.

One of the focal points of fishing in the Bay is the Chesapeake Bay Bridge-Tunnel. Spanning more than 17 miles, this structure is often referred to as the world's largest artificial reef. More than 1.1 million tons of rock was used to build the four manmade islands that anchor the tunnels and more than 5150 concrete pilings support the bridge sections.

COASTAL WATERS

The coastal waters off Virginia are a part of the Mid-Atlantic Bight, which begins at Cape Hatteras, NC and extends well into New England. Coastal waters fall within the area often known as the littoral zone of the ocean. Generally, this refers to the part of the ocean and the ocean floor extending from the shoreline out to depths of approximately 600 feet — the area just beyond the 100-Fathom Line on ocean charts. Off the Virginia coast the littoral zone corresponds closely to the area known as the Continental Shelf. Beyond the littoral zone is the deep-sea zone of the ocean. Off the Virginia coast this starts along the bottom area known as the Continental Slope, where ocean depths rapidly plummet to over 1000 fathoms (6000 feet) and encompasses the remainder of the deep ocean basin.

Ocean waters are classified into two "vertical" zones – the benthic zone and the pelagic zone. The benthic zone refers to waters that are immediately adjacent to the ocean bottom, and animals and plants that live in or on the bottom or are attached to the bottom are known as benthos. All waters above the benthic zone comprise the pelagic zone. The benthic zone found in coastal waters supports both plant and animal life. The benthic zone beyond the Continental Shelf does not support any plant life, since plants need sunlight to exist and sunlight cannot penetrate to depths much beyond 100 fathoms. The benthic animals that live in deep ocean waters depend upon organic matter, mainly comprised of decaying plant and animal life that falls into the deep ocean waters from above for their food.

Pelagic waters harbor both animal and plant life. The plants are free-floating specimens, mainly consisting of phytoplankton, algae, and more developed, non-attached seaweeds. The animal life ranges from microscopic plankton to apex predators, such as various species of sharks, tunas and billfish.

The coastal waters off Virginia are classified as temperate, which means they enjoy a moderate temperature regimen, neither hot nor cold. This does not mean the waters are always hospitable for marine fish, however, since temperate waters are marked with a wide variance of water temperatures during the course of a year.

The surface water temperature off the Virginia coast, as measured at the Chesapeake Light Tower during the forty-five year period of 1961-2005 showed an annual temperature range of approximately 45 degrees. In the winter, the water temperature often fell to 36 degrees and often reached 81 degrees in the middle of the summer. During that 45-year period the temperature extremes recorded were 33 degrees for a low and nearly 85 degrees for the high – a range of over 50 degrees.

The impacts of such a wide temperature range on fish are profound. Temperatures at the warm and cold extremes of the range are not suitable for many species. The result is a transient population of marine fish in the coastal zone, with most species of fish migrating into and out of the area seasonally, depending upon their preference for warm or cool water. Those species that remain in waters of the Mid-Atlantic Bight year round may move to deeper waters to winter, where they often exhibit sluggish behavior characterized by reduced feeding activity.

Other forms of marine life also are impacted by the wide annual variance in water temperature. Plankton thrives in the late spring, summer and early fall, but is conspicuously absent in the winter months. The result is a breakdown in the food chain, resulting in fewer available food supplies for fish that do not migrate.

The relatively flat, featureless sand bottom that lies under the surface of most coastal waters off Virginia is not the type of environment

preferred by most fish. Natural "live bottom" areas, such as the coral reefs often found in southern waters and rock outcroppings of northern waters, are few in this region.

The natural structures in coastal waters that are attractive to fish are underwater hills and lumps, such as the Southeast Lumps, the 26 Mile Hill and the Cigar. However, the most preferred bottom structures in local waters may have been produced by man. The coastal bottom is littered with the sunken hulks of vessels torpedoed by the German Navy's U-boats during World War II, and an active artificial reef program continues to sink habitat for fish. These artificial reefs harbor fish year round, including the best fishing for tautog and sea bass on the East Coast.

The coastal zone might best be described as a giant migratory corridor, which is a function it performs for a tremendously diverse mix of finfish species. For the most part, fishermen are attempting to intercept these interlopers as they head toward their ultimate destinations.

The coastal waters from Cape Hatteras to the mouth of the Chesapeake Bay are where the Mid-Atlantic Bight joins the South Atlantic Bight, and fish indigenous to both areas mingle seasonally. The warm Gulf Stream current mixes with the cold Labrador Current over the edge of the Continental Shelf, and many species ride these waters into this "mixing bowl". This provides anglers with a myriad of fishing opportunities.

Some of the warm water species migrating to coastal waters during the summer months include amberjack, cobia, king mackerel, Spanish mackerel, crevalle jack, spadefish, and even a few tarpon and barracuda. Species that move to northern waters during the heat of the summer, but are present in the spring and the fall include striped bass, bluefish, bluefin tuna, Atlantic bonita, and little tunny.

Coastal wrecks and "hard-bottom" areas harbor good populations of tautog, black sea bass, spadefish, gray triggerfish, and sheepshead. In the past, when northern groundfish populations were larger, pollock and cod could be found over deeper structures. In recent years, anglers have discovered a good population of blueline tilefish over deeper "hard bottom" areas, along with a smattering of southern bottom dwellers, such as snowy grouper and wreckfish.

The surf zone and near shore waters host a variety of feisty, and tasty, game fish, including flounder, bluefish, speckled trout, gray trout, red drum, Spanish mackerel, striped bass, kingfish (roundheads), croaker, spot, and pompano. Many of these species are most abundant in the late spring or the early fall as they are migrating to their summer and winter haunts. A particularly good time to find large numbers of fish moving through near shore waters is after cold fronts and storms in the early fall, which sparks the urge for many species to school and begin their migrations south.

OFFSHORE WATERS

The western edge of the Gulf Stream current brings warm, tropical waters into the mid-Atlantic region. The Gulf Stream comes closest to the coast of the United States off southern Florida, but the eastward protrusion of Cape Hatteras into the Atlantic causes the Gulf Stream to pass within 25 - 30 miles of the coast at this point. The warm current then begins to veer to the northeast as it mixes with the Labrador Current. The western edge passes off the Virginia coast along the edge of the 100 Fathom Curve, which is 60 - 70 miles offshore.

These indigo blue waters are incredibly rich with life, from the blooms of small plankton and invertebrates often associated with lines of drifting Sargassum weed to magnificent blue marlin.

Ocean currents result from the action of the earth's rotation and the ensuing pattern of prevailing winds blowing across the surface of the water. The friction of the wind on the water surface causes waves and sets up the ocean currents. The Gulf Stream is really a huge eddy, swirling in a clockwise fashion in the Atlantic Ocean. Starting in the southern Atlantic, it flows northward along the coast of the United States, veers northeastward crossing the Atlantic toward the southern portion of Great Britain, continues to curve toward the southeast and south, finally returning in a westward flow just north of the equator bolstered by equatorial trade winds.

Ocean currents and flows also can be caused by the mixing of warm and cold waters. Cold water is denser than warm water, so it sinks toward the bottom. Warmer water flows in to replace the sinking cold water, setting up a pattern of circulation. This mixing and flow can be enhanced when currents flow over areas with changing bottoms, which can cause these warm or cold waters to veer upward, enhancing the movement caused by differences in temperature.

The ocean bottom in the area of the 100-Fathom Line provides the best natural structure in ocean waters off the Virginia coast. Here, the

Continental Shelf ends and water depths plummet. Sheer rock walls, rock outcroppings and mounds abound on the bottom. In the space of a few miles, water depths tumble from 100 fathoms to over 2000 fathoms. The Norfolk and Washington Canyons are two areas where deep waters intrude well westward into the Continental Shelf.

The sharply changing terrain of the bottom causes subsurface currents to veer toward the surface, creating "upwellings" of cooler, denser water which push nutrients to the surface. Swirling eddies of warm water break off the Gulf Stream and often head west onto the Continental Shelf. Cool water eddies also invade shelf waters from the southern moving Labrador Current. These types of actions cause sharp water temperature changes to occur at the surface, bring nutrients into areas attracting a myriad of marine life including game fish, and establish a pattern of dynamic water movement.

Many anglers believe Gulfstream waters harbor the most magnificent game fish found anywhere in the world. For a combination of power, speed and "greyhounding" jumps, no fish in the ocean can match the magnificent blue marlin. Reaching sizes in excess of 1000 pounds, the blue marlin is considered the ultimate test of angling skill and sheer endurance. Its smaller cousin, the white marlin, is the most acrobatic of the billfish and can be particularly tough for anglers to hook. Both species are readily available off the Virginia coast, and in the late summer and early fall some of the best fishing for white marlin in the world occurs off Virginia.

Three additional members of the billfish family are occasionally encountered off the Virginia coast, although none can be considered abundant. Sailfish and spearfish regularly surprise anglers trolling for their larger and more abundant cousins, and anglers fishing in the offshore canyons at night during the latter part of the summer have the chance to hook a swordfish.

The wahoo has the reputation as the fastest game fish in the ocean, and the dolphin, with its dazzling blue, green and yellow coloration, is among the most beautiful. Dolphin are plentiful off the Virginia coast, particularly around floating structure such as boards, pallets and other "flotsam", and around concentrations or "lines" of Sargassum weed. Wahoo are most abundant in September and early October.

The tunas are well represented in Gulfstream waters, with yellowfin tuna, bluefin tuna and bigeye tuna the most abundant and most sought after by local charterboat fleets. Schools of albacore, blackfin tuna and skipjack tuna also are occasionally encountered.

The area on the fringes of the Gulf Stream, which is teeming with life, is a prime location to find the ocean's top predator – the shark. Great hammerhead sharks often can be seen swimming near the surface in the ocean canyons, but seldom attack a trolled bait. Blue sharks are most numerous in offshore waters, but the mako shark is the predator most prized by recreational fishermen. The mako is noted for its blistering speed, twisting jumps, and quality on the dinner table. The spring and early summer are the times to find mako sharks off the Virginia coast, since they prefer cooler waters and often follow schools of bluefish and tuna on their northern migrations.

EASTERN SHORE BARRIER ISLANDS

Virginia's Eastern Shore, a peninsula which begins at the border between Virginia and Maryland and extends to the mouth of the Chesapeake Bay, is flanked on the east by a stretch of uninhabited barrier islands. Between the barrier islands and the mainland is a network of shallow bays, channels, and saltwater marshlands that are among the richest and most productive remaining on the Atlantic coast. This barrier island complex, which includes more than 70 miles of coastline, is the longest stretch of natural beach remaining on the East Coast.

The barrier islands are narrow strips of sand that are frequently overwashed by high tides and storms. The winds and surging waters associated with coastal storms are constantly reshaping the islands. New inlets form as old ones close, marshes are covered as portions of the islands move to the west, and the shape of the beach changes as new points, sloughs and sandbars are formed. The dynamic nature of these islands is the primary reason permanent settlement by man is impractical, and why these islands remain in a natural state.

The islands provide the mainland with protection from the devastating impacts of coastal storms, particularly northeasters and hurricanes. The primary energy of the tides and waves is absorbed by the islands, buffering the mainland from the severest forces of erosion.

The islands are a nesting sanctuary for at least 23 species of colonial nesting birds, including the extremely rare piping plover. They also provide resting and feeding areas for more than 250 species of migratory shorebirds, songbirds, raptors, and waterfowl.

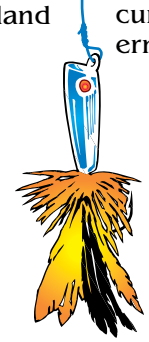
The marshlands behind the barrier islands function in the same manner as the marshes of the Chesapeake Bay. They provide a "buffer" zone for run-offs coming from the mainland. Sediments, nutrients and pollutants are trapped in the marshes, and organic material is slowly released into the water. This provides an indispensable source of nutrients to this estuarine system, while maintaining water quality by preventing too many nutrients, sediments or pollutants from entering the system at one time.

The nutrients provide a source of food for a variety of marine life, including juvenile fish and shellfish and make this area a major nursery ground for several species of fish. The richness of the waters also attracts a variety of game fish.

However, even the seaside bays and marshes, in their relatively undisturbed condition with some of the best water quality remaining on the Atlantic coast, have not escaped the infirmities affecting most coastal areas. Run-off from the mainland occasionally enters the seaside marshes in quantities that overburden the system with sediment and contaminants. Submerged seagrass beds, which were abundant in many seaside waters at the start of the twentieth century, disappeared in the 1930's and have shown little sign of recovery through the 1990's. Since 2000, efforts to re-seed historically productive areas are showing promise. Oysters and oyster rocks provided natural "reef communities" in many places along the seaside in years past, but only a fraction of the oyster population remains today.

Even so, seaside waters offer a variety of fishing opportunities. The summer flounder is the undisputed king of the Eastern Shore's Seaside for recreational fishermen. They are abundant from April through September in virtually every inlet, bay and channel behind the barrier islands.

Seaside waters also harbor good populations of gray trout (weakfish), black drum, red drum, bluefish, croaker, spot, kingfish (roundheads), and Spanish mackerel. Local anglers have discovered a dependable fishery for speckled trout along the seaside marshes in recent years, and the only viable recreational fishery for tarpon in Virginia occurs in the "back country" marshes of the southern portion of the seaside.



The relatively protected waters behind the barrier islands make this an ideal place for anglers with small boats to fish. Access is easy with most seaside communities providing excellent launching facilities.

Surf fishing can be superb on the barrier island beaches, highlighted by the spring and fall fisheries for big red drum. Bluefish, striped bass, black drum, gray trout, flounder, kingfish, croaker, and spot roam the beaches seasonally.

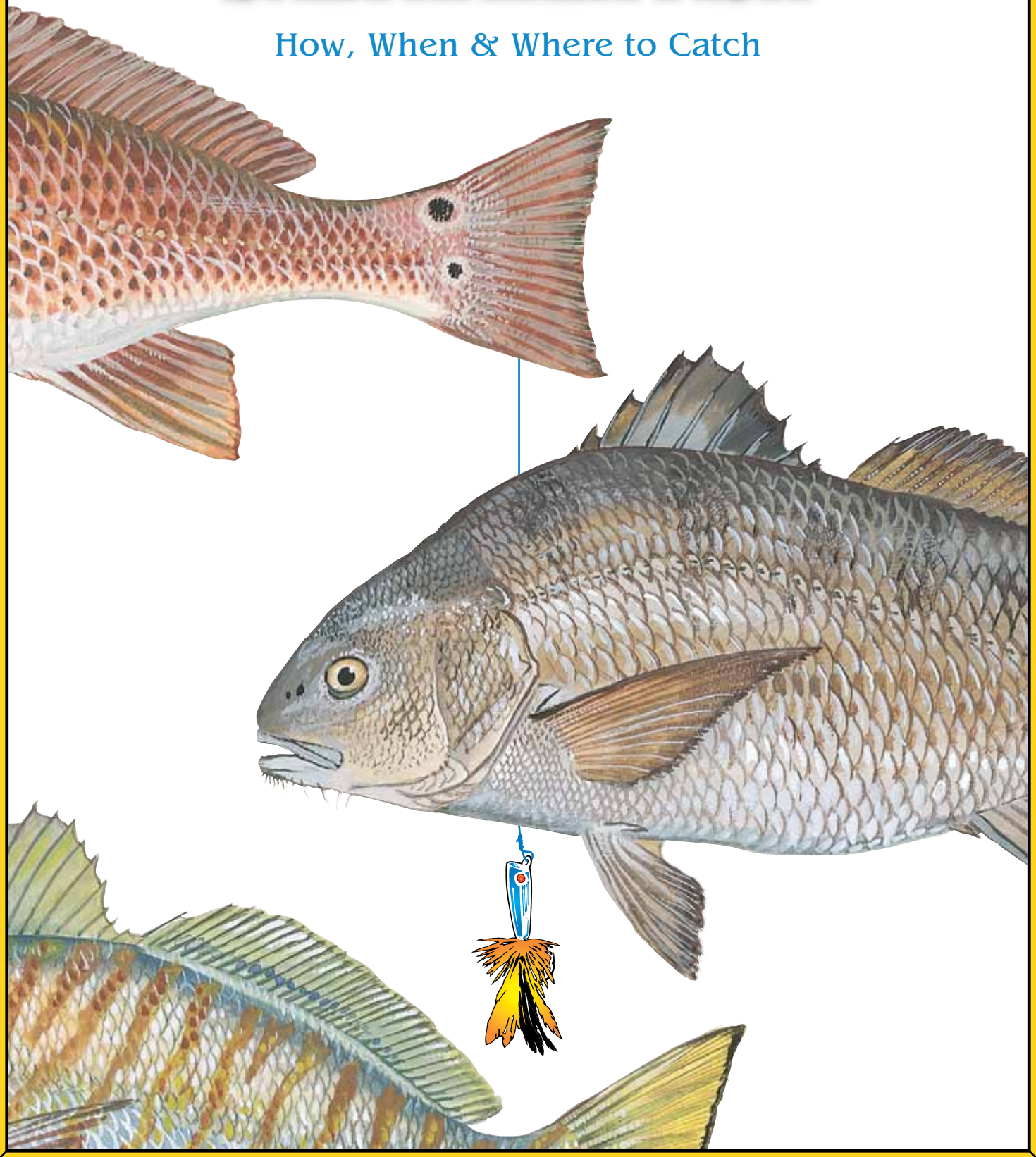
Assateague Island, the northernmost barrier island, is a part of the National Seashore system operated by the National Park Service. A causeway provides access for surf fishermen, who can park at numerous areas along a road that runs behind the oceanfront dunes. Four-wheel-drive vehicles are allowed to drive on designated portions of the beach at certain times of the year. Information about usage of the beach may be obtained from Assateague Island National Seashore, P.O. Box 38, Chincoteague, VA 23336, (757) 336-6577.

Most of the remainder of the barrier islands and some of the marshland is owned by the Nature Conservancy, which ensures these areas will be protected in their natural state. The only access available to these islands is by boat from the mainland, then a walk down the beach to a favorable spot for surf fishing.

The Virginia Coast Reserve, the program of the Nature Conservancy that administers the barrier islands preserve, has specific policies regarding the public use of these lands. Most of the barrier islands are open to the public for day use, including such activities as surf fishing, hiking, swimming, birdwatching, picnicing, and photography. Parramore, Ship Shoal, Little Cobb, and Revel's Islands are not open for public use. Visitors are requested not to disturb nesting birds and bird colonies, research sites and the natural qualities of the islands. Certain activities are not permitted, such as fires, overnight camping, pets, and motorized vehicles. Information about the Virginia Coast Reserve, including membership options for this premier conservation group and usage policies of the barrier islands, can be obtained from the Virginia Coast Reserve, 11332 Brownsville Rd., Nassawadox, VA 23413, (757) 442-3049.

A GUIDE TO VIRGINIA'S SALTWATER FISH

How, When & Where to Catch



Virginia's Saltwater Fishing Calendar

x – Available
xx – Peak Season

Species	January	February	March	April	May	June	July	August	September	October	November	December
Amberjack						x	xx	xx	xx	x		
Atlantic Mackerel		x	xx	x								
Black Drum				x	xx	xx	x	x	x			
Blue Marlin						x	xx	xx	xx	x		
Bluefin Tuna						xx	xx	xx	x	x	xx	x
Bluefish				x	xx	xx	xx	xx	xx	xx	xx	x
Blueline Tilefish	x	x	x	x	x	x	x	x	x	x	x	x
Cobia					x	xx	xx	x	xx			
Croaker			x	x	x	xx	xx	xx	xx	x	x	
Dolphin					x	x	xx	xx	xx	x		
Flounder			x	xx	xx	xx	xx	xx	xx	xx	x	
Gray Trout				x	xx	xx	xx	x	xx	xx	x	
King Mackerel						x	xx	xx	xx	xx		
Kingfish (Roundhead)					x	xx	xx	xx	xx	x		
Red Drum			x	x	xx	xx	x	xx	xx	xx	x	
Sea Bass	x	x	x	x	xx	xx	xx	xx	xx	xx	xx	xx
Sheepshead					x	xx	xx	xx	x	x		
Spadefish					x	xx	xx	xx	xx	x		
Spanish Mackerel						xx	xx	xx	xx	x		
Speckled Trout				x	xx	xx	x	xx	xx	xx	xx	x
Spot						x	xx	xx	xx	x		
Striped Bass	xx	x	x	x	xx	xx	x	x	xx	xx	xx	xx
Tarpon						x	xx	xx	x			
Tautog	xx	x	xx	xx	xx	xx	x	x	x	xx	xx	xx
Wahoo						x	x	xx	xx	xx		
White Marlin						x	xx	xx	xx	x		
Yellowfin Tuna					x	xx	xx	xx	xx	xx	x	

Species	Bait or Lure	Method	Location	Seasons	Average Weights	State Record
Amberjack	Live bait (spot, croaker, bluefish, menhaden, small fish); Artificial lures (spoons, surface plugs, diamond jigs, white bucktails, plastic squids)	Drifting and slow trolling live bait over and around obstructions (wrecks, reefs, towers, buoys); casting and trolling artificial lures over and around obstructions	Ocean waters over and around wrecks & underwater obstructions; Chesapeake Light Tower	June — October; peak July — middle September	30 – 60 pounds	118 pounds; caught at the Chesapeake Light Tower in 1986 by Mark J. Roberts
Black Sea Bass	Squid, crab, cut fish, clam, shrimp, diamond jigs, metal jigs	Bottomfishing, generally near and over underwater obstructions (wrecks, reefs, rocks and rough bottom areas)	Ocean waters; species less plentiful (especially large individuals) in lower Chesapeake Bay	April — December; species moves to waters offshore (20 fathoms and more) during winter, where they can be caught over wrecks and ledges	1 – 3-1/2 pounds	10 pounds, 4 ounces; caught over offshore wreck by Al Paschall in 2000
Bluefish (large)	Artificial lures (spoons, tube eels, metal squids, surface plugs), cut bait (fresh menhaden, mullet, herring, spot), whole balao or Boston mackerel	Trolling, casting or jigging to schools of fish with artificial lures; surfcasting with cut bait or lures; chumming while using cut bait; bluefish can be taken on streamer flies with a fly rod	Offshore and coastal waters; Chesapeake Bay; Eastern Shore barrier island surf	Middle April — July; October — December	8 – 16 pounds	25 pounds, 4 ounces; caught at Bluefish Rock in Chesapeake Bay in 1986 by Gayle E. Cozzens
Bluefish (small)	Artificial lures (small spoons, feather lures, metal squids, surface plugs) and cut bait	Trolling or casting to schools of fish with artificial lures; surfcasting and bottom fishing with cut bait; surfcasting with artificial lures	Chesapeake Bay, coastal ocean waters, ocean surf, inlets	May — October	1 – 5 pounds	
Blueline Tilefish	Squid, cut fish, metal jigs	Bottom fishing, generally over rough bottom in 300 feet of water or greater	Offshore ocean waters	January — December;	4 – 8 pounds	20 pounds, 4 ounces; caught at Norfolk Canyon by David Akridge, Jr in 2009
Cobia	Live bait (eels, spot, menhaden, mullet); artificial lures (large spoons, white bucktails, plastic eels, swimming plugs); cut bait (menhaden or spot)	Cast, drift or slow troll live baits around buoys, underwater obstructions and schools of fish swimming on the surface; anchor, chum and fish live baits, fresh dead baits and cut bait in chum slick and on bottom; cast and troll lures around buoys, obstructions and to schools of bullfish (rays) or schools, pods or individual cobia swimming on surface	Buoys in lower Chesapeake Bay, at the mouth of the Bay and along coastal beaches; CBBT; Bluefish Rock off Hampton, Cabbage Patch and Kiptopeake areas off Cape Charles, and York Spit area; coastal buoys and wrecks; Chesapeake Light Tower; Latimer Shoal; Inner Middle Ground Shoal; York Spit area	May — September; peak mid-June — mid - September	20 – 50 pounds	109 pounds, 8 ounces; caught at York Spit by Joseph F. Berberich, III in 2006
Croaker	Peeler crab, bloodworms, cut bait, squid, shrimp	Bottomfishing with bait, anchored or drifting from boats, and also caught from piers, docks, shore and surf	Chesapeake Bay, tributary rivers of the Bay, coastal ocean waters, inlets	March — November	1/2 – 2 pounds	8 pounds, 11 ounces; caught at Newpoint Light by Norman T. Jenkins in 2007
Dolphin	Artificial lures (offshore trolling lures), balao, squid, cut bait	Trolling with lures, balao and squid; casting to schools of dolphin around weedlines and floating debris with cut bait (fish or squid) and lures (bucktails, surface plugs, streamer flies)	Offshore ocean waters	May — October	2 – 20 pounds	71 pounds, 8 ounces; caught off VA Beach in 1991 by Don Dorey
Black Drum	Whole clam, peeler crab, whelk, peeler crab/clam "sandwich", bucktail and leadhead jigs	Bottomfishing with bait on "fishfinder" rig; running tides and late afternoons and evenings considered best; occasionally caught on bucktails or metal squids by casting or jigging to a school of fish	Chesapeake Bay along shallow portion of channel ledge running from Fisherman's Island to north of Cape Charles, especially off Kiptopeake, at Cabbage Patch and buoys C-10 & C-12; around middleground bars of Eastern Shore seaside inlets; 2nd & 3rd Islands of Chesapeake Bay Bridge Tunnel	May — September; peak May — early June along Eastern Shore bayside and seaside inlets; peak late June— early August at 2nd & 3rd Islands of Chesapeake Bay Bridge Tunnel	40 – 60 pounds	111 pounds; caught off Cape Charles in 1973 by Betty Hall
Flounder	Live bait (minnows and small fish), frozen minnows, fresh strip baits (bluefish, flounder and shark belly, squid), minnow/strip combination, artificial lures (bucktails); big strip baits and live spot or small mullet often used for big fish at Chesapeake Bay Bridge Tunnel	Drift fishing with live or dead natural baits fished on the bottom; slow trolling natural baits on bottom; casting from beaches and piers; trolling small bucktails dressed with strip baits (especially for big fish along Chesapeake Bay Bridge Tunnel); casting bucktails	Seaside inlets of the Eastern Shore; Chesapeake Bay Bridge Tunnel area; lower Chesapeake Bay; Rudee Inlet; the Cell and eastern end of the "Cut" Channel in the middle Chesapeake Bay	March — November; peak May — July on Eastern Shore seaside; July — October in Chesapeake Bay	1 – 3 pounds	17 pounds, 8 ounces; caught at Chesapeake Bay Bridge Tunnel in 1971 by C.E. Cross
Kingfish (Roundhead, Whiting)	Bloodworms, shrimp, small pieces of cut bait, squid, sand fleas	Bottomfishing with bait	Surf zone of coastal waters from Sandbridge to Assateague Island; ocean piers; lower portion of the Chesapeake Bay, including lower bay piers	May — October	1/2 – 1-1/2 pounds	2 pounds, 13 ounces; caught off Sandbridge by Chip Waters in 2002
Mackerel, Atlantic (Boston Mackerel)	Small tube worms and jigs	Jigging to schools of suspended fish	Coastal and offshore ocean waters, from 5-35 miles offshore	Mid - February – mid April peak March — early April	1/2 – 3 pounds	None; 3 pound minimum for initial state record
Mackerel, King	Live bait (menhaden, mullet, spot, small bluefish); artificial lures (spoons, feather lures, nylon jigs); strip baits and small whole balao	Slow trolling, drifting or anchoring with live bait; trolling with artificial lures, strip bait and balao	Coastal and offshore ocean waters, particularly around wrecks, towers, obstructions, ledges, lumps and other "structure"; mouth of the Chesapeake Bay and off ocean inlets	June — October; peak September — middle October	5 – 20 pounds	63 pounds, 1 ounce; caught off Sandbridge by Susan Smith in 2007
Mackerel, Spanish	Small artificial lures (spoons, metal lures, feather and nylon lures), small live baits (menhaden, mullet)	Trolling; casting to schools of fish	Coastal ocean waters, particularly off inlets, along tidelines, and over coastal wrecks; lower Chesapeake Bay	June — October; peak June — September	1 – 3 pounds	9 pounds, 13 ounces; caught off Virginia Beach in 1993 by Everett Cameron
Blue Marlin	Whole dead fish (balao, mullets, spanish mackerel), squid, artificial lures (offshore trolling lures), and live baits (small dolphin, bonito and skipjack tuna	Trolling	Offshore ocean waters	June — October; peak middle June — September	150 – 400 pounds	1093 pounds, 12 ounces; caught off Virginia Beach in 1978 by Edward A. Givens

Species	Bait or Lure	Method	Location	Seasons	Average Weights	State Record
White Marlin	Whole dead fish (balao, mullet), squid, strip baits, eels, artificial lures (offshore trolling lures), live bait (pilchards, cigar minnows)	Trolling; occasionally casting live baits to marlin "balling" bait or swimming on surface	Offshore ocean waters	June — October; peak August — September	40 – 60 pounds	131 pounds, 10 ounces; caught off Virginia Beach in 1978 by Rudolph D. Van't Riet
Sailfish	Whole dead fish (balao, small mullet), strip baits, squid, artificial lures (small offshore trolling lures, live bait (small fish)	Trolling; also, sailfish seem to be attracted to slow trolled live baits fished in similar method as used to slow troll for king mackerel	Offshore ocean waters	June — October; peak July — September	20 – 40 pounds	68 pounds, 8 ounces; caught off Virginia Beach in 1977 by P.J. Murden
Sharks	Whole dead fish and cut fish; live bait (fish)	Anchor, chum and fish dead and live fish baits in chum slick and on bottom	Offshore and coastal ocean waters, particularly around and over obstructions (wrecks, reefs, towers), ledges and lumps; Eastern Shore seaside coastal waters and inlets	June — October	50 – 250 pounds	1099 pounds, 12 ounces; caught off Virginia Beach in 1981 by John Thurston
Sheepshead	Fiddler crabs, mole crabs (sand fleas), clams	Fishing bait near the bottom (suspended off the bottom) near submerged structures	Chesapeake Bay Bridge Tunnel; wrecks in nearshore coastal waters and lower Chesapeake Bay	May — October	3 – 8 pounds	20 pounds, 12 ounces caught from the Seagull Fishing Pier (CBBT) by Arun Nhek in 2005
Spadefish	Pieces of fresh mussels and clams; pieces of jellyfish	Fish visible schools of fish around obstructions (buoys, towers, etc.) with small (#1 or #2) double strength hooks	Coastal ocean waters and the lower Chesapeake Bay; Fish consistently found at the Cell, Plantation Light, York Spit Light, Tiger wreck, 4A-buoy, Chesapeake Light Tower, and CBBT	May — September	3 – 8 pounds	14 pounds, 14 ounces; caught at the Cell by Roland E. Murphy in 2009
Spot	Bloodworms, peeler crab, clam	Bottomfishing with bait; anchored or drifting from boats, also caught from docks, piers, shore and surf; big runs of fish in the fall in lower Chesapeake Bay and in surf and piers of Virginia Beach	Chesapeake Bay and Bay tributary rivers, coastal ocean waters, inlets — all inshore coastal waters	June — October; peak July — September for Chesapeake Bay and tributary rivers; peak middle August - middle October in lower Bay and coastal ocean areas	8 – 12 ounces	2 lbs., 6 oz.; caught at the Egg Island Bar in Chesapeake Bay in 1980 by Nathan Dryden
Striped Bass	Artificial lures (spoons, plastic eels, bucktails, surface plugs, swimming plugs), peeler crab, bloodworms, eels, cut bait, live bait	Troll artificial lures around bridges, piers, Chesapeake Bay Bridge Tunnel, jetties or troll in vicinity of schools of fish (where gulls diving and slicks on the water); cast bucktails and plugs around bridges, piers, jetties and CBBT; bottomfishing with bloodworms in deep holes, creeks and rivers that flow into Chesapeake Bay during winter months and in Assateague surf during late fall and early spring; peeler crab baits fished in tributary rivers and creeks near shore during summer	All coastal inshore and Chesapeake Bay waters (tidal waters, including Bay tributary rivers and Eastern Shore bayside creeks); best concentrations of fish in main portion of Chesapeake Bay and around Chesapeake Bay Bridge Tunnel; large fish most often found along CBBT, main portion of Chesapeake Bay and off the Virginia Capes at the mouth of the Bay; Assateague surf in late fall and early spring	January — December; peak for large fish in November and December; peak fishing for school fish generally in spring and fall	5 – 25 pounds	73 pounds; caught near the 4A-Buoy by Frederick Barnes in 2008
Swordfish	Whole dead squid and fish	Fish at night from a drifting boat using natural baits with chemical lightsticks, with baits weighted to maintain specific depths	Offshore ocean waters	April — October; peak August — September		381 pounds, 8 ounces; caught at the Norfolk Canyon in 1978 by J.D. Alexander
Tarpon	Whole dead fish (spot, croaker, menhaden); live bait (spot, croaker, menhaden, mullet); whole squid; artificial lures (plugs and weighted streamer flies)	Anchor and fish live bait under floats, fish dead bait on the bottom and at various depths; cast artificial lures to rolling fish	Inlets, interior marsh areas, and ocean waters along the beaches of Eastern Shore seaside barrier islands; fish deep holes on low tides and shallow areas on high tides	Late June early September; peak July — August	40 – 80 pounds	130 pounds; caught on Eastern Shore seaside in 1975 by Barry Truitt
Tautog	Crab (blue, fiddler, green and mole crabs); clams; whelk	Bottomfishing with bait over underwater obstructions (wrecks, reefs, rocks)	Wrecks and reefs in ocean waters off the coast and in lower Chesapeake Bay; along Chesapeake Bay Bridge Tunnel	January — December peak March — June and October — December	3 – 6 pounds	24 pounds; caught off Wachapreague in 1987 by Gregory R. Bell
Trout, Gray (Weakfish)	Artificial lures (bucktails, lead jigs with plastic tails, metal jigs), live bait (spot and small mullet), peeler crab, squid, cut bait	Jigging or casting artificial lures to schools of fish on bottom or suspended above the bottom; bottomfishing with live and natural baits from anchored or drifting boat; surf-casting with cut bait or squid	Large fish: Chesapeake Bay Bridge Tunnel, Chesapeake Bay over deepwater rocks, and along channel edges, and occasionally in Eastern Shore seaside inlets, Small fish: Coastal ocean waters and inlets of Eastern Shore seaside, Chesapeake Bay along channel edges and over deepwater rocks, Chesapeake Bay Bridge Tunnel (especially between 4th Island and High Level Bridge), Chesapeake Bay tributary rivers (especially James, York and Rappahannock)	May — November; peak at Chesapeake Bay Bridge Tunnel May June and October; peak in Chesapeake Bay, Bay tributary rivers, and Eastern Shore seaside inlets June - September; peak in ocean waters off Eastern Shore from middle September -November	1 – 8 pounds	19 pounds; caught at the Chesapeake Bay Bridge Tunnel in 1983 by Philip W. Halstead
Trout, Speckled	Artificial lures (mirro-sided plugs, bucktails, plastic tail jigs), peeler crab, live bait (small spot, mullet); live shrimp	Spring method: peeler crab baits fished near shore of marshy or grassy areas on flooding tides; Fall method: casting artificial lures; also some live bait fishing, trolling and jigging	Spring: Mobjack Bay area (North, Ware, East, Piankatank Rivers); submerged grass flats and marshes of northern Eastern Shore bayside, Rudee Inlet with lures. Fall: Lynnhaven Inlet, Rudee Inlet; Eastern Shore bayside creeks, Mobjack Bay area, Windmill Point and Gwynn's Island; Poquoson Flats	April — Middle December; peak May — middle June and September — November	2 – 4 pounds	16 pounds; caught at Mason's Beach on Eastern Shore bayside in 1977 by William Katko
Tuna, Bigeye	Whole dead fish (balao), squid, artificial lures (feather lures, cedar plugs, offshore trolling lures)	Trolling	Offshore ocean waters	June — October; peak late June — July	100 – 175 pounds	285 pounds, 12 ounces; caught at the Norfolk Canyon by Melvin Bray in 2003
Tuna, Bluefin	Artificial lures (cedar plugs, feather lures, spoons), squid, small fish	Trolling, chunking and chumming	Offshore ocean waters, especially the Southeast Lumps, the Fingers, 26 Mile Hill, 20 Fathom Finger; off Chicoteague	June — September; peak June — August; big fish occasionally found around Chesapeake Light Tower in late November and December	30 – 70 pounds	573 pounds; caught off Virginia Beach by Frederick "Bo" Haycox in 2007
Tuna, Yellowfin	Whole dead fish (balao), squid, artificial lures (feather lures, offshore trolling lures, cedar plugs)	Trolling, chunking and chumming	Offshore ocean waters	May — October; peak June — September	30 – 70 pounds	203 pounds, 12 ounces; caught at the Norfolk Canyon in 1981 by Bruce Gottwald, Jr.
Tunny, Little (False Albacore)	Artificial lures (small feather and nylon lures, spoons, cedar plugs), strip baits	Trolling, can cast small metal lures to schools of fish on surface	Offshore and coastal ocean waters; occasionally in lower Chesapeake Bay	May — November	6 – 14 pounds	25 pounds, 4 ounces; caught off Virginia Capes in 1964 by Jack Sparrow
Wahoo	Artificial lures (offshore trolling lures, feather lures, spoons, large plugs), small dead fish (balao)	Trolling	Offshore ocean waters	June — October	20 – 40 pounds	109 pounds; caught off Virginia Beach in 1994 by Delmo Dawson

PUBLIC BOAT LAUNCHING FACILITIES

Eastern Shore Bayside (Accomack County)
- Bloxom
  - Guard Shore Ramp
  - Guilford Creek Landing
  - Hunting Creek Ramp
  - Muddy Creek Ramp
  - Young Creek Landing
- New Church
  - Pitts Creek Ramp
- Onancock
  - Onancock Town Landing
  - Schooner Bay Landing (Deep Creek)
  - South Chesconessex Landing
- Pungoteague
  - Haborton Landing
  - Hack's Neck Landing
- Saxis
  - Cattail Creek Ramp
  - The Hummocks
  - Messongo Creek Landing
  - Saxis Landing
  - Shad Landing

Eastern Shore Seaside (Accomack County)
- Accomac
  - Folly Creek Landing
  - Parker's Creek Landing
- Atlantic
  - Wishart Point Landing
- Bloxom
  - Dix's Gargatha Landing
  - Kegotank Landing
- Chincoteague
  - Chincoteague Memorial Park
  - Chincoteague Town Dock
  - Curtis-Merritt Harbor
  - Deep Hole Ramp
  - Queen Sound Landing
- Greenbackville
  - Greenbackville Harbor
- Mappsville
  - Old NASA Dock (Assawoman Creek)
- Quinby
  - Quinby Harbor Landing

Eastern Shore Bayside (Northampton County)
- Bayford
  - Nassawadox Creek Ramp (South)
- Cape Charles
  - Cape Charles Harbor Ramp
- Exmore
  - Morley's Wharf Boat Ramp
  - Nassawadox Creek Ramp (North)
- Kiptopeke
  - Kiptopeke State Park Ramp

Eastern Shore Seaside (Northampton County)
- Nassawadox
  - Red Bank Boat Ramp
- Oyster
  - Oyster Public Harbor
- Willis Wharf
  - Willis Wharf Boat Ramp

Essex County
- Bowlers Wharf
  - Bowlers Wharf Ramp
- Tappahannock
  - Hoskins Creek Landing
  - Prince Street Public Landing

Gloucester County
- Gloucester Point
  - Gaines Point Ramp
  - Gloucester Point Landing
- Guinea Neck
  - Browns Bay Public Ramp
  - Jordan Neck Ramp (Monday Creek)
  - Monday Creek Ramp
  - Perrin Creek Ramp
  - Sedges Creek Ramp
  - Severn Holiday Ramp (Severn River)
- Ordinary
  - Timberneck Creek Ramp
- Piankatank River
  - Cypress Shores Ramp
  - Deep Point Landing
- Severn River
  - Bray's Point Ramp
  - John's Point Ramp
- Ware River
  - Paynes Wilson Creek Ramp
  - Warehouse Landing
- York River
  - Aberdeen Creek Ramp
  - Cappahosic Landing
  - Clay Bank Ramp
  - Tanyard Landing (Poropotank River)

Hampton Roads Area
- Chesapeake
  - Deep Creek Locks Park
  - Elizabeth River Park
  - Great Bridge Locks Park
- Hampton
  - Dandy Point Ramp (Back River)
  - Gosnold Hope Park (Back River)
  - Sunset Creek Ramp (Hampton River)
  - West Bank Ramp (Hampton River)
- Virginia Beach
  - Lynnhaven Inlet Crab Creek Boat Ramp
  - Owl's Creek Ramp (Rudee Inlet)
  - Seashore State Park Ramp (Broad Bay)

- Newport News
  - Anderson Park
  - Denbigh Park Ramp(Warwick River)
  - Deep Creek City Pier (Warwick River)
  - James River Bridge Park Ramp
  - Seafood Industrial Park Ramp
- Norfolk
  - 45th Street Ramp (Lafayette River)
  - Haven Creek Ramp (Lafayette River)
  - Lafayette Park Ramp
  - Lambert's Point Park Ramp
  - Willoughby Landing (Ocean View)
- Poquoson
  - Bennetts Creek Landing
  - Messick Point Landing
  - Plum Tree Island Wildlife Refuge
  - Rens Road Ramp (Poquoson River)
- Portsmouth
  - City Park Boat Ramp
  - Elizabeth River Park
- Suffolk
  - Sleepy Hole Park

Isle of Wight County
- Rescue
  - Jones Creek Boat Ramp
- Tyler's Beach
  - Tyler's Beach Boat Ramp

Lancaster County
- Greenvale Creek
  - Greenvale Creek Ramp

James City County
- York River State Park

Mathews County
- East River
  - Town Point Landing
  - Williams Wharf
- Horn Harbor
  - Horn Harbor Ramp
- Milford Haven
  - Cedar Lane Ramp
  - Fitchett's Wharf
  - Milford Haven Landing
  - Queen's Creek Ramp
- North River
  - Auburn Ramp
- Piankatank River
  - Godfrey Bay Public Ramp
  - Warehouse Creek Landing
- Winter Harbor
  - Old Mill Landing
  - Winter Harbor Landing

Middlesex County
- Deltaville
  - Broad Creek Ramp (Rappahannock R.)
  - Jackson Creek Ramp (Piankatank R.)
  - North End Ramp (Rappahannock R.)
- Hartfield
  - Mill Creek Ramp (Rappahannock R.)
- Locklies Creek
  - Locklies Creek Ramp
- Parrotts Creek
  - Mill Stone Ramp
- Urbanna Creek
  - Oaks Saluda Ramp
- Whiting Creek
  - Whiting Creek Ramp

Northumberland County
- Coan River
  - Forest Landing
  - Rowes Landing
- Great Wicomico River
  - Cedar Point Landing (Reedville)
  - Cockrell Creek Ramp (Reedville)
  - Cranes Creek Landing (Wicomico Church)
  - Glebe Point Landing (Reedville)
  - Shell Landing (Fleeton)
- Little Wicomico River
  - Shipping Point
- Yeocomico River
  - Lodge Landing

Richmond County
- Lancaster Creek
  - Simonson Landing
- Totuskey Creek
  - Totuskey Creek Landing

Westmoreland County
- Bonum Creek
  - Bonum's Landing
- Colonial Beach
  - Colonial Beach Landing
- Lower Machodoc Creek
  - Branson Cove Ramp
- Nomini Bay
  - Currioman Dock
- Popes Creek
  - Westmoreland State Park
- Yeocomico River
  - Kinsale Landing Ramp

York County
- Back Creek
  - Back Creek Park
  - Back Creek Ramp
- Popuoson River
  - Smith Landing
- Wormley Creek
  - Old Wormley Creek Landing

THE MODERN ANGLER

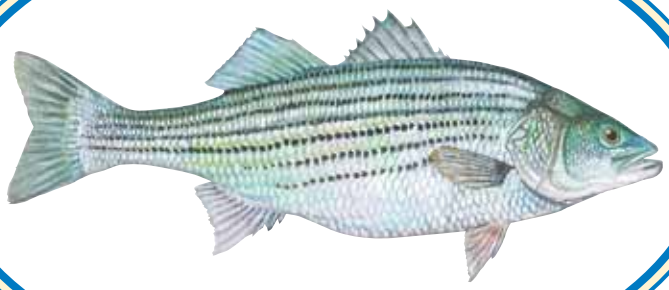
The protection and conservation of marine resources has never been more important than it is today. Many popular fish species are under stress through declining water quality or loss of habitat, and saltwater recreational anglers need to be mindful of their impact as well. Every time we head out on the water to enjoy a day of fishing we affect the marine environment

Understanding the changing conditions which have affected marine resources, many a direct result of an increasing population, is an important part of realizing what must be done to protect them for the future.

Coastal and estuarine water quality, in places like the Chesapeake Bay and its tributary rivers, has declined due to a myriad of actions which have taken place for decades. Oil and chemical spills, sewage outfalls and run-off, pesticide and fertilizer run-off from farms and private residences, industrial pollution and dredging have adversely affected water quality. Poor water quality can impact the ability of fish to reproduce, find a steady food supply, and survive the stress of life in the dynamic marine environment. The trend of declining water quality has been reversed in many areas in recent years, but major improvement will be a long term process. In the interim, marine life must cope with water conditions which are less than optimal.

Habitat destruction has caused the loss of valuable spawning and nursery areas for many marine animals. Construction of bulkheads, fill operations, dredging and channelization, and substandard water quality have caused wetlands and submerged seagrass beds to disappear at alarming rates. This loss of habitat also contributes to declining water quality.

Meanwhile, the demand for marine fishery resources has increased markedly. The numbers of recreational anglers tripled from 1955 to 1985 in the United States and grew another 70% in the Mid-Atlantic subregion from 1985 to 2005. Similarly, the demand for commercially caught seafood continues to grow. This increase in the human population and its demand for fishery resources coupled with the use of increasingly sophisticated and efficient gear has put a severe strain on many fishery resources.



STRIPED BASS

The result is marine fisheries which have become highly regulated, but in many cases the regulatory process cannot keep pace with the decline in fish stocks nor the degree of sophistication used by anglers.

We must recognize the important part the recreational fishery plays in this complex fisheries management web; and, we must work to develop a personal commitment to resource conservation, while developing and adhering to a high standard of angling ethics. In short, we all must become stewards of our marine resources.

Poor water quality can impact the ability of fish to reproduce, find a steady food supply, and survive the stress of life in the dynamic marine environment.

The following are guidelines which the modern angler should consider incorporating into his daily fishing activities:

1. KNOW AND ABIDE BY ALL FISHERY REGULATIONS. Bag limits, closed seasons and size limits are established to protect fish stocks and ensure their reproductive viability. Limits are limits, not goals to be achieved every trip. In many cases we should consider holding our catches to even stricter standards than required by regulation.

2. REPORT VIOLATIONS OF FISHERY REGULATIONS. Do not tolerate illegal or irresponsible fishing practices. There are too few enforcement officers to check each of Virginia's over 1 million marine anglers dispersed over the huge tidal and coastal water area of Virginia. The 24-hour violation hotline number is 800-541-4646

3. PRACTICE CATCH AND RELEASE FISHING. Take only the fish you intend to eat and carefully release the rest. Studies have shown that released fish have an excellent chance of surviving. Consider using circle hooks—especially when using natural bait.

4. KNOW HOW TO PROPERLY HANDLE FISH. Releasing fish requires more than just "throwing fish back in the water." Know the best ways to handle fish, so they will not be injured, and use the proper tools to unhook your fish. A good source of information on handling fish is the brochure "Careful Catch" published by the Chesapeake Bay Foundation, (804) 780-1392 or (410) 268-8816.

5. DISPOSE OF ALL TRASH PROPERLY. Do not throw any trash into the water. Save it for disposal onshore. Fishing line and other plastic items are particularly harmful, often entangling fish and other marine life. Plastic sandwich bags look like jellyfish and are eaten by sea turtles, which often die as a result. Oil, gasoline, antifreeze and cleaning products cause pollution and can be toxic to marine life.

6. PRACTICE SAFETY AFLOAT. Learn basic boating skills. Have proper safety equipment on board, as required by law. Lives may depend on it.

7. SHOW RESPECT AND COURTESY TO OTHERS. Fishing is a fun, relaxing activity, as long as respect is accorded others. Treat other fishermen the way you want to be treated. Don't crowd them or create conflicts with them. Respect other people using the waters (e.g. boaters, divers) and the property rights of people living on the water. Cultivate a good reputation and image. To non-anglers, our behavior reflects on all anglers.

8. SHARE THE SPORT OF FISHING WITH OTHERS. Fishing is a great way to spend time with family and friends. Share the gift of fish with others, especially youngsters. Lead by example, practice and share all of the ethical guidelines contained here.

Use A Landing Net

One of the biggest problems faced by many anglers is how to get big fish from the water into a boat.

Traditional angling practices call for the use of a gaff, which is a large barbless steel hook attached to a pole with a handle. The gaff is stuck into the fish and used to hoist the fish aboard.

Serious injuries are inflicted upon fish when they are gaffed. With the proliferation of size limits and creel limits on saltwater fish necessitating the release of many fish, the expanding interest in catch-and-release fishing, and the growing number of tagging programs, many anglers have abandoned the use of gaffs. In some cases, such as the landing of striped bass in Virginia, the use of gaffs is no longer legal.

Landing nets are a good alternative to gaffs in most situations. Landing nets come in a variety of sizes and can accommodate most large fish, including the often volatile cobia. In fact, large fish landed with a net usually are more docile and easier to handle than fish which have been stuck with a gaff. This reduces the chances for injuries to the fish and the angler.

Landing fish with a net is relatively easy. The fish should be led head first into the net, and the hoop should be immediately lifted clear of the water. When attempting to land a large fish, do not lift the fish into the boat using the net handle. This may result in the handle bending or breaking, causing damage to the net and loss of the fish. When the hoop is lifted clear of the water, grab the edges of the hoop and lift the fish into the boat.

Control over a large fish often can be maintained if the net is not dropped on the deck in the cockpit of the boat. Rest the fish on the deck, while continuing to hold the sides of the hoop above the floor. This continues to suspend the fish within the confines of the net, while most the weight of the fish is resting on the deck. The fish can be unhooked while in the net, then the fish can be measured and released or placed in the fish box.

GET HOOKED ON CIRCLE HOOKS

The popularity of circle hooks has exploded in recent years, but they are not new inventions. The first circle hooks were fashioned from bone, wood and stone more than 10,000 years ago. In recent times, circle hooks first became popular (and profitable) in the commercial longline fishery, as "hook-up" ratios improved and a greater percentage were brought to the boat due to the tendency of the hooks to lodge in the tough, bony corner of the mouth.

These same attributes stimulated interest among recreational anglers more than twenty years ago, but the popularity of circle hooks was limited by the lack of diversity in hook sizes and styles. Originally, only large sizes were available in thick, heavy gauge wire. Today, the diversity of circle hooks is seemingly endless, with sizes as small as #18 and as large as 16/0 and a variety of hook and wire styles.

So, what is a circle hook and how does it work? Circle hooks are fishing hooks with their hook points bent around until they are perpendicular (or nearly perpendicular) to the shank of the hook. Typical fish hooks (now called "j-hooks" by many people) have points that are parallel to their shanks or just slightly curved inward. Circle hooks work by catching on exposed "edges" in the mouths of fish – typically the corners of the mouth or the lips. The fish will swallow the bait (and hook), then, as the fish turns and/or swims away, the hook slides through the mouth until it reaches the corner of the mouth where the point "catches" and the hook rotates and automatically buries itself in the corner of the mouth or the lip. The unique curved shape of the hook with the point running perpendicular to the shank prevents the hook from catching on soft tissue (such as the stomach), thus reducing the incidence of deeply hooked fish. Also, because of the way the hook catches and rotates into the lip or corner of the mouth, once a fish is hooked, it is almost impossible for the hook to pull out during the fight. However, the hook is easily removed by the angler, by simply rotating the hook back out on the same path it caught and entered the fish's lip or corner of the mouth. Circle hooks are also safer for anglers, as the likelihood of being accidently hooked is much less than with a "j-hook."

The most important aspect for anglers using circle hooks is not to aggressively set the hook

when a fish strikes. Circles hooks are designed to catch on an edge of the fish's mouth as it swims off and aggressive hook setting will pull the hook free before it has an opportunity to catch and penetrate. The best hook setting is none at all; let the biting action of the fish and its own movement set the hook.

The conservation advantages of circle hooks are obvious. The rate of hooking fish in the lips or corners of the mouth approaches or exceeds 95% for "true" circle hooks, reducing the damage caused by j-hooks, which often lodge deeply in the gullet or stomach (causing serious damage to vital organs) and can "tear" flesh and internal tissues by ripping out and resetting while an angler is fighting a fish. Use of circle hooks can greatly increase the survival rate for fish that are released. In addition, circle hooks are difficult for fish to dislodge once they are hooked, resulting in fewer lost fish. In certain species of fish, research also has shown a high rate of hooking fish (better than similar sized "j-hooks"), but in other species the results have been mixed.

The variety of styles and sizes of circle hooks becoming available is enabling anglers to better match their terminal gear to targeted species, which is improving the effectiveness of circle hooks. In addition, manufacturers are offering several features to circle hooks to improve their versatility. However, some features, such as offset points and less radical bend to the point (a "semi" circle hook), may offer only some of the advantages of a "true" circle hook. Remember the more offset to the hook point or the less radical the bend of the point, the more exposed the hook point will be, the less the hook will function as a circle hook, and the more often fish will be hooked deeply or "gut-hooked" in soft tissue or vital internal organs. Any design change that offers more exposure of the hook point will offer greater opportunities for the hook to catch places other than the lips or corners of the mouth and are likely to cause more physical harm to the fish.

The bottom line is circle hooks are another tool anglers have available to help them become better anglers and better protectors of their saltwater fishery resources. They may not be the best choice for every fishing situation, but many anglers are finding they prefer to use circle hooks for most of their fishing activities.

VIRGINIA'S ARTIFICIAL REEF PROGRAM

Fishermen have known for centuries that fish congregate around shipwrecks and natural anomalies on the bottom of coastal waters, such as oyster rocks, exposed bed rock and coral reefs. This has resulted in attempts to artificially recreate these types of habitat in virtually every body of water in the world

Attempts to replicate productive, natural fish habitat have led to the use of a variety of materials, from U. S. Army tanks and Christmas trees to derelict automobiles and their tires. A variety of ships and even some kitchen sinks have been sunk by enterprising reef builders. Some materials have worked well, while others seemed to disappear with the tide.

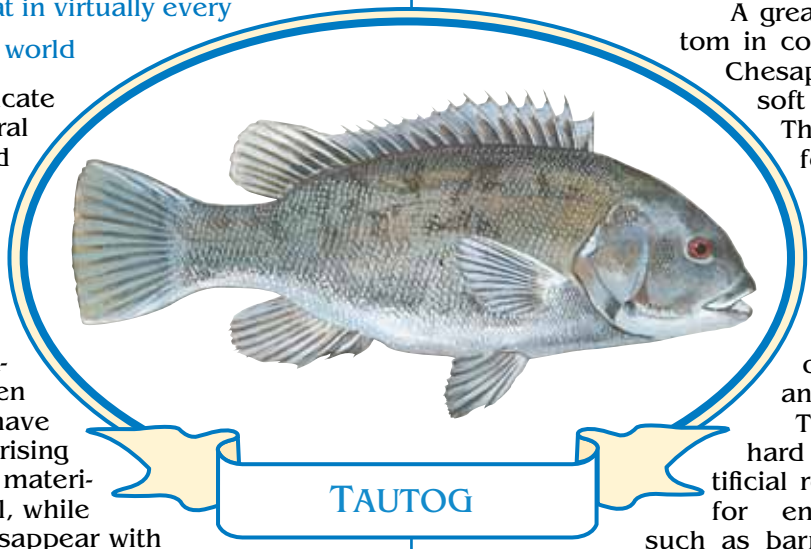
All of these efforts were attempts to create artificial reefs, which are man-made or natural materials intentionally placed upon the bottom of marine or freshwater environments to provide habitat for fish.

Virginia now has one of most extensive artificial reef systems in the country, and is the envy of many other states.

Many of these popular and successful fish magnets have been expanded in recent years, and new reefs have been created. Almost two dozen now are scattered through the Chesapeake Bay and off the state's coastline.

Side scan sonar displays of many of the reefs are now available on the Virginia Marine Resources Commission's website. To view the most up-to-date version, go to the Virginia Marine Resources Commission's homepage at www.mrc.virginia.gov. Locate "search this site," enter artificial reef, and click enter.

HOW REEFS WORK



TAUTOG

A great portion of the bottom in coastal waters and the Chesapeake Bay consists of soft mud or shifting sand. This relatively stark, featureless environment offers little attraction for many types of marine life. Natural and artificial reef areas provide places for a variety of marine life to live and food to eat.

The surface area, or hard substrate, of an artificial reef provides a place for encrusting organisms such as barnacles, mussels and tube worms to thrive. These sessile organisms are unable to live on soft or shifting bottom but by attaching to hard surfaces they are able to feed effectively by filtering plankton and other small organisms from the water. Once this initial "fouling" community is established a broader assortment of crustaceans, such as crabs and shrimp, and soft-bodied organisms, such as worms, appear. Then, the "food chain" continues to expand with the appearance of predators like tautog, which feed on crabs and mussels, and sea bass, which feed on crabs and shrimp.

Artificial reefs provide shelter for a variety of marine organisms. Fish and crabs seek out the

Predators, possibly attracted by the abundance of food and the sense of protection afforded by reefs, are always present.

nooks and crannies in artificial reefs to hide from predators. Fish use the larger interior areas of the structure to get away from wave action and currents, enabling them to expend less energy. Deflected currents and eddies carry food to fish waiting to ambush an easy meal, just as the currents carried plankton and other small organisms to the initially encrusting community.

Many reef dwelling fish appear to prefer low profile structures with numerous cavities. Tautog and sea bass are good local examples and often comprise a significant portion of the fish inside Virginia's artificial reef structures. Tautog are known to nestle into holes or cavities in or between structures for extended periods of time.

Other species of fish, although not considered reef dwellers, will orient to artificial reefs. Schooling baitfish, such as anchovy, silverside, scad and menhaden, are attracted to high profile structures. These larger structures, such as shipwrecks, towers and bridges, may offer a point of reference in an otherwise featureless environment and some level of protection in their shadows.

Predators, possibly attracted by the abundance of food and the sense of protection afforded by reefs, are always present. Amberjack, bluefish, king and Spanish mackerel, cobia, striped bass, and sharks are some of the species found around coastal and Chesapeake Bay reefs.

BUILDING ARTIFICIAL REEFS

The Artificial Reef Program, which is managed by the Virginia Marine Resources Commission, traces its roots back more than 40 years. In the 1950's recreational fishermen spearheaded efforts resulting in the sinking of automobile bodies, tires and over 100 surplus U.S. Navy landing craft and pontoon barge sections off Virginia Beach.

The Commission became formally involved in reef building as the authorized recipient of six World War II Liberty ships in the early 1970's. These were scrapped and cleaned to U.S. Coast Guard and Army Corps of Engineers requirements, with great care taken to remove all oil and fuel residue. All six vessels were sunk in offshore waters to form the popular Triangle Reef off Virginia Beach and the Parramore Reef off Wachapreague.

During the 1970's and early 1980's, the Artificial Reef Program primarily used "materials of opportunity" to create artificial reefs. Concrete pipe, ships, and automobile tires were used most often. In addition to simple deployments, attempts were made to use these materials to develop structures that provided stability, durability and a maximum amount of surface area and interior space. For example, tires were split and sunk vertically into concrete bases and concrete pipe was bundled into pyramids.

All of the reef materials used by the Artificial Reef Program are placed upon permitted sites and meet rigorous state and federal environmental standards. An artificial reef advisory committee provides VMRC with direct angler input on reef location, construction and augmentation efforts.

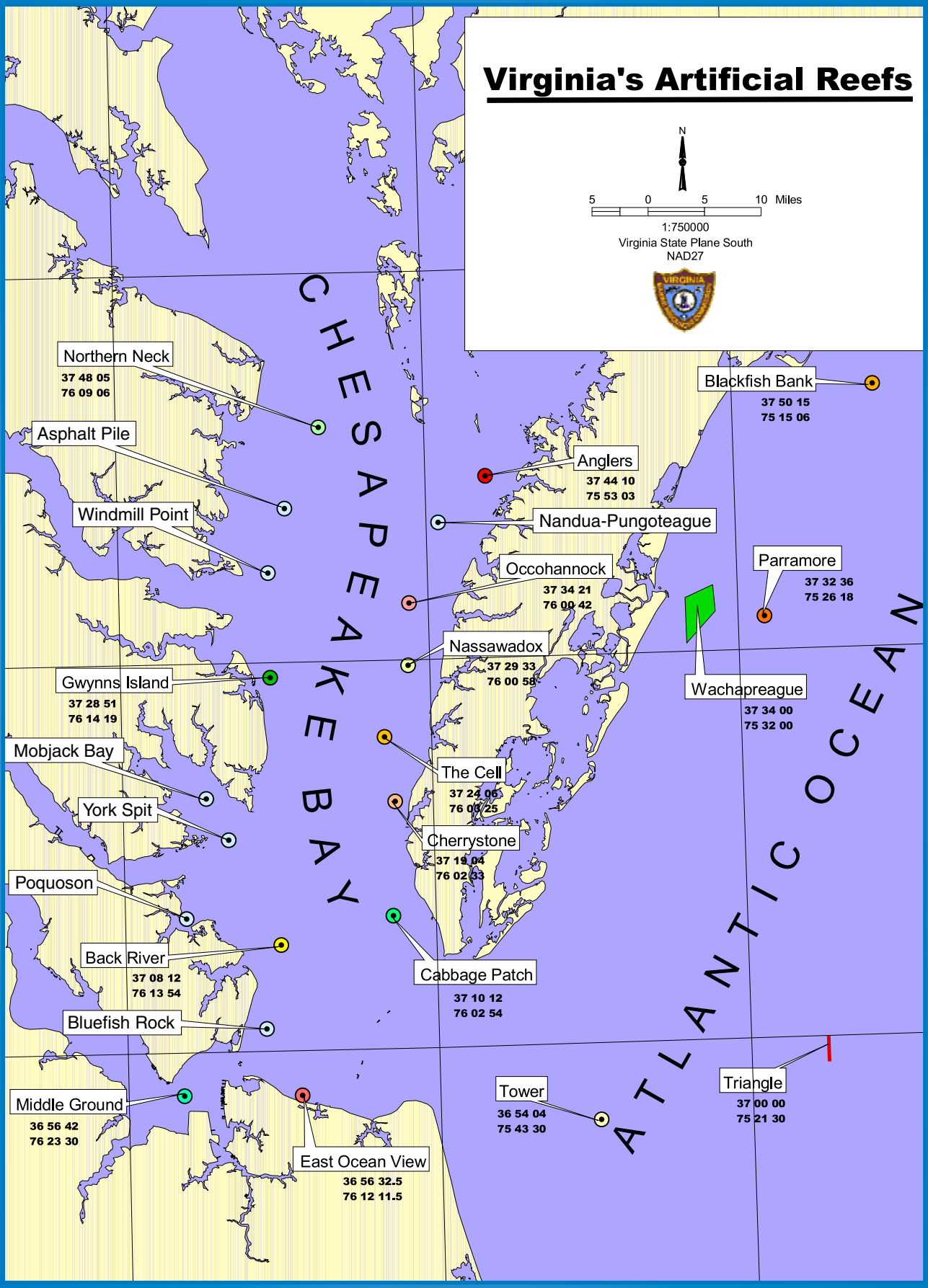
LOCATING ARTIFICIAL REEFS

Loran and Lat/Long coordinates are provided here for the major structures at each reef site. It is a good idea to remember there is some variation among Loran and GPS units, so coordinates seldom match exactly. A good way to locate a particular reef structure is to steer to the published coordinates for the structure and drop a small buoy. Then, run a circular or grid pattern around the buoy until the structure appears on a depth sounder. A second buoy can be deployed directly over the structure, and the exact coordinates for your specific unit should be recorded.

Yellow buoys designate the locations of all permitted reefs in the Artificial Reef Program. However, these buoys may not be stationed directly over any structure. Buoys may be stationed in the center or on the perimeter of a reef site, or within a short distance of the published Loran coordinates for structures on the reef site.

Storms, collisions and vandalism can cause the yellow buoys to be moved from their intended locations. Buoy status reports are available from the Artificial Reef Program office. If a yellow reef buoy is missing from a reef site, or appears to be improperly located, contact the Artificial Reef Program so corrective measures can be taken. The program address and phone number follow:

Virginia Marine Resources Commission
Artificial Reef Program, Third Floor
2600 Washington Ave.
Newport News, VA 23607
(757) 247-2263


Virginia's Artificial Reefs
N
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Northern Neck
37 48 05
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Asphalt Pile
Windmill Point
Gwynns Island
37 28 51
76 14 19
Mobjack Bay
York Spit
Poquoson
Back River
37 08 12
76 13 54
Bluefish Rock
Middle Ground
36 56 42
76 23 30
East Ocean View
36 56 32.5
76 12 11.5
Anglers
37 44 10
75 53 03
Nandua-Pungoteague
Occohannock
37 34 21
76 00 42
Nassawadox
37 29 33
76 00 58
The Cell
37 24 06
76 03 25
Cherrystone
37 19 04
76 02 33
Cabbage Patch
37 10 12
76 02 54
Tower
36 54 04
75 43 30
Blackfish Bank
37 50 15
75 15 06
Parramore
37 32 36
75 26 18
Wachapreague
37 34 00
75 32 00
Triangle
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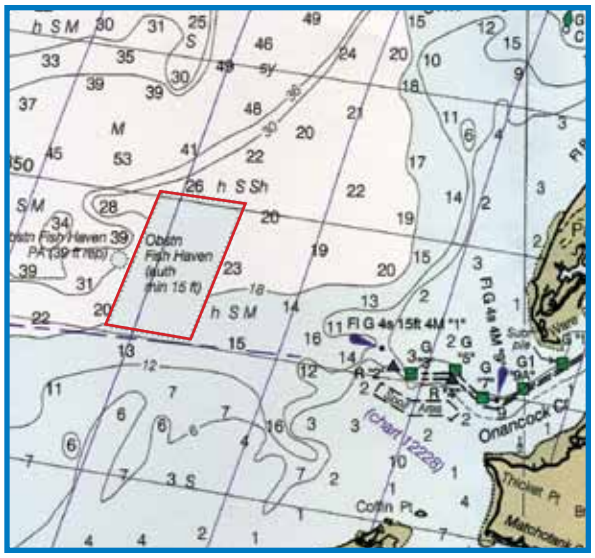
75 21 30

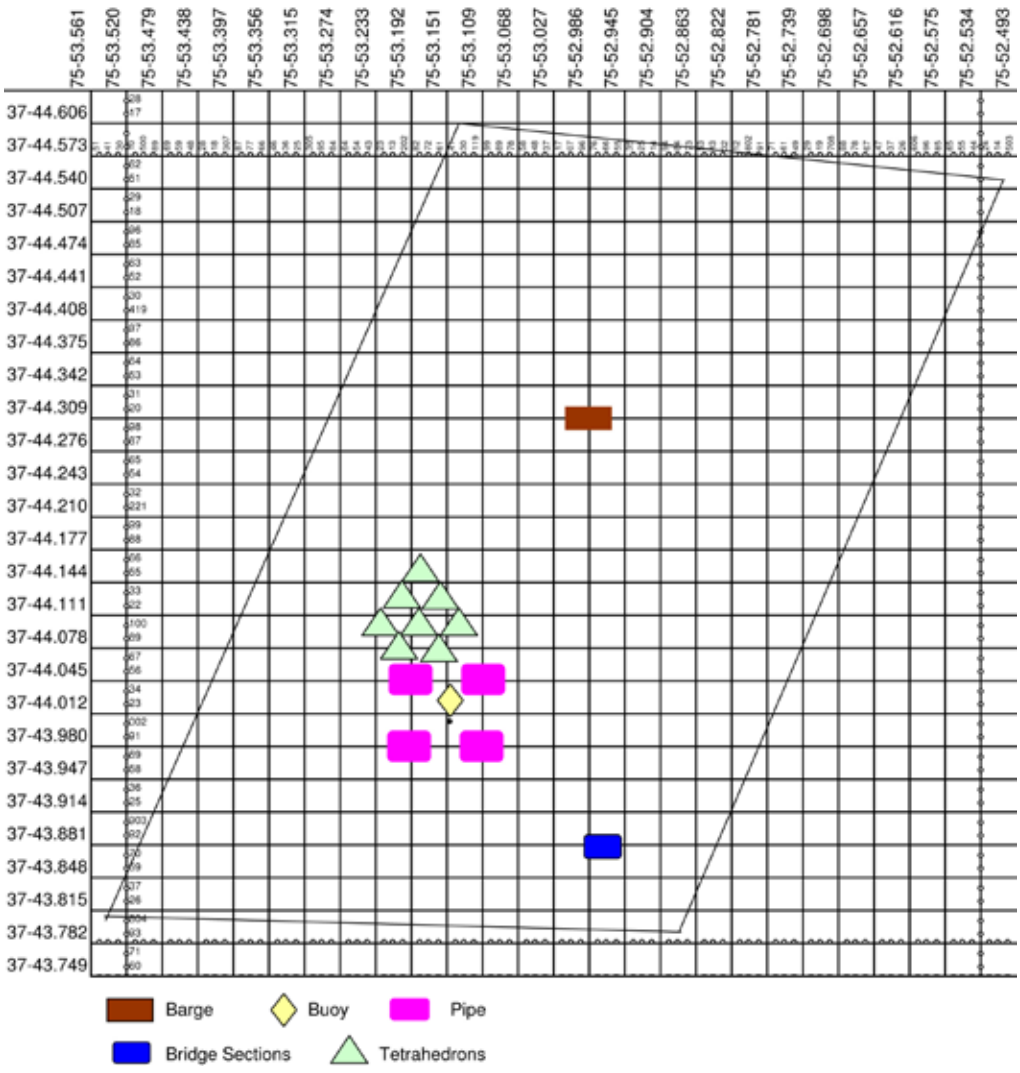
ANGLERS REEF

Anglers Reef is located 2.5 nautical miles WNW of the entrance to Onancock Creek. The shape of the site is a parallelogram with the perimeter defined by loran lines.

Four 450 ton deployments of concrete pipe are located at the NW,NE,SW. and SE quadrants approximately 200 feet from the yellow VMRC buoy designated "A". More than 1600 concrete tetrahedrons are deployed in a 600 ft.circular pattern NW of the buoy, and a 35 foot x 90 foot barge is to the northeast. In 2006, 2000 tons of cylinder pile, block and bridge sections were deployed to the SE. This deployment was paid for with saltwater fishing license revenue. **Actual reef site is northwest of the charted fish haven area.**



NOAA Chart 12210

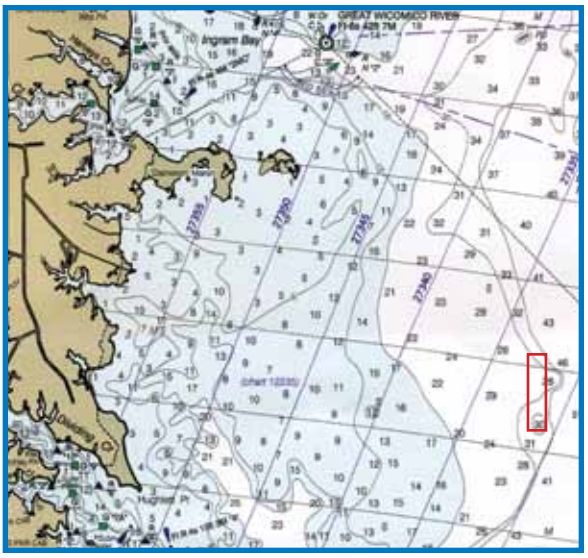


Angler's Artificial Reef 08/28/06
Grid approximately 200 Ft. centers
Authorized clearance 15 Ft. MLW

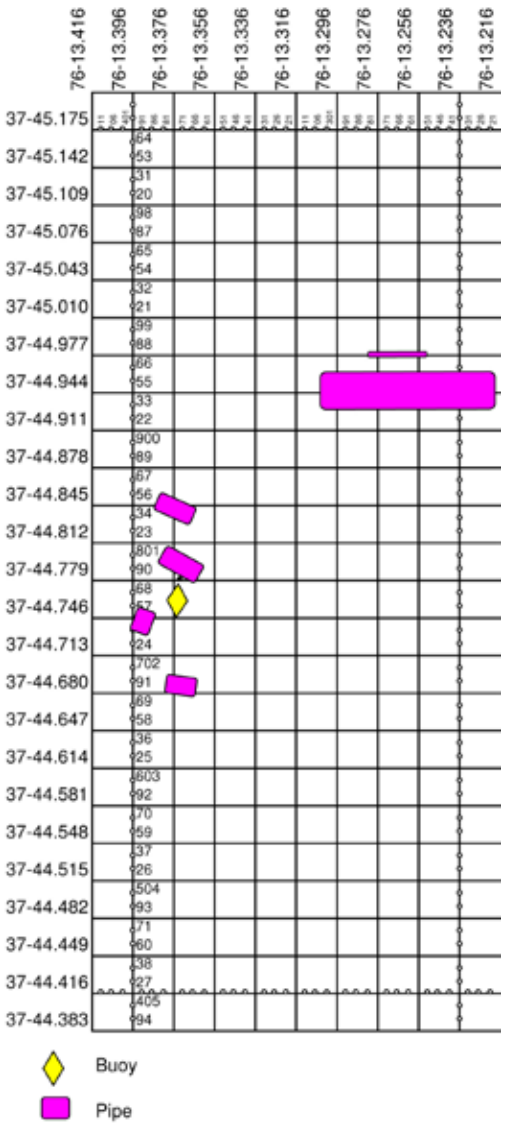
ASPHALT PILE REEF

This artificial reef was constructed in 2001. It is a 300 yard wide by 1600 yard long rectangle, located 4 nautical miles SSE of the entrance to the Great Wicomico River.

This artificial reef was constructed as a result of the effort of the Northern Neck Charter Boat Association. The concrete pipe at this site was donated and the deployment of this pipe was paid for with saltwater fishing license revenue. The center of this site is marked with a yellow VMRC buoy designated "AP".



NOAA Chart 12225



Pipe being lowered to form an artificial fishing reef.

Reef Balls manufactured for artificial fishing reef deployment.

To maximize the benefit of Saltwater Fishing License revenue the Commonwealth of Virginia accepts donated materials in addition to purchasing specially fabricated structures for Virginia's sport fishing community.

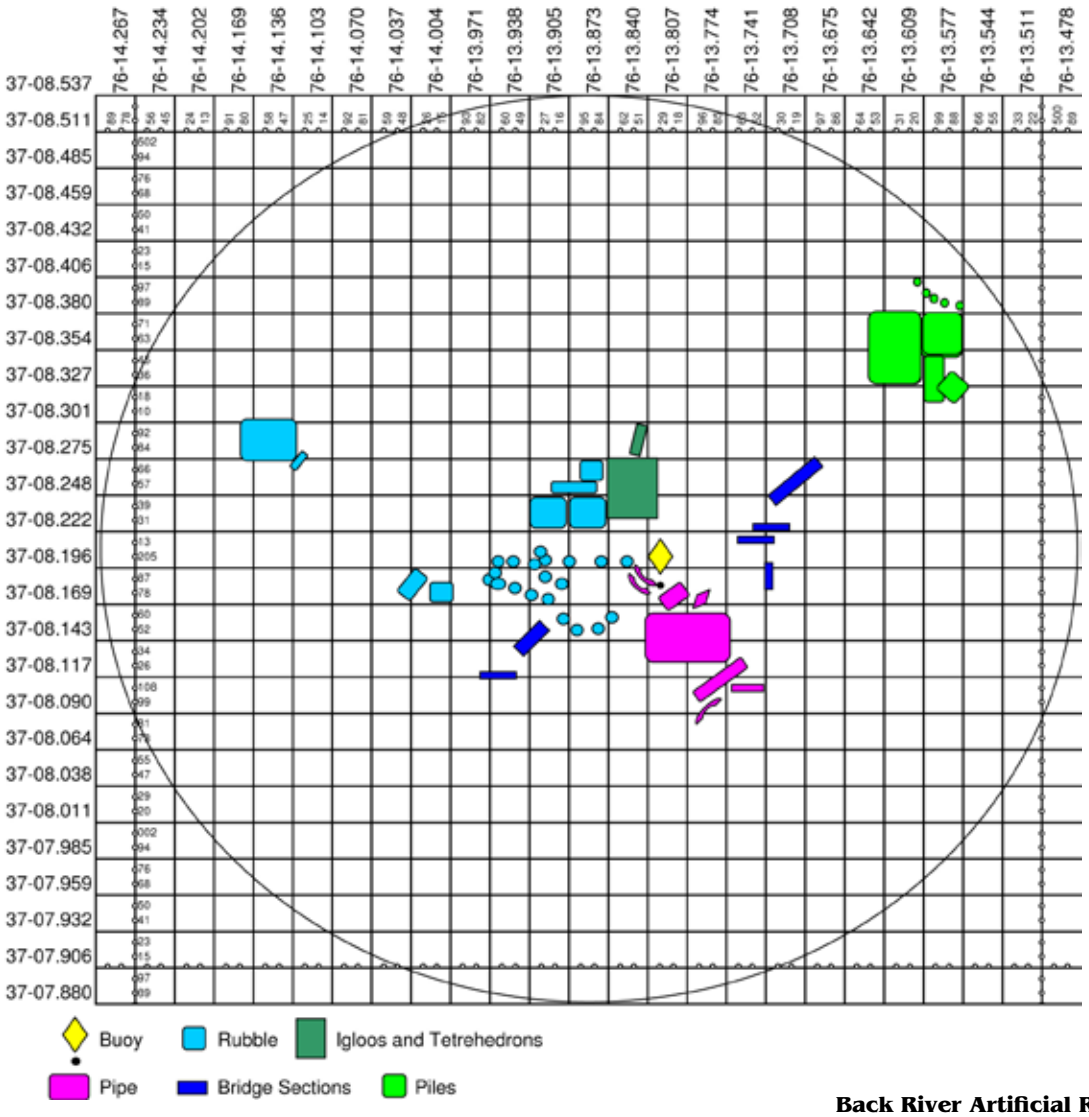
Asphalt Pile Artificial Reef 12/18/07
Grid approximately 190 Ft. centers
Authorized clearance 15 Ft. MLW

BACK RIVER REEF

This is a circular reef site located 3 nautical miles E of Plumtree Point between Back River and the Poquoson River.

When this reef was established, forty concrete igloos were placed on the bottom 50 ft. apart in an "X" shaped pattern, This pattern was filled in with concrete tetrahedrons placed along each side of the NE and NW legs while concrete pipe and girders augment the SE and SW legs. In 2005, 2400 tons of concrete bridge sections and piles were added to the existing concrete pier rubble and pipe previously distributed on this site. The center of this reef is marked with a yellow VMRC buoy designated "BR".

NOAA Chart 12221

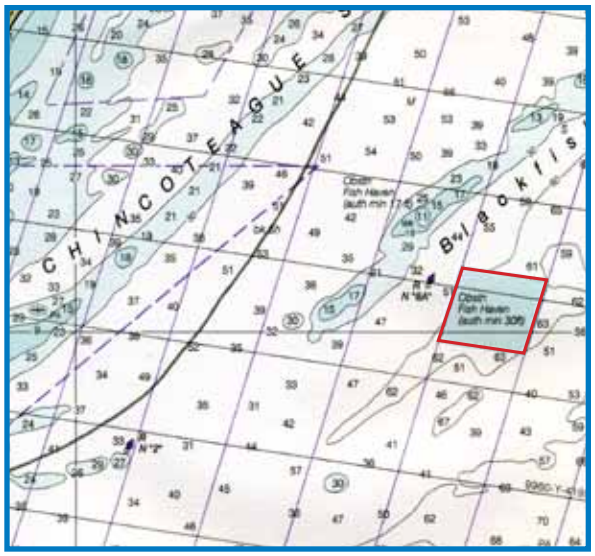


Back River Artificial Reef 08/11/08
Grid on 200 Ft. centers
Authorized clearance 15 Ft. MLW

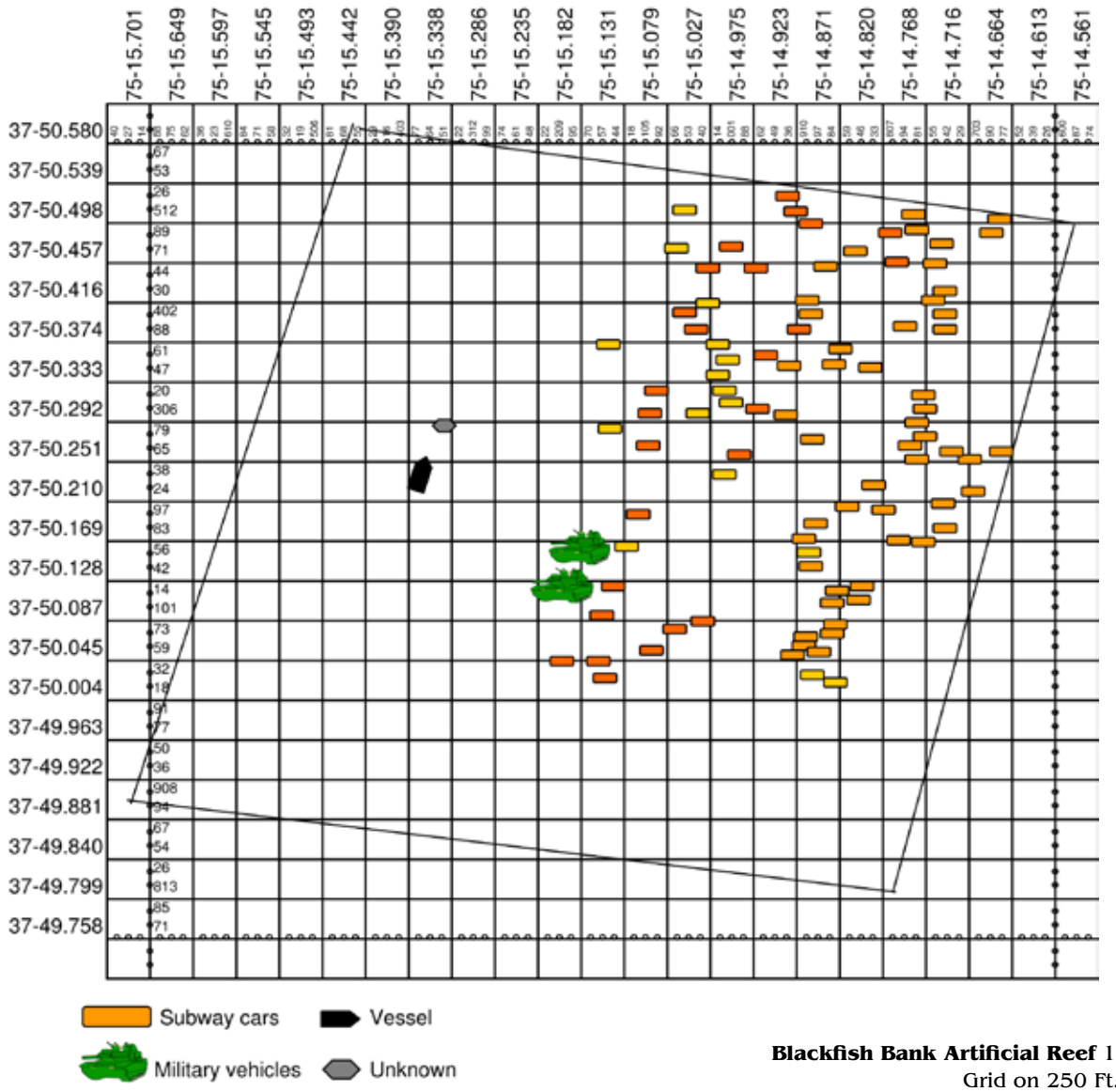
BLACKFISH BANK REEF

This reef is located 5.8 nautical miles SE of Assateague Beach. The site is a 1300 yd. by 1600 yd. parallelogram with the perimeter defined by loran lines.

40 Armored personnel carriers were scattered at this site as part of "Operation Reef-Ex '98". The Army National Guard, Fort Dix, NJ prepared and transported the military vehicles. The deployment was accomplished as a joint effort with U.S. Naval Weapons Station, Colt's Neck, NJ, U.S. Army 24th Transportation Battalion, Fort Eustis, VA, and the U.S. Coast Guard, Chincoteague, VA participating. In 2003, 50 New York City MTA subway cars were added to the site, and in 2008 another 44 subway cars were added.



NOAA Chart 12210



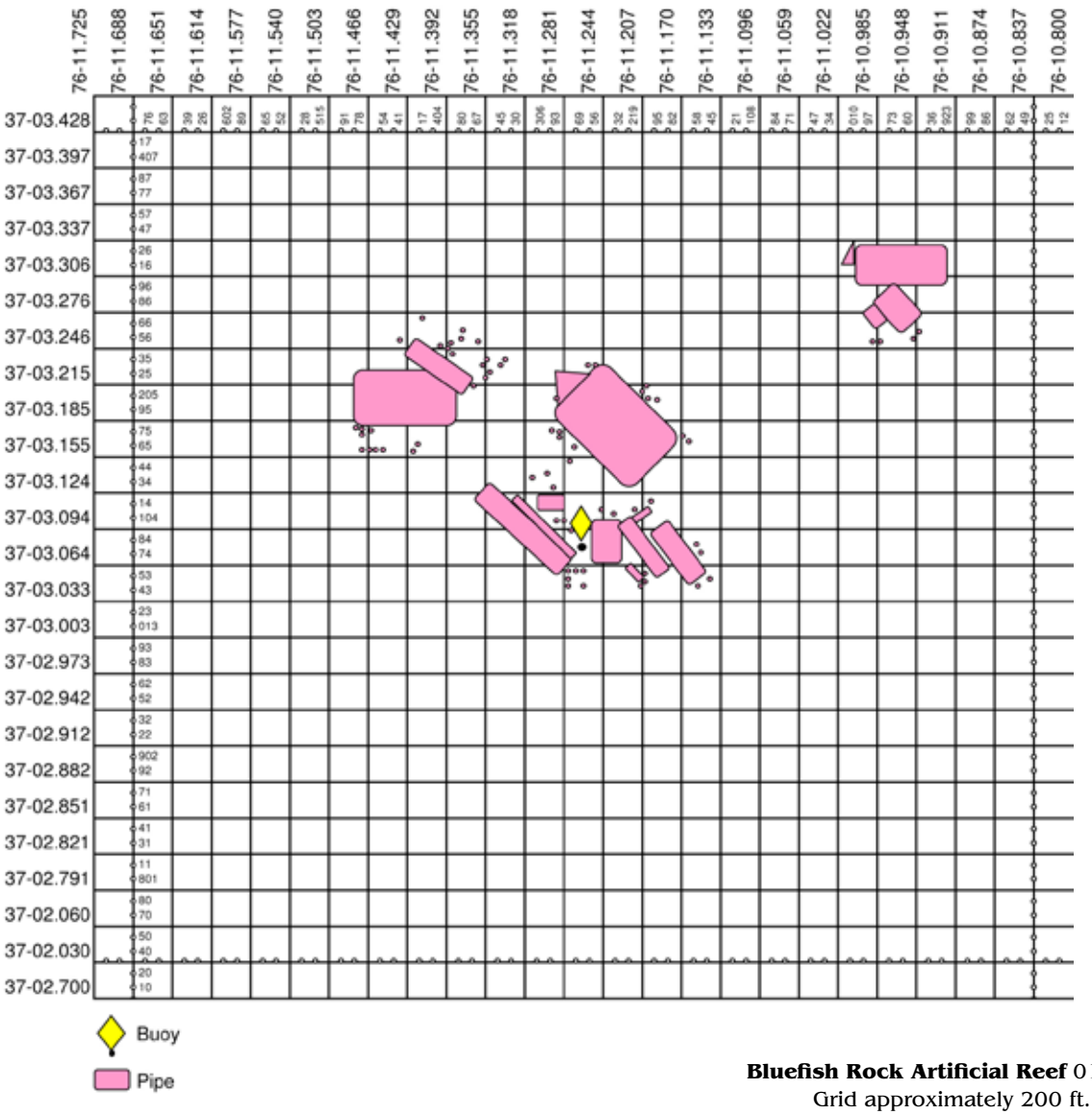
Blackfish Bank Artificial Reef 12/10/08
Grid on 250 Ft. centers
Authorized clearance 30 Ft. MLW

BLUEFISH ROCK REEF

This Reef is located approximately 4 1/2 nautical miles E of Buckroe Beach and Saltponds.

This reef was established in November of 2007, with a 1000 ton field of concrete pipe. Since that time, 8,218 tons of donated pipe have been deployed with saltwater fishing license revenue. The center of this reef is marked with a yellow VMRC buoy designated "BF".

NOAA Chart 12221



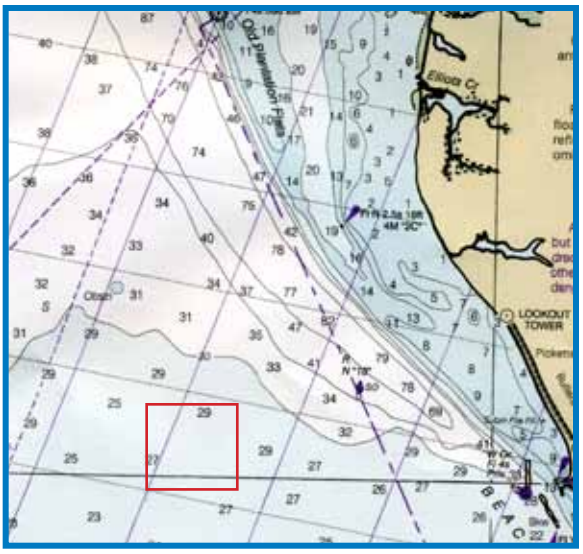
Bluefish Rock Artificial Reef 01/07/09
Grid approximately 200 ft. centers
Authorized clearance 15 Ft. MLW

CABBAGE PATCH REEF

Constructed in October 2000, this square reef site is located 5.5 nautical miles SSW of the entrance to Cape Charles Harbor.

The reef includes a deployment of 36 double-T beams, 60 ft. long stacked to form a waffel shaped grid two beams high, 28 concrete slabs, 187 tons of concrete sinkers, and 1000 tons of concrete block. These deployments were paid for with saltwater fishing license revenue. 10 Reef Balls were constructed by the Girl Scouts of America with materials donated by, and placed on the reef site by Sea Search of Virginia. The northwest corner has been reserved as an Eternal Reef site.

This reef was constructed as the result of the effort by the Eastern Shore Chapter of the Coastal Conservation Association of Virginia. The center of the reef is marked with a yellow VMRC buoy designated "CP".



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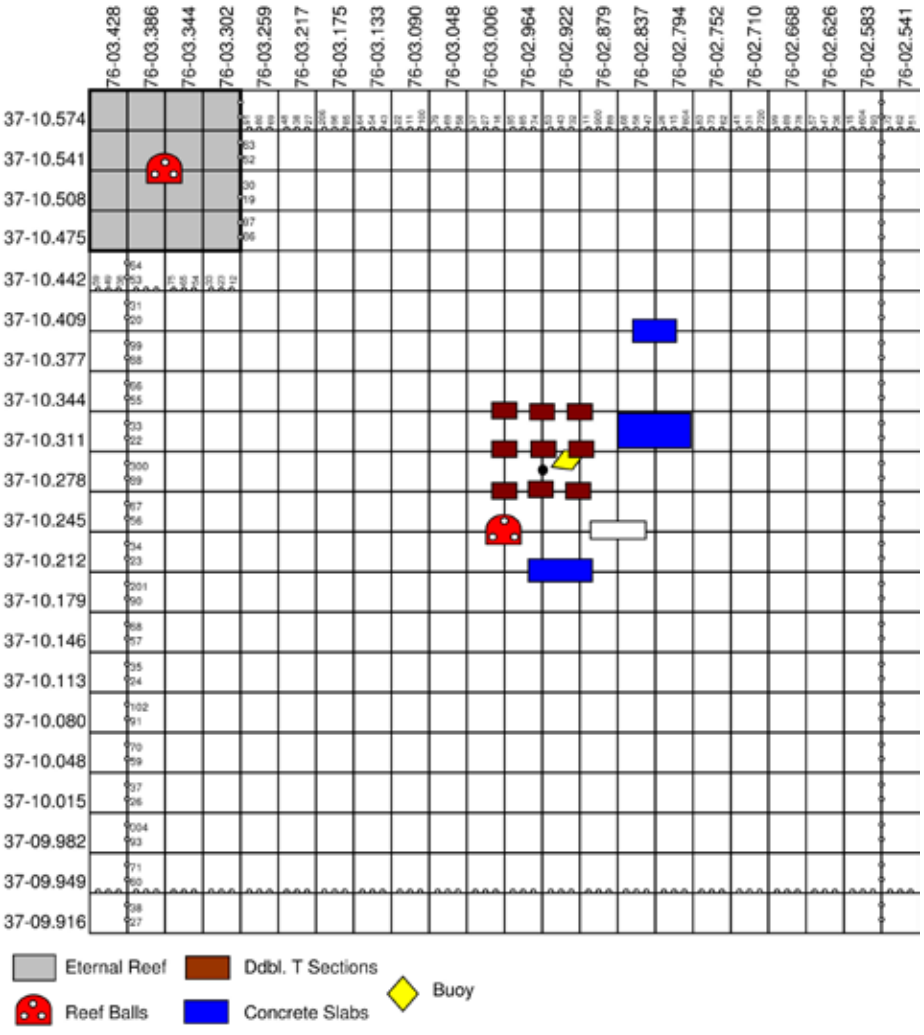


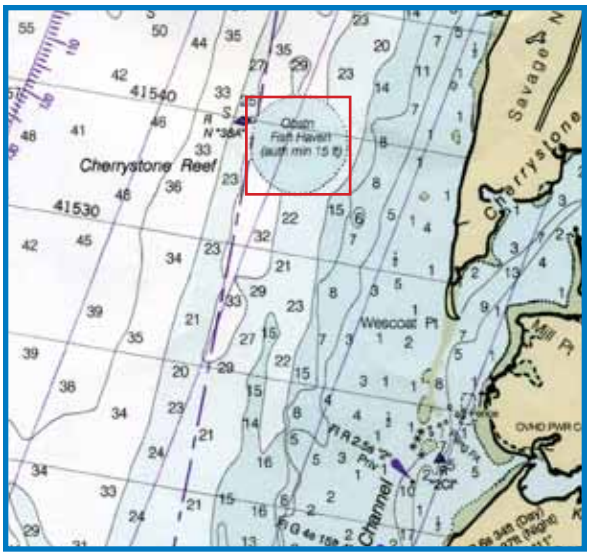
Reef material awaiting deployment.

Cabbage Patch Artificial Reef 06/26/06
Buoy Grid approximately 200 Ft. centers
Authorized clearance 15 Ft. MLW

CHERRYSTONE REEF

Cherrystone Reef was recently reconfigured to a square site and is located 1.8 nautical miles NNW of Cherrystone Creek, bayside, on the Eastern Shore .

Concrete igloos, stacks of concrete pipe, Chesapeake Bay Bridge Tunnel concrete deck sections, and over 2500 TICs have been scattered on this site. In 2006, 2000 tons of concrete block, donated by Bayshore Concrete Products, Inc., were added. The deployments on this site were paid for with saltwater fishing license revenue. A yellow VMRC buoy designated "CS" marks the site.



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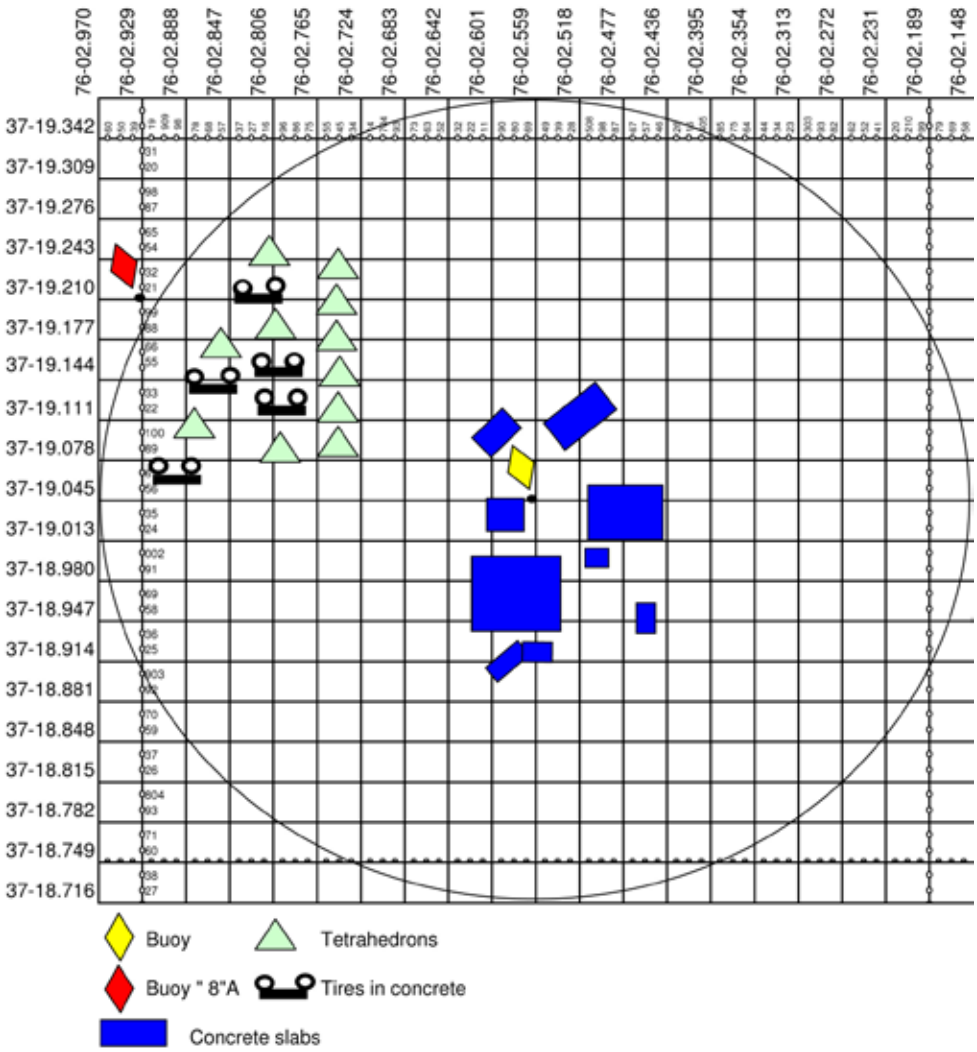


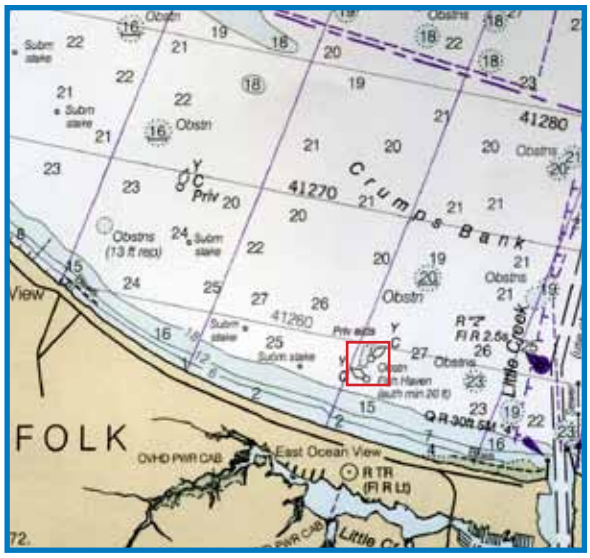
Concrete pipe loaded on barges for deployment.

Cherrystone Artificial Reef 7/12/06
Grid approximately 200 Ft. centers
Authorized clearance 15 Ft. MLW

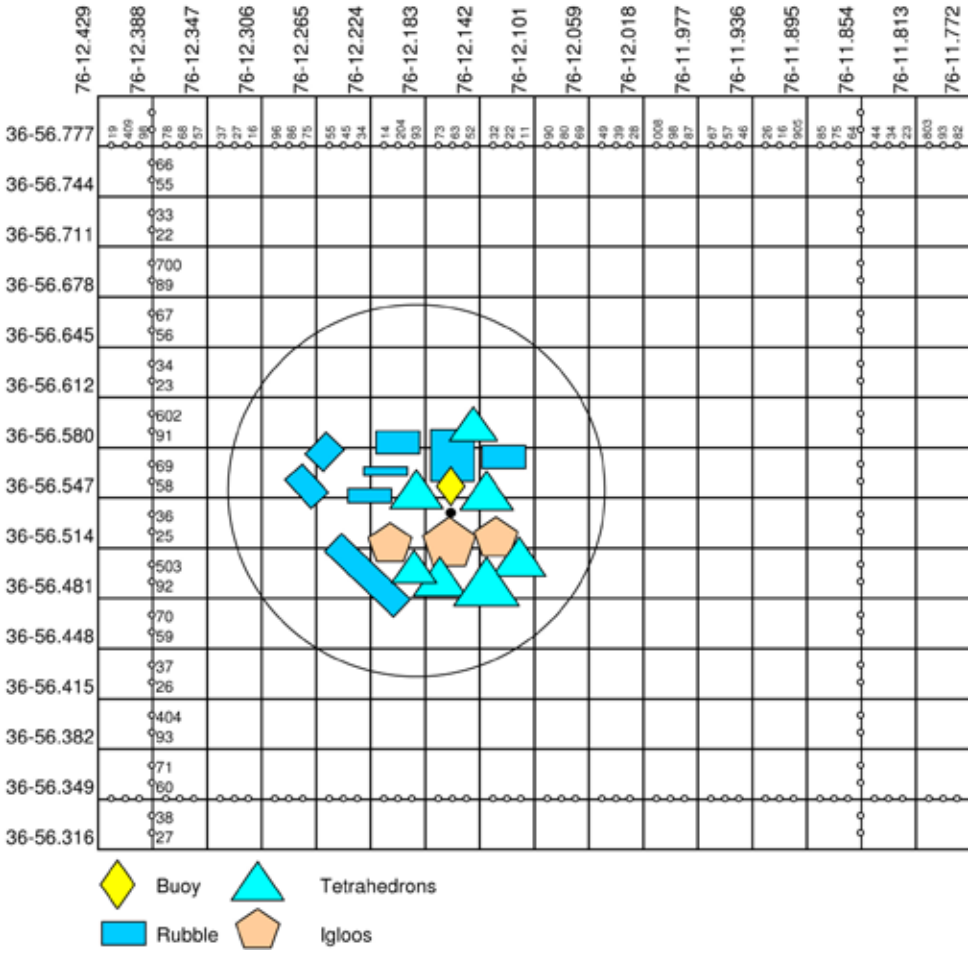
EAST OCEANVIEW REEF

This reef, originally referred to as the ODU reef, is located 2500 yards west of the entrance to Little Creek Harbor, 900 yds off of the beach.

A yellow VMRC buoy designated "EO" marks the center of this site. 40 Concrete igloos, with concrete tetrahedrons scattered among them, are deployed south of the center. Donated concrete bridge rubble, pier sections and piling have been added more recently and are located to the north and west of the center of this site.



NOAA Chart 12221



The Tug J. B. Eskridge being laid to rest at Tower Artificial Reef.

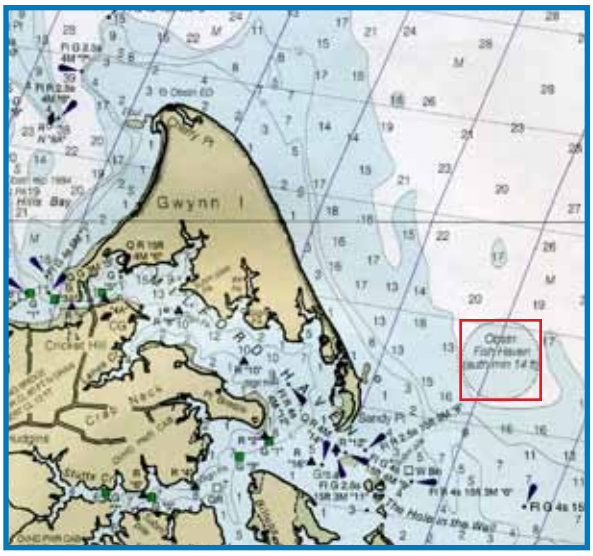
J. B. Eskridge

East Ocean View Artificial Reef 02/07/08
Grid approximately 200 Ft. centers
Authorized clearence 20 Ft. MLW

GWYNN ISLAND REEF

Gwynn Island Reef was reconfigured to a square site located 1.35 nautical miles northeast of "Hole in the Wall".

The reef contains a variety of structures, including concrete igloos, stacked tire units, and TICs. McLean Contracting Company donated and deployed at no charge 3762 tons of concrete bridge decking.1000 tons of concrete pipe was deployed with saltwater fishing license revenue. The center of this reef is marked with a yellow VMRC buoy designated "GI".



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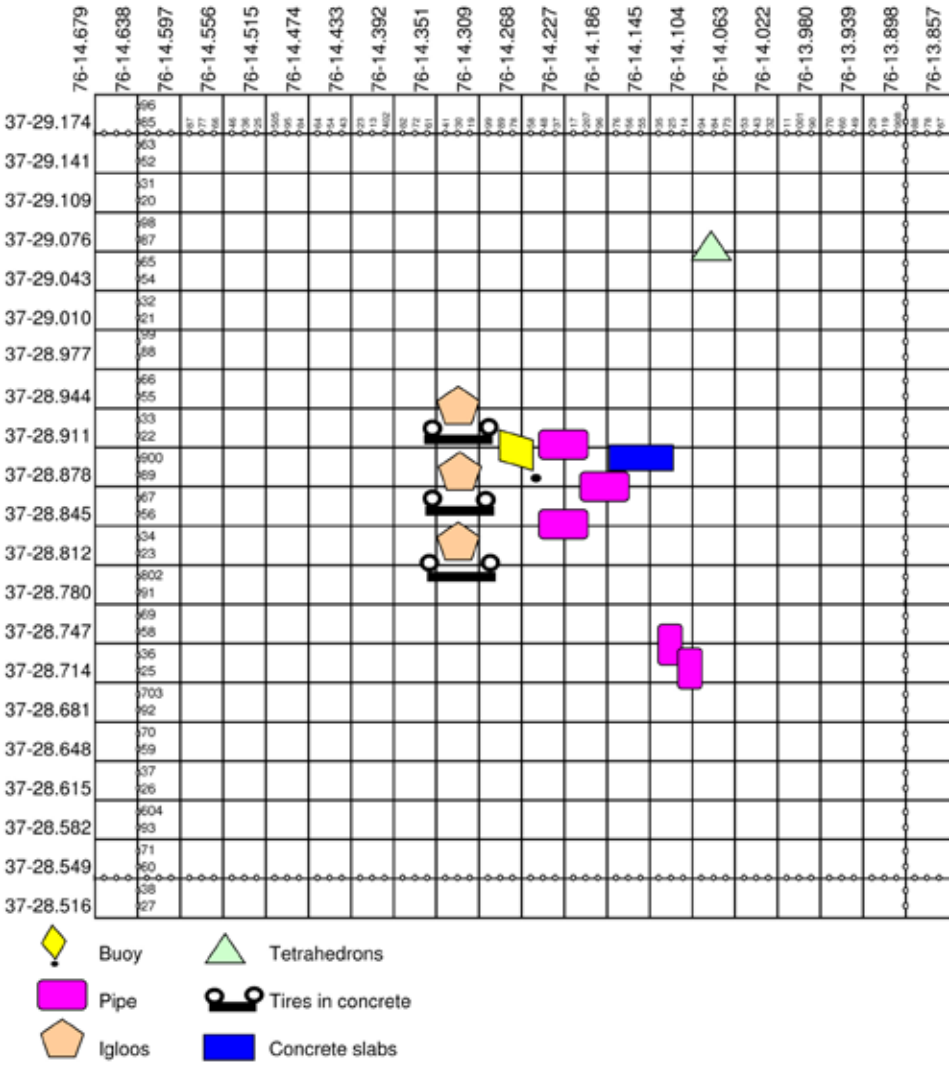


Barge with pipe being loaded for reef deployment.

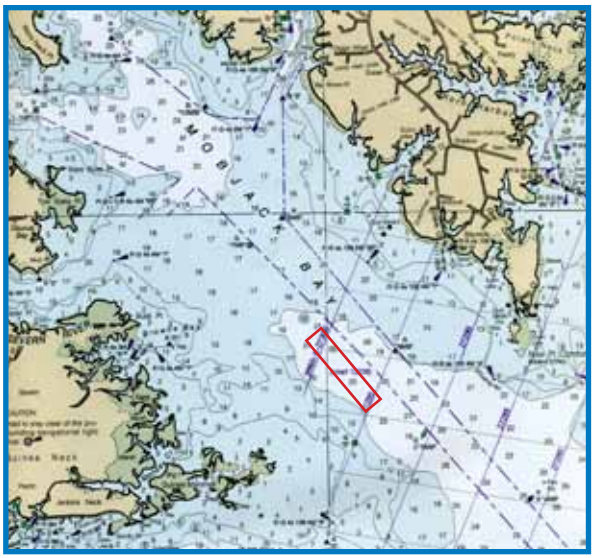
Prince of Peace being sunk on Parramore Reef.

Gwynn Island Artificial Reef 3/15/05
Grid approximately 200 Ft. centers
Authorized clearance 14 Ft. MLW

MOBJACK BAY REEF

Mobjack Bay Reef is a rectangular shaped reef located outside of the channel, SW of Mobjack Bay Main Channel Buoy "6MB".

This site was constructed in July, 2006. The initial deployment of 1,250 tons of concrete pipe, placed near the center of the reef. Transportation and deployment costs were funded with saltwater fishing license revenue. Since 2006 an additional 8202 tons of bridge sections and rubble has been deployed. The center of this reef is marked with a yellow VMRC buoy designated "M".



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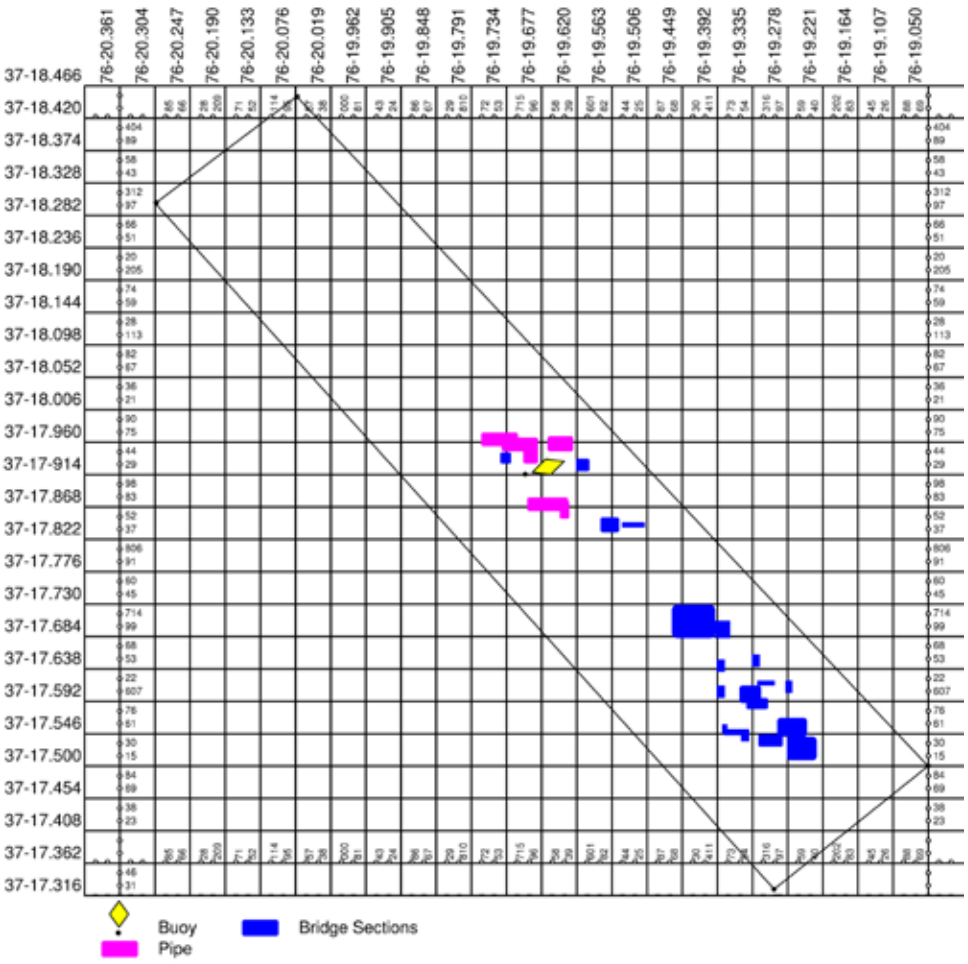


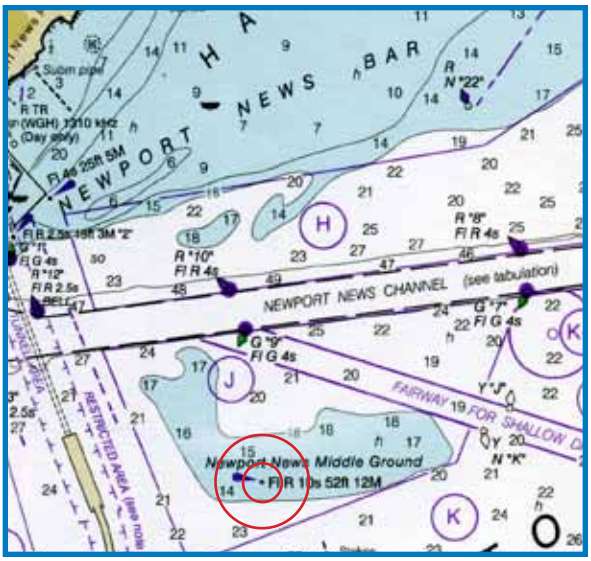
Bridge Section placement, Mobjack Bay Artificial Fishing Reef.

Mobjack Bay Artificial Reef 01/02/08
Grid on approximately 200 Ft. centers
Authorized clearance 15 Ft. MLW

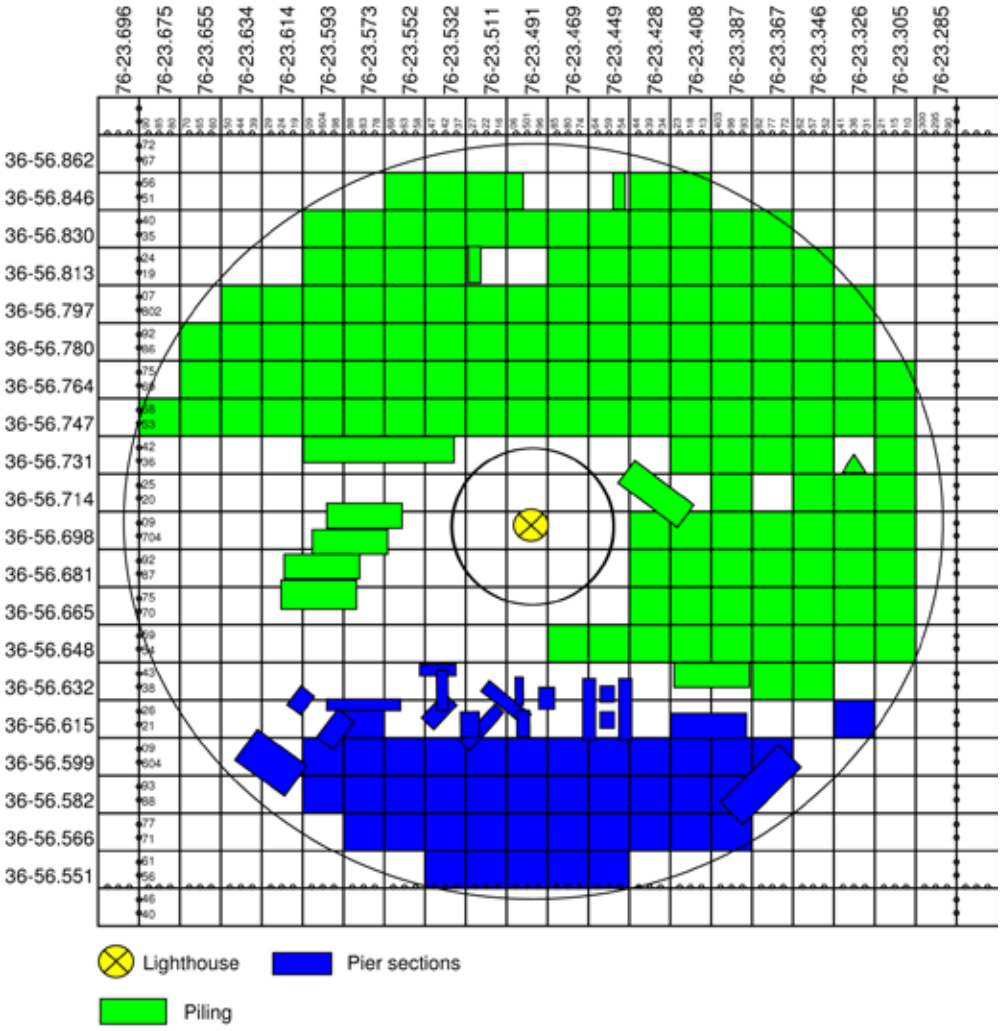
NEWPORT NEWS MIDDLE GROUND REEF

This reef is located at the mouth of the James River around the Newport News Middle Ground Lighthouse.

The reef material forms a ring between 200 and 1000 feet around the light. Reef material includes Reef Balls, concrete rubble, buoy sinkers, piling and pier sections. This site is also a brood stock sanctuary providing seed clams for the lower James River. Groups instrumental in development of this reef include the Peninsula Chapter of the Coastal Conservation Association of Virginia, Magann Corporation, McLean Contracting, and Brawley Middle School, Charlottesville, VA.



NOAA Chart 12245

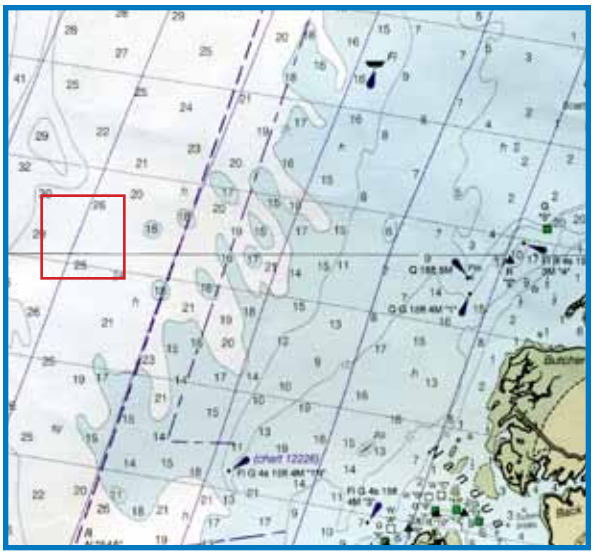


Newport News Middle Ground 4/5/05
Grid on 200 Ft. center
Authorized clearance 12 Ft. MLW

NANDUA-PUNGOTEAGUE REEF

Nandua-Pungoteague Reef is located 3.3 NM ENE of the entrance to Pungoteague Creek.

This reef was created in August of 2004 with the purchase of 120 Reef Balls, and 1005 tons of donated concrete pipe. In 2006, 2000 tons of cylinder pile, concrete block and bridge sections were donated and added to the site. Each of these deployments was funded with saltwater fishing license revenue. The center of this reef is marked with a yellow "VMRC" buoy designated "NP".



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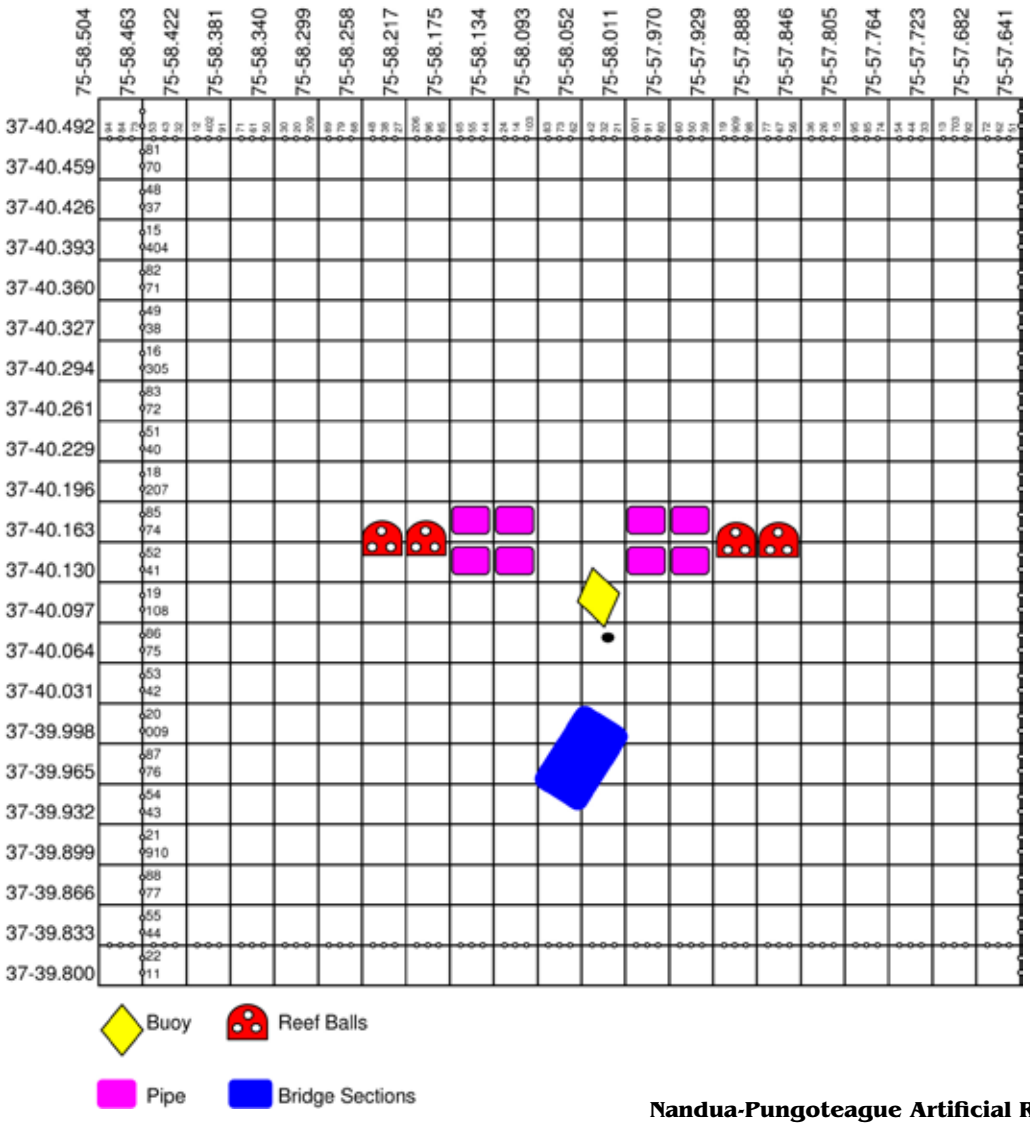


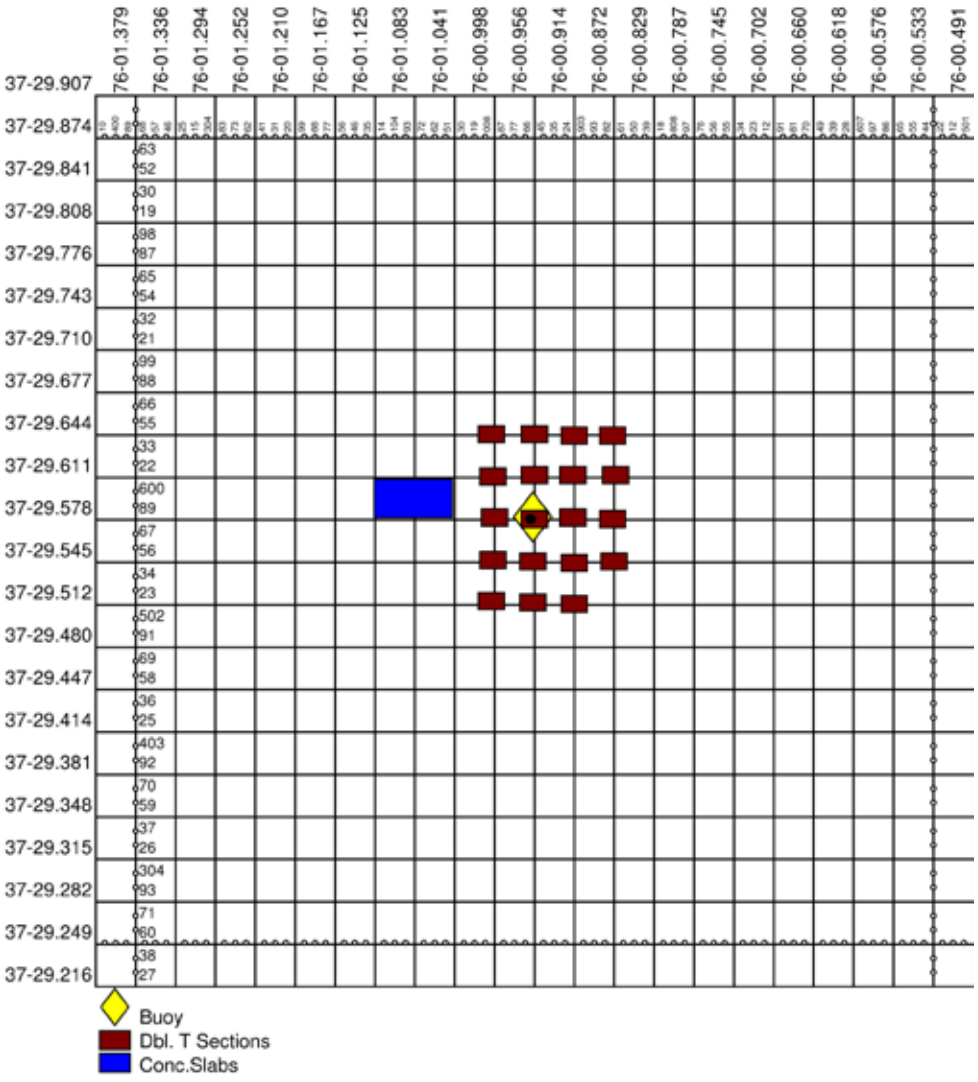
Nandua-Pungoteague Artificial Reef 08/18/06
Grid approximately 200 Ft. centers
Authorized clearance 15 Ft. MLW

NASSAWADOX REEF

Constructed in November 2000, This reef is located 2.6 nautical miles NW of the entrance to Nassawadox Creek bayside of the Eastern Shore. The permitted site is square and had an initial deployment of 76 double T-beams 60 ft. long stacked to form a waffle shaped grid two beams high. In 2006, 1000 tons donated concrete block was added. Both of these deployments were funded using saltwater fishing license revenue.

This reef was constructed as a result of the effort of the Eastern Shore chapter of the Coastal Conservation Association of Virginia. The center of this reef is marked with a yellow VMRC buoy designated "N".

NOAA Chart 12225



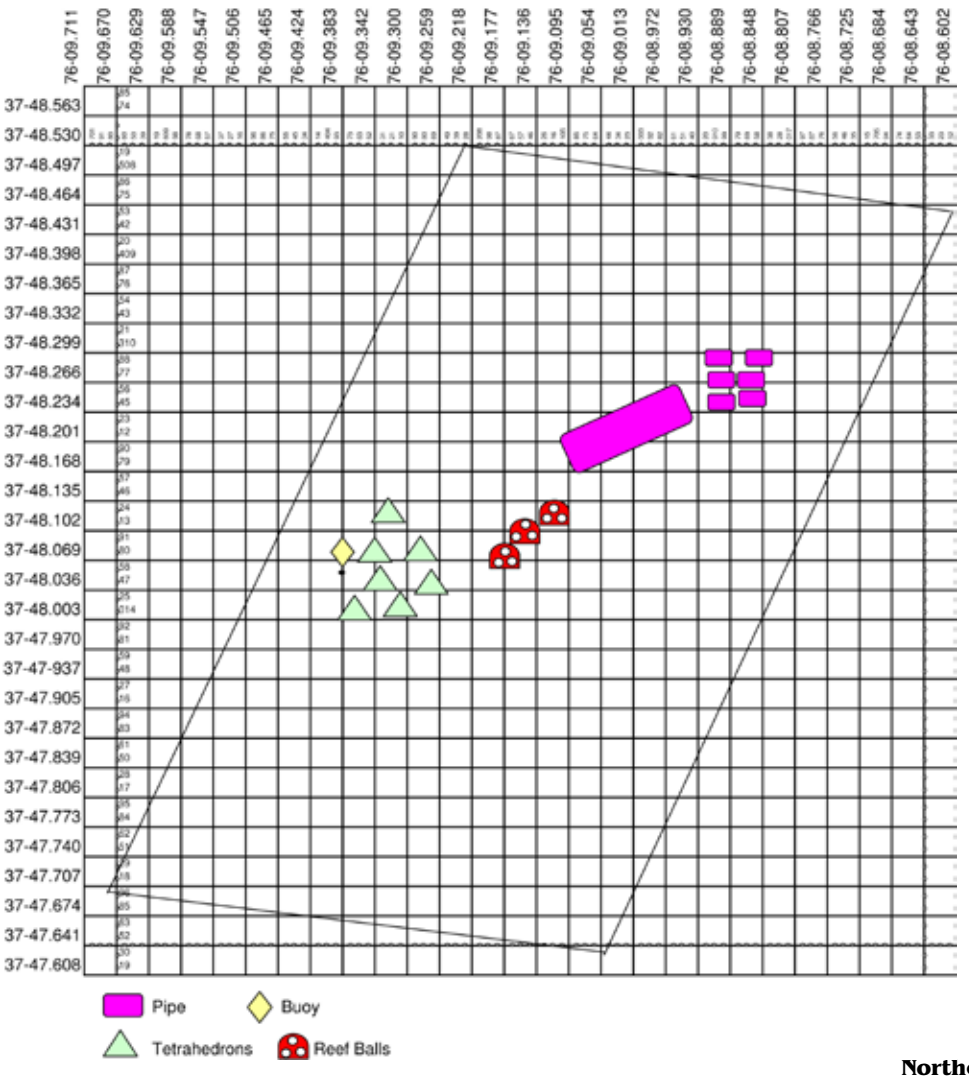
Nassawaddox Artificial Reef 6/26/06
Sections Grid approximately 200 Ft. centers
Authorized clearance 15 Ft. MLW

NORTHERN NECK REEF

This reef is located 7 nautical miles E of the Great Wicomico River Light. The shape of the site is a parallelogram with the perimeter defined by loran lines.

More then 1600 concrete tetrahedrons have been deployed in a circular pattern forming a 200 foot wide band 100 feet from the yellow VMRC buoy designated "NN". In October, 2001, 1000 tons of concrete pipe was added to the site. Deployment of the pipe was funded with saltwater fishing license revenue. **Actual reef site is northwest of charted fish haven area.**

NOAA Chart 12225



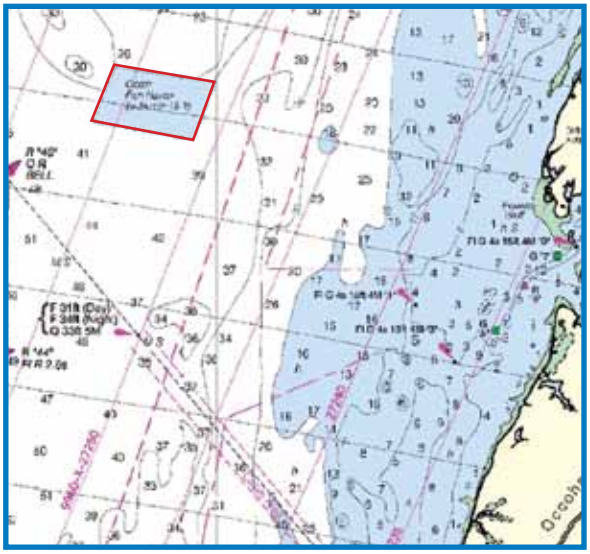
Northern Neck deployment
November 2007

Northern Neck Artificial Reef 03/11/08
Grid approximately 200 Ft. centers
Authorized clearance 20 Ft. MLW

OCCOHANNOCK REEF

Occohannock Reef is located 4 nautical miles WNW of the entrance to Occohannock Creek, bayside of the Eastern Shore. The shape of the reef is a parallelogram defined by loran lines.

A yellow VMRC buoy designated "O" marks the reef and the center of a deployment of 1200 concrete tetrahedrons. Additions to the reef include a 2004 purchase and deployment of 120 Reef Balls, and a 2006 deployment of 2000 tons of concrete block and bridge pieces. Each of these deployments were funded with saltwater fishing license revenue.



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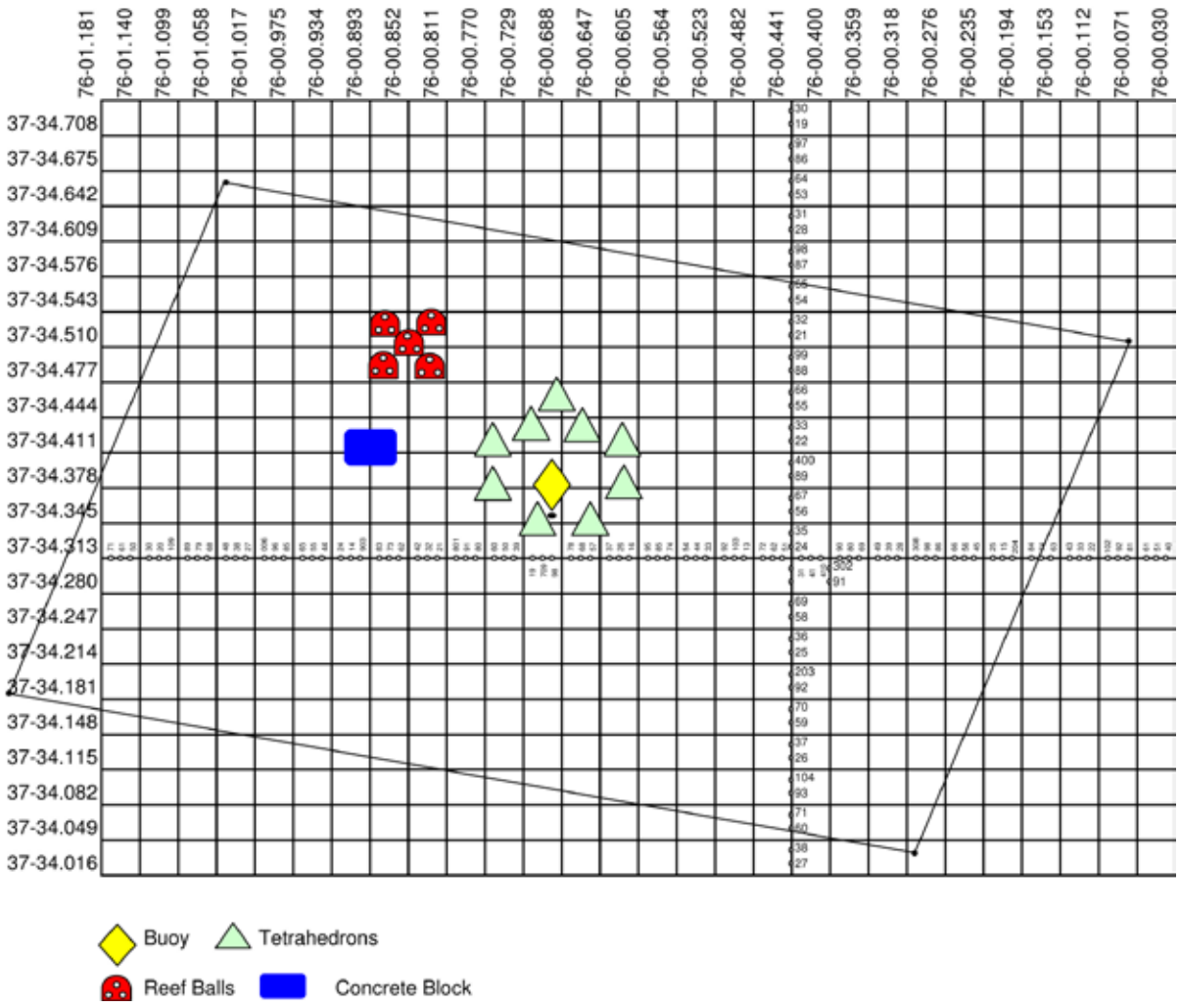
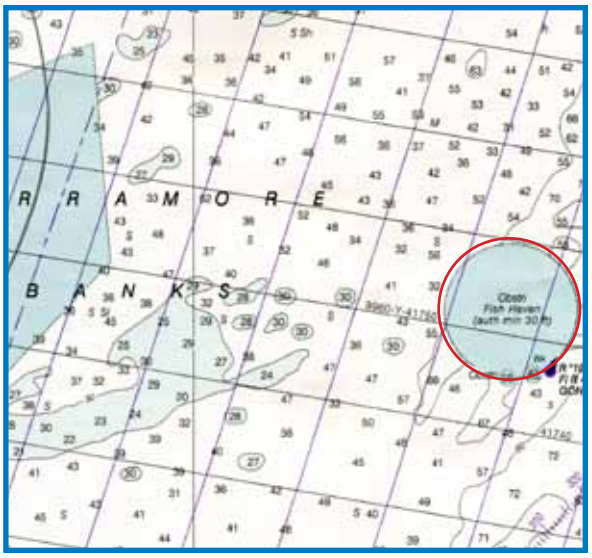


Occohannock Artificial Reef 08/29/06
Grid approximately 200 Ft. centers
Authorized clearance 15 Ft. MLW

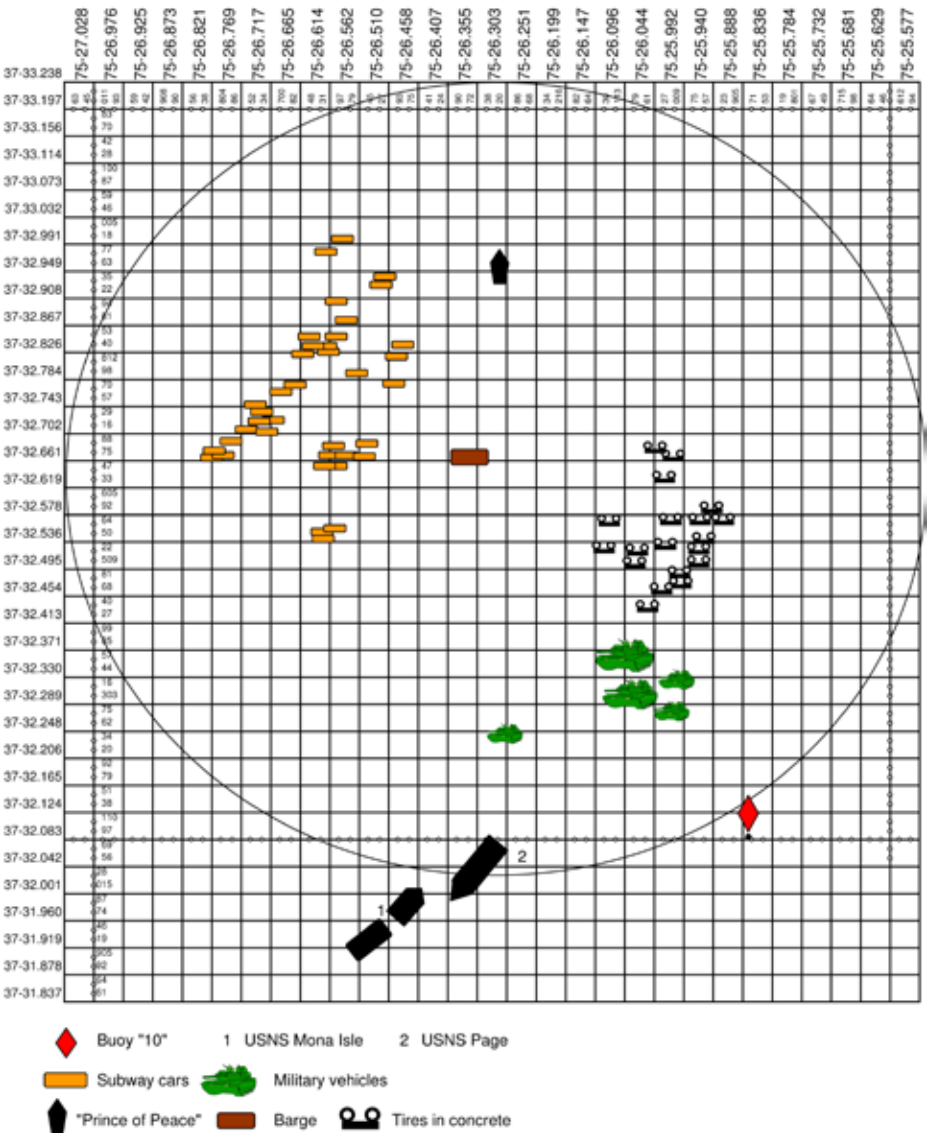
PARRAMORE REEF

This reef is located 8.4 nautical miles east of the Parramore Beach cupola.

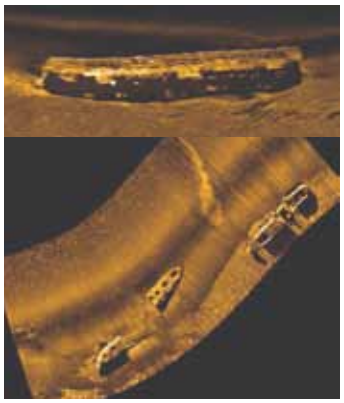
Two liberty ships are the main structure on this site. They were acquired and sunk through the efforts of the Seaside Sport Fishing Improvement Association which held the original permit for this site. A 90 Ft. USCG barge and the F/V "Prince of Peace", 50 subway cars and various military vehicles are also located on this site. Tires in concrete surround the center of this reef.



NOAA Chart 12210



Subway cars deployed at Tower, Parramore and Blackfish Bank Artificial Reefs.



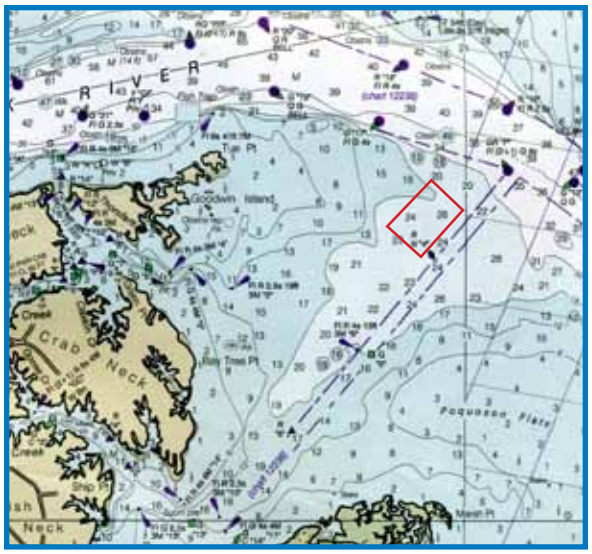
Side-scan image of subway car (top) and image of Liberty ships.

Parramore Artificial Reef 07/11/08
Grid approximately 250 Ft. centers
Authorized clearance 30 Ft. MLW

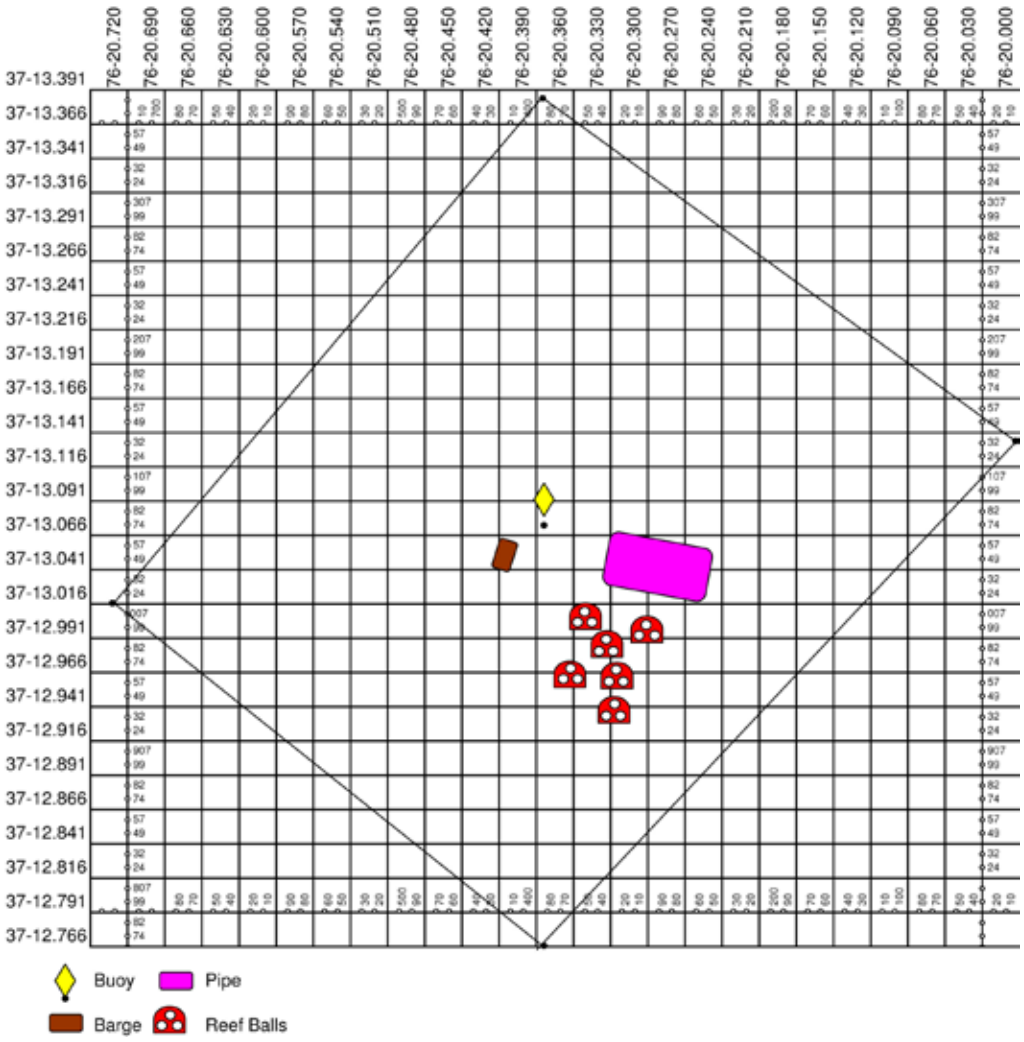
POQUOSON REEF

This Reef is located approximately 2 1/2 nautical miles E of the Goodwin Islands and northwest of Poquoson River channel buoy "4". The shape of this reef is a rectangle, which runs parallel to the Poquoson River channel.

This reef was established in July 2007. The reef has an initial deployment of a 150 ton pontoon barge and was augmented with a 1000 ton field of concrete pipe and 210 reef balls in 2008. The center of this reef is marked with a yellow VMRC buoy designated "PQ".



NOAA Chart 12221

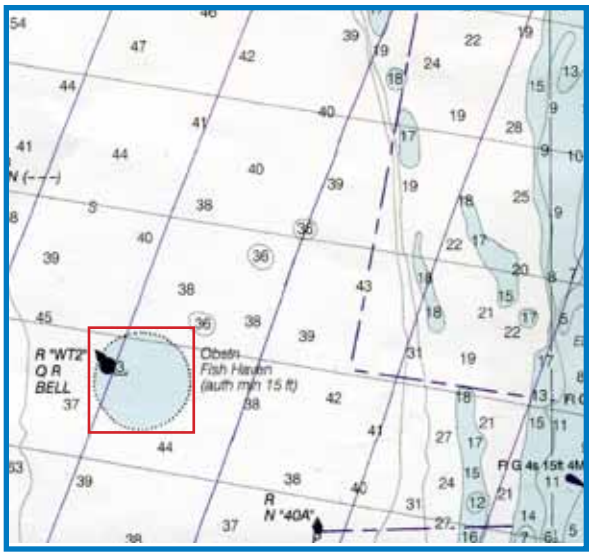


Poquoson Artificial Reef 03/11/08
Grid on 200 Ft. centers
Authorized clearance 12 Ft. MLW

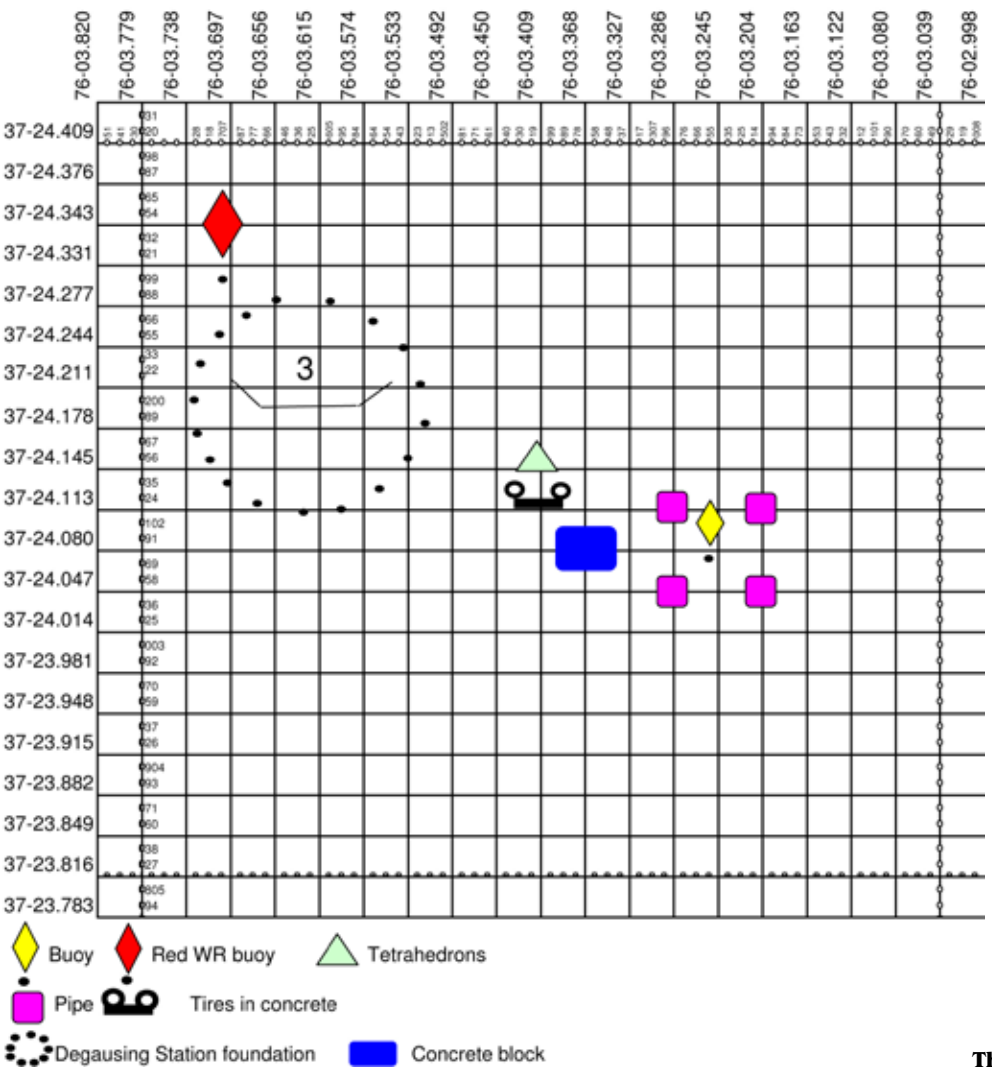
THE "CELL" REEF

The "Cell " Reef located W of Hungars Creek bayside of the eastern shore was recently enlarged to a square shape.

The subsurface remains of the Wolf Trap Degaussing Station, (the "Cell") located near the NW perimeter is the primary structure at this site, and is marked by the USCG buoy "WT2". In 2001, 1000 tons of concrete pipe was added; and in 2006, 2000 tons of concrete block was added. The deployments of concrete pipe and block were funded with salt water fishing license revenue. A yellow VMRC buoy designated "C" marks this fish haven.



NOAA Chart 12225



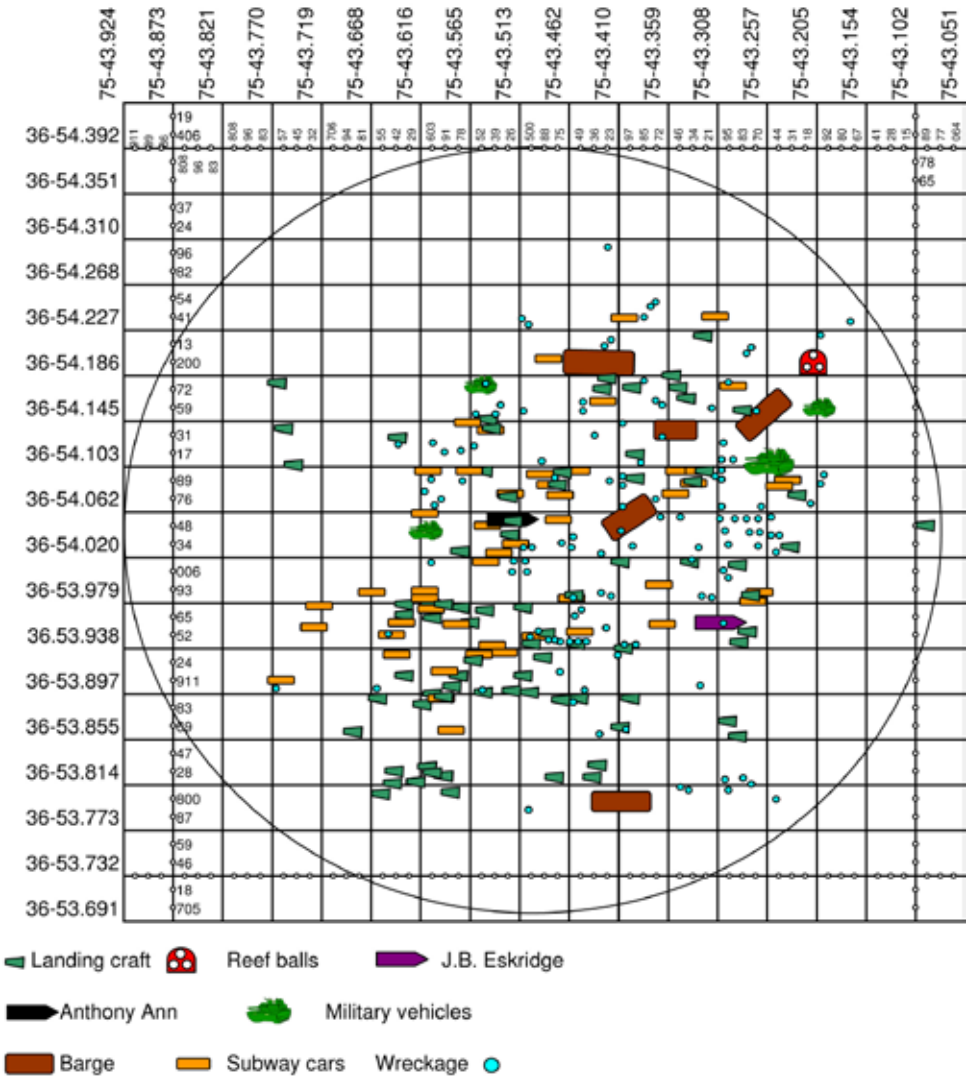
Tetrahedrons (top) and deployment of a reef ball (bottom).

The Cell Artificial Reef 08/29/06
Grid approximately 200 Ft. centers
Authorized clearance 15 Ft. MLW
Except 3 Ft. NW quadrant

TOWER REEF

Tower Reef is located .6 nautical miles WSW of the Chesapeake Light Tower. This reef was originally permitted to the Tidewater Artificial Reef Association of Virginia. TARAV placed more than 100 pontoon sections, numerous landing craft and other vessels on site. VMRC added two barges, four drydock sections and scattered thousands of TIC's, a deck barge and a hopper barg. In October 2002, the Tug J.B. Eskridge was deployed using saltwater fishing license funds.

NOAA Chart 12221

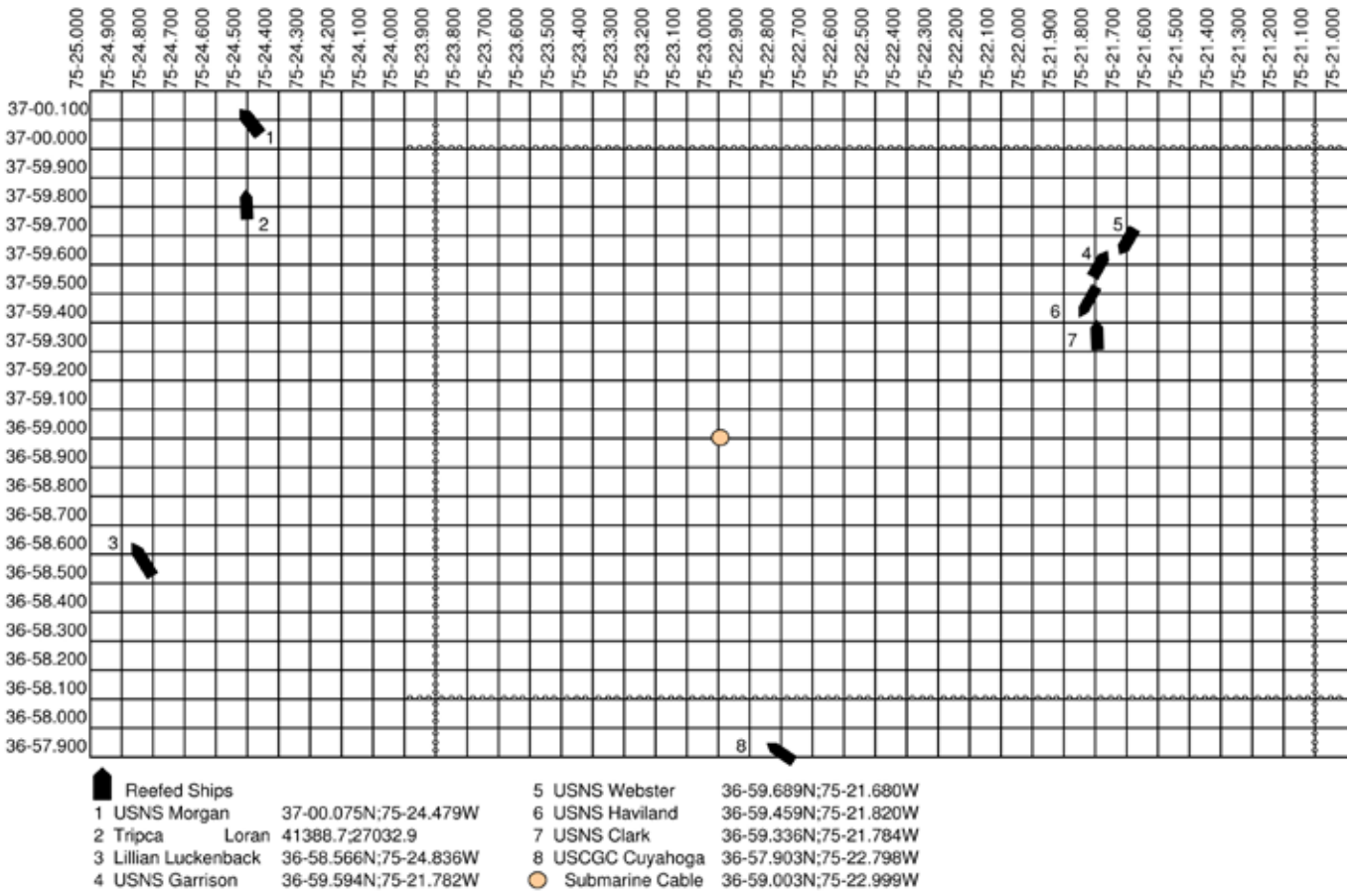


Tower Artificial Reef 8/11/08
Grid approximately 200 Ft.centers
Authorized clearance 30 Ft. MLW

TRIANGLE REEF

Triangle Reef is located 16.5 nautical miles 073 degrees true from Chesapeake Light Tower. Large vessels are the main structures on this rectangular site. The Tidewater Artificial Reef Association of Virginia acquired the Liberty Ships located on this reef. **The vessel position shown on this grid listed with loran coordinates may not be exact.**

NOAA Chart 12200



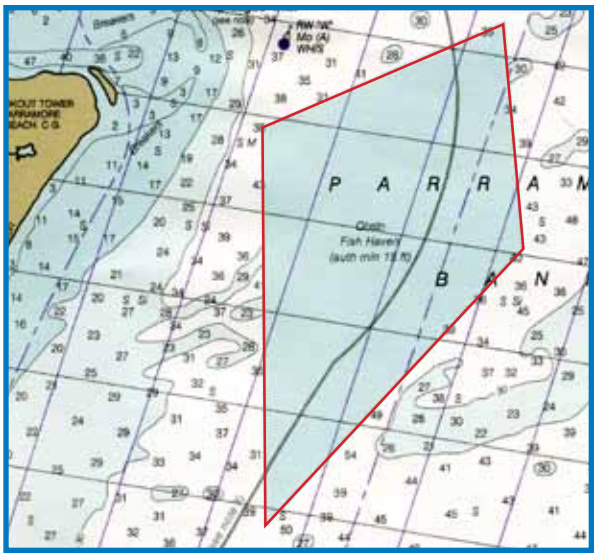
Reefed Ships

1	USNS Morgan	37-00.075N;75-24.479W	
2	Tripca	Loran 41388.7;27032.9	
3	Lillian Luckenback	36-58.566N;75-24.836W	
4	USNS Garrison	36-59.594N;75-21.782W	
5	USNS Webster	36-59.689N;75-21.680W	
6	USNS Haviland	36-59.459N;75-21.820W	
7	USNS Clark	36-59.336N;75-21.784W	
8	USCGC Cuyahoga	36-57.903N;75-22.798W	
	Submarine Cable	36-59.003N;75-22.999W	

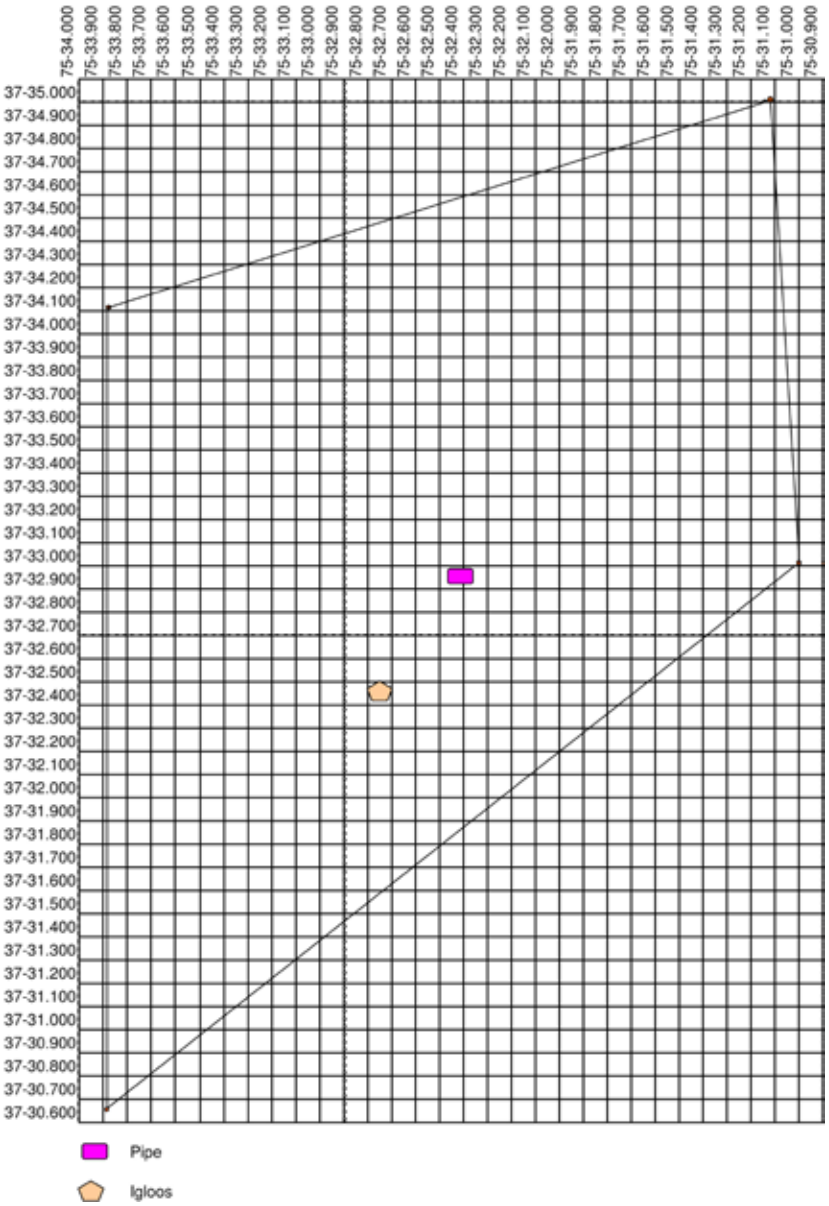
Triangle Artificial Reef 8/21/07
Grid approximately 1/10th mile centers
Authorized clearance 66 Ft. MLW

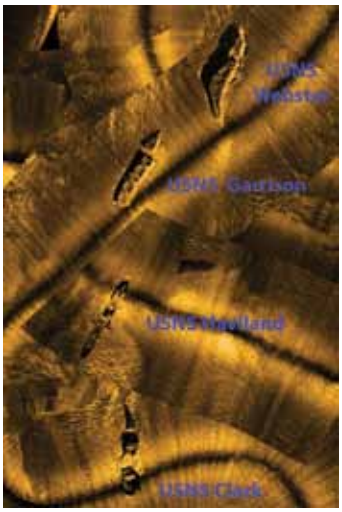
WACHAPREAGUE REEF

This site is located 3.8 nautical miles E of the old Parramore Coast Guard Tower at Wachapreague Inlet. This reef, shaped like a kite, was developed as an off shore test site for experimental reef structures.



NOAA Chart 12210





Triangle Reef Wrecks

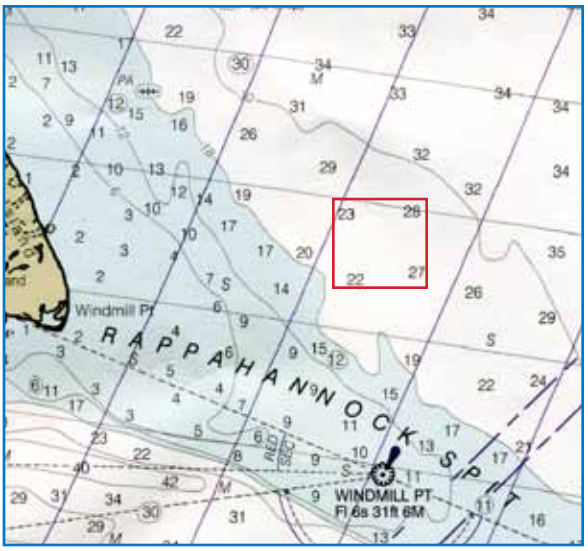
Barge on Poquoson fishing reef.

Wachapreague Artificial Reef 4/5/05
Grid approximately 1/10th mile centers
Authorized clearance 15 Ft. MLW

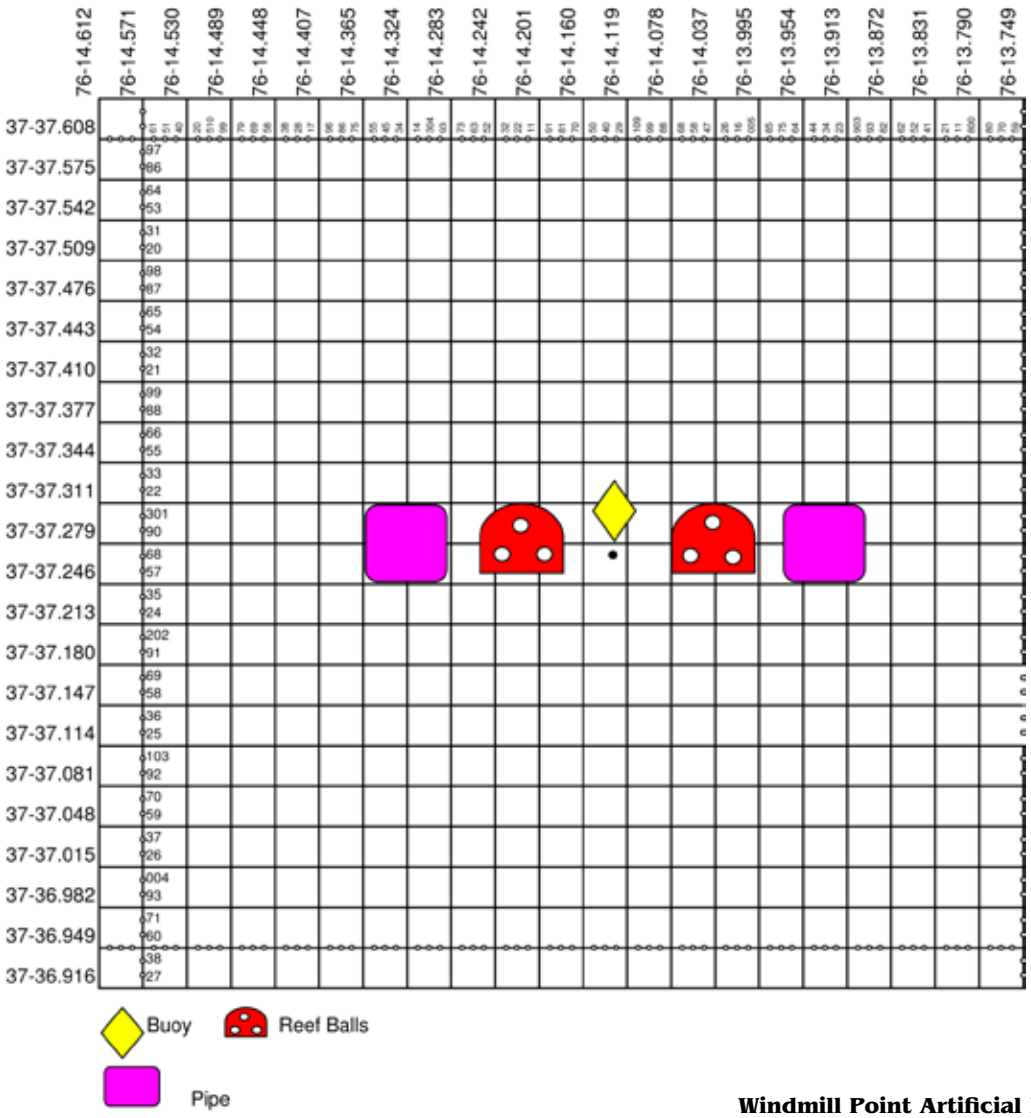
WINDMILL POINT REEF

Windmill Point Reef was established in July 2004. This square reef site is located 1.4 nautical miles north of Windmill Point Light. The center of the reef is marked with a yellow VMRC buoy designated "WP".

Funded with Saltwater Fishing License revenue, 120 Reef balls were purchased for this site and deployed. There are two fields of 60 Reef Balls each located on the east and west side of the buoy; immediately east and west of the reef ball deployments are two deployments of 500+ tons each of concrete pipe. The deployment of this pipe was funded with Saltwater Fishing License revenue.



NOAA Chart 12225

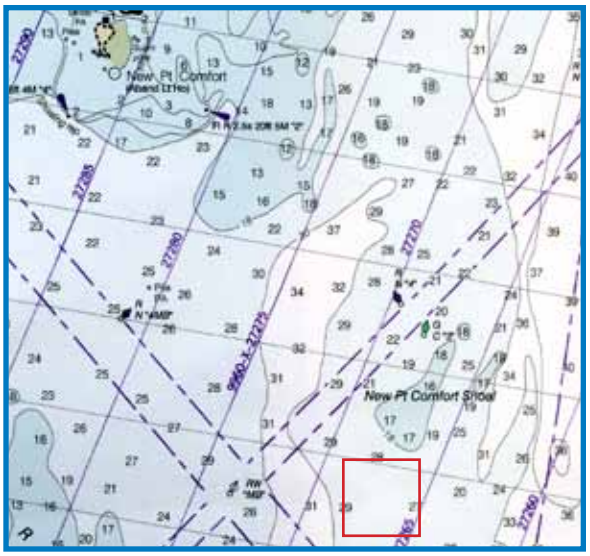


Windmill Point Artificial Reef 8/15/04
Grid approximately 200 Ft. centers
Authorized clearance 15 Ft. MLW

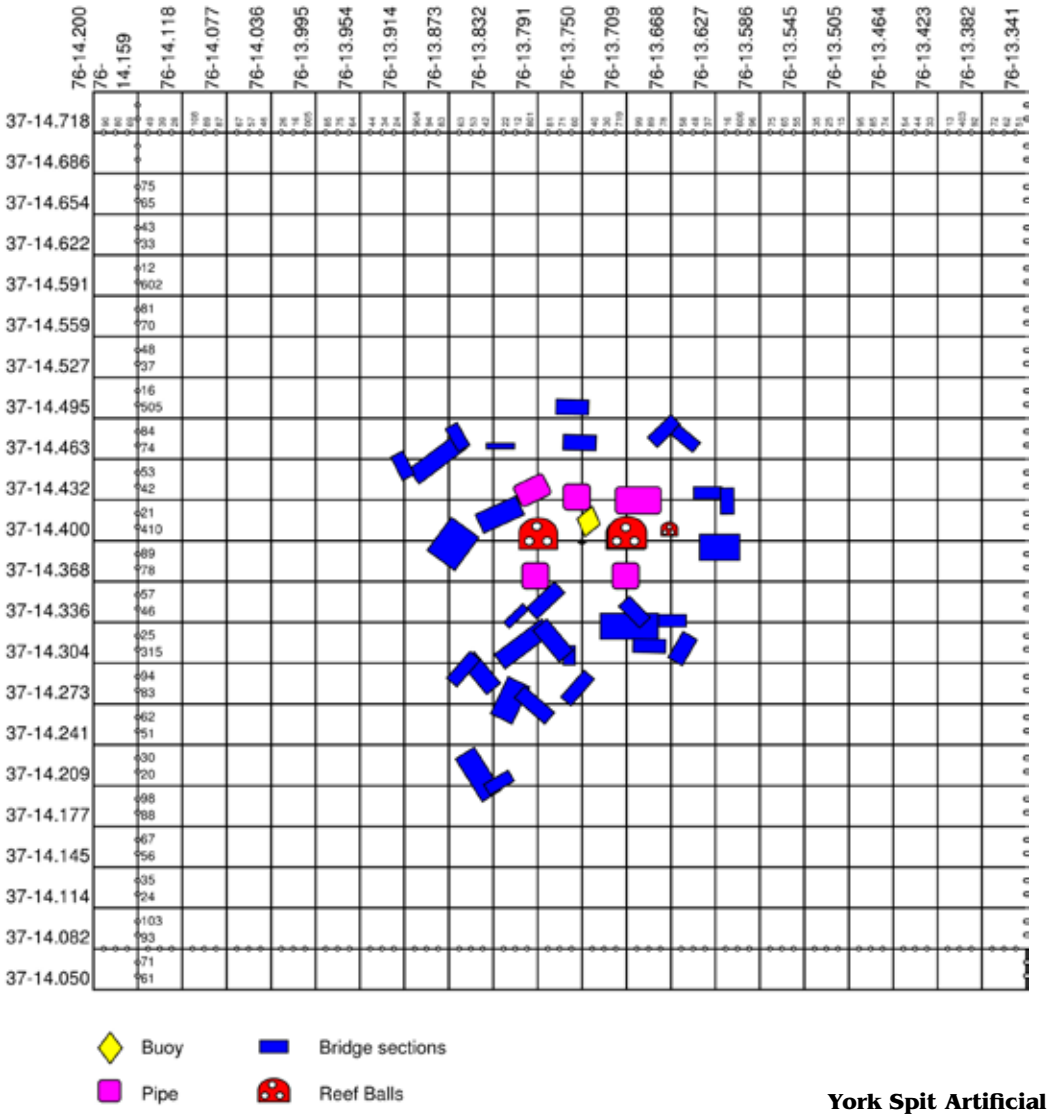
YORK SPIT REEF

York Spit Reef is square shaped and located east of the entrance to the York River one-half nautical mile south of the New Point Comfort Shoal.

The concrete pipe placed at this site in November 2001 and the deployment was funded with saltwater fishing license revenue. Reef Balls were purchased and deployed also using saltwater fishing license revenue. Nearly 21,000 tons of bridge sections were donated and deployed between October 2003 and January 2005. The center of this reef is marked with a yellow VMRC buoy designated "YS".



NOAA Chart 12221



York Spit Artificial Reef 1/06/05
Grid on 190 Ft. centers
Authorized clearence 15 Ft. MLW

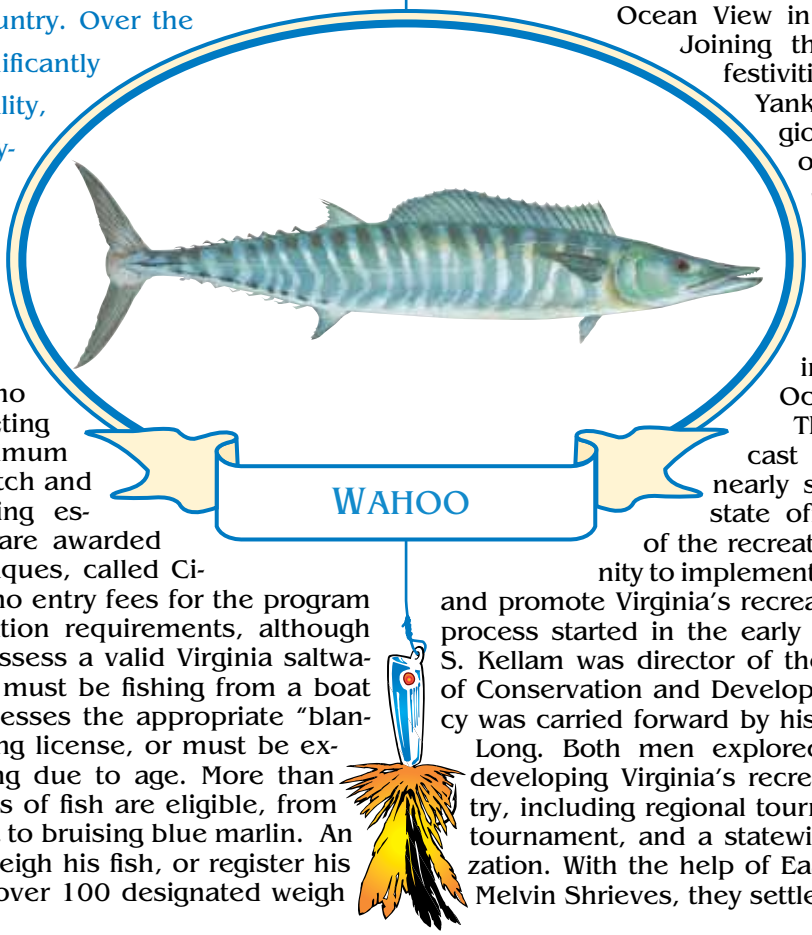
VIRGINIA SALTWATER FISHING TOURNAMENT

An angler's first thought upon catching a large fish in Virginia is to wonder if it is big enough to earn a Citation from the Virginia Saltwater Fishing Tournament.

The Tournament, which was inaugurated in 1958 to promote and develop Virginia's abundant recreational fishing resources, is the premier state-sponsored angling awards program in the country. Over the years it has significantly enhanced the quality, quantity, and enjoyment of fishing in Virginia.

PROGRAM AWARDS

Anglers who catch fish meeting established minimum weights, or who catch and release fish meeting established criteria, are awarded handsome wall plaques, called Citations. There are no entry fees for the program and no preregistration requirements, although recipients must possess a valid Virginia saltwater fishing license, must be fishing from a boat or pier which possesses the appropriate "blanket" saltwater fishing license, or must be exempt from licensing due to age. More than 28 different species of fish are eligible, from the diminutive spot to bruising blue marlin. An angler need only weigh his fish, or register his release, at one of over 100 designated weigh stations located primarily at marinas, tackle shops and piers throughout the state. If the fish qualifies, the angler will be mailed a Citation plaque after the close of the Tournament (December 31). Anglers are eligible to earn one Citation plaque per species, annually.



PROGRAM HISTORY

On May 1, 1958, Governor Lindsay J. Almond initiated the Virginia Saltwater Fishing Tournament with a ceremonial "first cast" in the waters off Ocean View in the city of Norfolk. Joining the governor for the festivities were New York Yankee great Joe DiMaggio, Chicago Bear Hall of Fame quarterback Sid Luckman and Speaker of the United States House of Representatives Sam Rayburn, all of whom participated in a boat parade off Ocean View.

The ceremonial first cast was the culmination nearly six years of work by state officials and members of the recreational fishing community to implement a strategy to develop and promote Virginia's recreational fisheries. The process started in the early 1950's when Sidney S. Kellam was director of the state's Department of Conservation and Development. Kellam's policy was carried forward by his successor Raymond Long. Both men explored multiple ideas for developing Virginia's recreational fishing industry, including regional tournaments, a statewide tournament, and a statewide marketing organization. With the help of Eastern Shore Delegate Melvin Shrieves, they settled on a plan in 1957.

The Virginia Saltwater Fishing Tournament maintains and certifies state records for more than 50 species of marine gamefish commonly found in Virginia waters.

The Saltwater Sportsfishing Association of Virginia (SWSFA) was formed. This statewide organization composed of five regions was a private-sector membership organization formed to take over the state's marketing efforts for the sportsfishing industry, as well as to work on conservation and other issues important to recreational fisheries. The Virginia Saltwater Fishing Tournament was a program to be run by the SWSFA. Delegate Shrieves obtained a $30,000 appropriation to fund the fledgling Tournament and its staff for a two-year period. Claude Rogers was hired to run the Tournament. Other SWSFA expenses were handled privately and kept separated from the appropriated monies. The SWSFA was scheduled to take over the funding responsibility in two years (1960) but the SWSFA never achieved financial security. Instead, the highly successful Tournament became a state program under the Department of Conservation and Development. The SWSFA continued to assist in the operation of the Tournament until 1969, and its leaders became the basis for the development of the Tournament Committee, which has oversight responsibility and sets Tournament policy.

Fifteen species of fish were eligible for Citation recognition in the Tournament's inagural year. The list included white marlin, which were eligible for release awards--making Virginia's Tournament one of the first to provide recognition for releasing a trophy fish alive. The Tournament ran from May 1 through November 30 during the first year, when anglers registered 500 fish for Citation awards. Citation numbers more than doubled in 1959 to 1170 and program expansion began in 1960 when the number of eligible species was increased to 22.

The Tournament, which celebrated its 52st anniversary in 2009, has awarded more than 170,000 Citation plaques for outstanding catches—an average of more than 3,300 per year. Bluefish have produced the most tournament awards, with more than 13,000 Citations issued during the program's rich history. Flounder have yielded over 11,000 awards, with white marlin producing over 10,000 awards (almost all for released fish).

OUTSTANDING ANGLER AWARDS PROGRAM

Special recognition is given to anglers who earn Citation awards for several species of fish in a single year. Anyone winning Citation awards for six different species of fish in a single year automatically qualifies as a Virginia Expert Saltwater Angler. The angler receives a certificate and a specially designed patch to mark his achievement.

The Virginia Master Angler Program recognizes the accomplishments of anglers over longer periods of time. This award is based upon the cumulative number of Citations an angler earns over an unlimited period of time, starting in 1996—the year the program began. To

qualify an angler must earn 25 Citations in a minimum of five different species, with credit given for a maximum of one Citation per species per year. Recipients receive a certificate and a specially designed pin. Additional levels of Master Angler recognition can be achieved by anglers in increments of 25 Citations.

STATE RECORD PROGRAM

The Virginia Saltwater Fishing Tournament maintains and certifies state records for more than 50 species of marine gamefish commonly found in Virginia waters. Special "State Record" Citations are awarded to anglers who catch fish that are certified as new records.

Registering a fish for state record recognition is not complicated, but the requirements must be strictly followed. Potential state record fish must be weighed on the scales of an official weigh station of the Virginia Saltwater Fishing Tournament and all aspects of the catch must conform to the rules of the Tournament. In addition, the special state record application form must be filled out in its entirety and must

be accompanied by a clear, side-view photograph of the fish. Finally, the actual fish must be preserved and viewed by a member of the Virginia Saltwater Fishing Tournament State Record Committee. Weigh stations and anglers should contact the Tournament Director or a member of the committee as soon as possible of potential record fish. These officials will assist in the weighing of the fish and the completion of the necessary paperwork. Each weigh station has a state record folder with complete information about state record requirements and a list of all members of the State Record Committee.

JUNIOR ANGLER PROGRAM

One of the most popular programs operated by the Tournament is the Junior Angler Awards Program. The program seeks to encourage youngsters to enjoy saltwater fishing and develop a conservation ethic by releasing fish alive.

Open to all children under the age of sixteen, this program challenges youths to catch and release six species of saltwater fish during the year. Participation in the program is free. There are no minimum sizes limits and almost all species of fish qualify.

Junior Angler Cards, with space for participants to record their catches and releases, are available at Tournament weigh stations and from the Tournament office. Successful youngsters receive a handsome certificate, suitable for framing, signed by Virginia's governor and one of the program's logo gifts. Awards are shipped to qualifying youths approximately three weeks after the completed card is received by the Tournament office.

INFORMATION

More information and brochures about the Virginia Saltwater Fishing Tournament, the State Record Program, the Junior Angler Awards and fishing opportunities and facilities in Virginia can be obtained from:

Virginia Saltwater Fishing Tournament
2600 Washington Ave., 3rd Floor
Newport news, VA 23607
(757) 491-5160
vswft@mrc.virginia.gov

The Tournament and all of its programs are a division of the Virginia Marine Resources Commission.

VIRGINIA GAME FISH TAGGING PROGRAM

Fish tagging programs (mark and recapture programs) are one of the primary methods fishery biologists use to gather information about the migration, movement and growth of fish. This type of information is essential to understanding the life history and population status of fish species, which, in turn, helps determine the need for management measures to protect fish. With increasing effort directed toward improving marine fish populations, this knowledge is an important key in an effective management program.

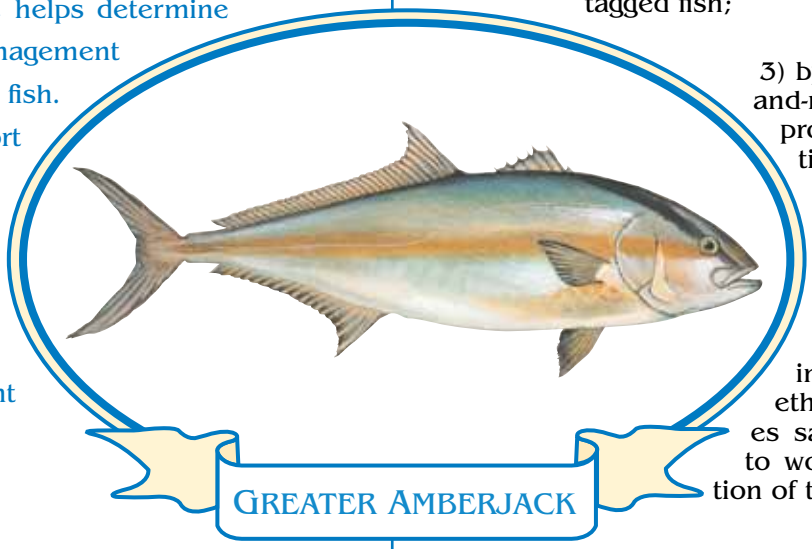
The Virginia Game Fish Tagging Program (VGFTP) was implemented in 1995 to provide recreational anglers an opportunity to assist in these conservation and management efforts. This is achieved in several ways:

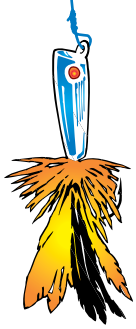
1) by training recreational anglers to assist in tagging fish in a quality-oriented program;

2) by educating anglers about the tagging programs and what they should do when they catch tagged fish;

3) by promoting catch-and-release fishing and providing information on proper fish handling and release techniques to reduce release mortality; and,

4) by fostering a conservation ethic which challenges saltwater fishermen to work for the protection of their resources.





When on the water, be alert to the possibility that any fish you catch may possess a tag, and remember that tags come in many different sizes, shapes, styles and colors.

PROGRAM DESCRIPTION

The VGFTP is a tightly focused tagging effort. Participants are limited in number and are required to sign-up on a "first-come, first-served" basis during an annual registration period. Then, prospects must attend a workshop to receive training in tagging and fish handling techniques and in the objectives and operation of the VGFTP. This ensures the efforts of program volunteers result in a high quality tagging effort.

Specific species of fish are targeted, which allows the program to address specific informational needs and to focus efforts on recreationally important fish not targeted by other tagging programs. Program participants are issued both large and small tags, so they may use tags that are suited to the size of the fish. T-bar tags (2.4 inches long), which are best suited for small fish (under 27 inches), are the primary tag type used by program participants. These tags are used in black sea bass, summer flounder, gray triggerfish, sheepshead, spadefish, speckled trout, tautog, juvenile cobia, juvenile red and black drum. Participants also are issued steel dart tags (approximately 6 inches long) for use in larger targeted species, such as adult cobia, red drum and black drum.

The result is a large group of trained taggers on the water all year. They provide a cost effective means to run a continuous tagging effort for recreationally important fish and a mechanism to take advantage of special situations that may develop, such as an exceptionally strong spawn and recruitment by a particular species in a year or exceptionally large concentrations of fish in a specific area. Since they are already trained and fully equipped, participants can tag large numbers of fish by simply alerting them to the special situation and requesting them to target that species.

PROGRAM RESULTS

Through 2008 volunteers tagged more than 160,000 fish, with nearly 15,000 recaptures of tagged fish reported to the VGFTP office. The information generated has assisted in the fisheries management process for several species of fish. Particularly valuable information has been generated for tautog, speckled trout, summer flounder, juvenile red drum, and cobia.

One of the most surprising results is the documentation of movement of certain species from Virginia to North Carolina waters and the short time in which such fish, even when very small, cover relatively long distances. The following examples are representative: 1) a small black drum (9 inches) tagged in Rudee Inlet on October 1, 1996 was recaptured in Atlantic Beach, NC ten days later on October 11th (a straight line movement of over 200 miles or an average of 20 miles per day); another young-of-the-year black drum (7.5 inches) tagged October 5, 2007 at the Yorktown Power Station discharge canal was recaptured in the surf at Kitty Hawk just 12 days later on October 17th having moved a distance of 114 miles (a net movement of 9.5 miles per day; 2) a speckled trout (12.5 inches) tagged on October 22, 2004 in the Virginia Beach surf (Sandbridge) was recaptured in Juniper Bay, Pamlico Sound five days later on October 27th having moved approximately 128 miles for an average of 26 miles per day: 3) five small red drum tagged September 1, 2002 inside Lynnhaven Inlet were recaptured 4-10 days later in North Carolina, one in the Kitty Hawk surf 4 days later, having

moved 72 miles, two were recovered in the Nags Head surf in 5 days and 6 days respectively, having moved 80 miles, another fish was recovered in the Avon surf in 5 days, having moved 133 miles, and one in the Ocracoke surf 10 days later having traveled over 160 miles.

The program also has produced the longest documented travel of a cobia along the coast of the United States. A 38-inch cobia tagged at York Spit in the Chesapeake Bay on August 22, 2000 was recaptured at an oil platform in the Gulf of Mexico approximately 36 miles southeast of the Mississippi River Delta on May 20, 2004.

Seasonal migratory patterns have been confirmed for both juvenile red drum and speckled trout, as well as summer flounder. Documented fall movements of juvenile red drum occur as far south as Little Inlet, South Carolina while tagged speckled trout were recaptured below Cape Lookout, North Carolina, as far south as Wrightsville Beach. Most flounder tagged during the summer/fall in Virginia waters are recaptured near their tagging site the same year or in the Bay or Eastern Shore seaside inlets the following year. However, some summer flounder have been recaptured as far south at Myrtle Beach, South Carolina and as far north as waters off Connecticut and Rhode Island. The lack of a seasonal migratory pattern for tautog also has been documented, with more than 2100 recaptures through 2007 showing a high degree of site fidelity and only random movements in a relatively small percentage of recaptured fish.

Complete program results are detailed in annual reports available through the Sea Grant Marine Advisory Services Office of the Virginia Institute of Marine Science (804) 684-7170 or through the office of the Virginia Saltwater Fishing Tournament (757) 491-5160. Due to the high costs associated with printing, hard copies are very limited. However, the complete annual report in color, for the series starting in 1995 is available online at the VIMS website — http://www.fisheries.vims.edu/tagging/gamefishtag.htm>

PROGRAM AWARDS

Recreational anglers participating in the VGFTP earn conservation certificates by tagging a minimum of 25 fish during the year. In addition, recognition is provided to the top taggers in each of the targeted species, the tagger with the largest number of fish tagged overall, and the tagger with the largest number of tagged fish recaptured during the year.

Fishermen contacting the VGFTP office with information about tagged fish they have recaptured are awarded VGFTP logo items for assisting with the program. Hats, t-shirts, and Plano utility boxes are among the logo items that have been offered participating anglers, and, for certain species of recaptured fish, pewter pins have been awarded.

HOW TO PARTICIPATE

The VGFTP is open to the public, although the number of participants is limited. At the end of each year (usually in December) a registration period is established during which recreational fishermen may register to participate in the program for the following year. A maximum number of participants will be enlisted with approximately equal numbers coming from four geographic areas: 1) Eastern Shore; 2) Tidewater; 3) Peninsula; and 4) Middle Peninsula/Northern Neck. Anglers will be selected for participation on a "first-come, first served" basis in each region. Once the maximum number of participants from a specific region is reached, additional participants from that region will be accepted only if other regions do not fill their allocation of participants.

Program participants are required to attend a workshop on tagging, fish handling techniques, and the specific goals and operation of the VGFTP. This is a fundamental element of the program, which emphasizes the quality of its tagging efforts. Four tagging workshops are held annually during February – one in each of the program's regions. Workshops, which generally run 2-3 hours, are held on weekday evenings. Tagging kits, measuring boards and complete instructions are provided at no charge to volunteers attending the workshops.

Recreational anglers interested in participation should contact:

Virginia Saltwater Fishing Tournament
2600 Washington Ave., 3rd Floor
Newport news, VA 23607
(757) 491-5160
(757) 247-8014 (fax)
vswft@mrc.virginia.gov (e-mail)

PROGRAM SPONSORSHIP

The VGFTP is a cooperative effort of the Virginia Marine Resources Commission, through the Virginia Saltwater Fishing Tournament, and Virginia Institute of Marine Science, through the Sea Grant Marine Advisory Program. Funding is provided by Virginia's saltwater recreational fishing license.

OTHER TAGGING PROGRAMS

There are many tagging programs operating along the East Coast. Some of these programs utilize anglers in the tagging of fish, while others involve fisheries managers and members of the scientific community. In Virginia, both the Marine Resources Commission and the Virginia Institute of Marine Science sponsor tagging programs for specific species of fish.

The ultimate goal of these tagging programs is to learn more about the targeted species of fish, so better conservation and fisheries management programs can be developed. When on the water, be alert to the possibility that any fish you catch may possess a tag, and remember that tags come in many different sizes, shapes, styles and colors. When you catch a tagged fish contact the organization listed on the tag to report your catch. You will be assisting fisheries managers in learning more about our valuable fishery resources. While some tagging programs require anglers to mail in the tag to receive the award, the Virginia Game Fish Tagging Program does not have this requirement. You need only call the telephone number printed on the tag (757-491-5160) to report the fish and its tag number. This provides anglers the option to record the tag number, release the fish with the tag in place and then phone in the recapture report for a reward. The added bonus with this scenario is the fish can then be recaptured multiple times and provide more detailed information regarding its movements.

HANDLING AND RELEASING FISH PROPERLY

Participation in recreational fishing is motivated by many different desires and goals, including catching fish, catching trophy-size fish, enjoying outdoor activities on the water, participating in special activities (tournaments, tagging programs, children's fishing and educational clinics, and many others), and being with friends and family in pleasing surroundings. Increasingly, catch and release fishing is becoming a part of recreational fishing as regulations require the release of certain sizes and species of fish, and recreational fishermen derive pleasure from seeing healthy fish return to the water. The importance of the social, environmental and educational motivations for releasing fish is growing among recreational fishermen, as they realize their role as stewards of fishery resources and enjoy their contribution. Learning the proper ways to release fish is an important part of this process.

1. **Plan Ahead**. Be prepared to release fish before you leave the dock or venture out on the beach or a pier. Use tackle that is strong enough to land fish quickly, minimizing the stress they endure and to prevent exhaustion. Set hooks quickly to minimize the opportunity for fish to swallow hooks. When practical, use barbless hooks and bend down the barbs on hooks to make removing the hooks less damaging. Learn about circle hooks for fishing with bait, and use them; they dramatically reduce "gut-hooked" fish and may increase the effectiveness of your fishing. Use artificial baits and avoid the use of treble hooks.

2. **Use the Right Equipmen**t. Have needle nose pliers, forceps and/or other tools for the removal of hooks from deeply hooked fish readily available. Remove hooks when they are embedded in the mouth, lips, or other hard parts of a fish's mouth or throat. When a fish is hooked deeply in a soft body part (stomach, for example), cut the line or leader as close to the hook or fish's mouth as possible and leave it. Never pull, jerk or rip a hook out of a fish; this will cause significant injuries to the fish.

3. **Minimize Handling**. Handle fish gently, but firmly to prevent them from excessive "flopping" around, as this can cause injuries. Never handle a fish by its eyes or gills! Use a wet cotton towel or wet cotton gloves when handling small fish; this will minimize the loss of protective "slime" and protect their skin. Large fish are best released by leaving them in the water and removing the hook. If you bring a large fish on board, use a large landing net; never use a gaff.

4. **The Right Release**. Return fish to the water carefully. Hold them upright, close to the water, and gently guide them into the water head first. A fish that is exhausted, unresponsive or stressed should be revived by moving it forward through the water until its gills are working vigorously and it is ready to swim away under its own power.

What To Do When You Catch a Tagged Fish

1. The most important information on a tag is the tag number. This is the key to identifying the fish, making it critical the exact tag number is recorded. If you plan to release the fish and want to leave the tag in the fish, write down the tag number immediately. Do not attempt to memorize the tag number. The value of a tagged fish is greatly enhanced if it can be released and recaptured again (two or more times), providing a "road map" of its movements over a period of time.

2. If you do not have the means to write down the tag number (pen or pencil and paper) or if you cannot see the tag number clearly and you plan to release the fish, remove the tag and keep it. Do not depend upon your memory to remember the tag number; an error in remembering even one digit of the tag number will render the recapture of the tagged fish worthless. If it is legal to keep the fish and you decide to keep it, remove the tag for reporting purposes.

3. Measure and record the total and fork length of the fish. If you do not have a measuring device, estimate the length of the fish. Also, measure or estimate the weight of the fish. When you report the length and weight, it is important to state if the length and/or weight were estimated or measured.

4. Record the species of fish date of the catch, and exact location of the catch. Record any other information about the fish that might be important, for example, any wounds, unusual markings, or observations about the condition of the tag and place on the body of the fish where the tag was located.

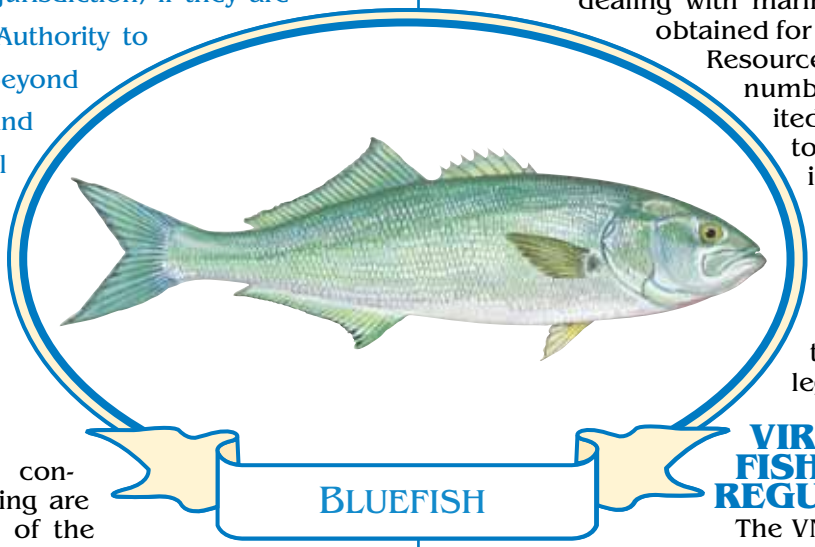
5. Contact the office of the tagging program issuing the tag and supply them with this information. The telephone number of the tagging program office will be listed on the tag. If the tag was issued by the Virginia Game Fish Tagging Program, if you have a problem reading the tag and determining the proper agency to contact regarding a recapture, or if you need any help reporting the capture of a tagged fish, contact:

Virginia Game Fish Tagging Program
c/o Virginia Saltwater Fishing Tournament
Commonwealth of Virginia
Marine Resources Commission
2600 Washington Ave., 3rd Floor
Newport news, VA 23607
(757) 491-5160

6. When you report the recapture of a tagged fish, you will receive information about the fish (when and where it was tagged; size when it was tagged). If the tag was issued by the Virginia Game Fish Tagging Program, you will receive an award featuring the program's logo for helping with this conservation program.

FISHERIES MANAGEMENT

The Virginia Marine Resources Commission (VMRC) has jurisdiction and control over the harvesting of marine fish, including shellfish that occur in the tidal waters within the State's boundaries and extend into the Atlantic Ocean three nautical miles. Under certain circumstances the VMRC exercises control over fish caught beyond the State's jurisdiction, if they are landed in Virginia. Authority to manage fisheries beyond 3 nautical miles and out to 200 nautical miles is vested with the federal government.



BLUEFISH

VIRGINIA FISHERY LAWS

Virginia's laws concerning marine fishing are found in Title 28.2 of the Code of Virginia. Laws are made and amended by the General Assembly and become effective usually after July 1, after signature by the Governor.

Proposed laws, or amendments to existing laws, may be introduced only by a member of the General Assembly. Citizens interested in creating, rescinding or amending laws relating to marine fisheries must do so through bills introduced into the General Assembly by state senators or delegates. Once a proposal is introduced as a bill, it is assigned to a committee of the House of Delegates or the Senate. The committee may hold hearings on the bill or consider it at one of their regular meetings. These events may offer an opportunity for citizens to voice their opinions concerning the bill.

Written communication is another avenue for citizens to express their opinions about a bill. Letters, emails and facsimile transmissions should be addressed to a specific legislator, should reference a specific bill by its assigned number, and should be clear and concise in conveying the opinions and reasoning of the writers.

The Code of Virginia is found in most public libraries, and reprints of the portions of the Code dealing with marine resources can be obtained for a fee from the Marine Resources Commission. The number of reprints is limited. A list of State senators and delegates, including their committee assignments and office numbers, can be obtained at the State Capitol in Richmond or from the Internet at www.legis.state.va.us.

VIRGINIA FISHERY REGULATIONS

The VMRC manages marine fisheries within Virginia's jurisdiction, pursuant to the power granted to it by the General Assembly. This includes the power to establish licenses, prepare management plans, and adopt regulations concerning the harvest of marine fish.

Regulations have the full force and effect of law, and violations are criminal misdemeanors. The power of the Commission to adopt regulations is broad, but it may not adopt any regulation which is in conflict with statutory law.

The adoption or amendment of regulations follows a precise procedure set forth in the Code of Virginia. Proposed regulations must

Regulations have the full force and effect of law, and violations are criminal misdemeanors.

be advertised for a minimum of 15 days, and at least one public hearing must be held prior to adoption. Advertisements of public hearings are placed in daily newspapers in Richmond, Norfolk, and Newport News; often advertisements will appear in other newspapers in localities where a proposed regulation may have a significant impact.

Citizens may voice their opinions about proposed regulations in person at public hearings or by written correspondence addressed to the Commissioner of VMRC. Public hearings are held at the regularly scheduled meeting of the Virginia Marine Resources Commission at which a proposed regulation is scheduled for a vote. Additional public hearings may be scheduled in localities where a proposed regulation may have a significant impact. The Virginia Marine Resources Commission meets monthly, on the 4th Tuesday of each month at its main office in Newport News, and the meetings are open to the public.

The Marine Resources Commission uses several advisory committees in the formulation and review of regulatory actions. These committees are: the Finfish Management Advisory Committee, Crab Fisheries Management Advisory Committee, Clam Fisheries Management Advisory Committee, and Shellfish Fisheries Management Advisory Committee; the Recreational Fishing Advisory Board; and the Commercial Fishing Advisory Board. A list of the membership of these committees is available on the Virginia Marine Resources Commission website www.mrc.virginia.gov.

Advisory committees are composed of citizens, appointed by the Commissioner of Marine Resources, who are knowledgeable and interested in various aspects of marine fisheries. Service on one of these committees is an excellent way to become involved in the fishery management process.

Regulations are deposited with the clerks of the circuit courts of all counties and cities in Tidewater Virginia, and copies can be obtained from the Registrar of Regulations at the Division of Legislative Services or from the Marine Resources Commission. The complete regulation index and summaries are posted as they become finalized at the Virginia Marine Resources Commission's website www.mrc.virginia.gov

POTOMAC RIVER REGULATIONS

Virginia and Maryland share fishery management authority in the Potomac River (excluding the tributaries) through the Potomac River Fisheries Commission. This Commission, which is composed of citizens from Virginia and Maryland appointed by their respective Governors, exercises complete control over marine fisheries, and its regulations have the full force and effect of law in the courts of both states.

Proposed regulations of the PRFC must be advertised in newspapers of general circulation in counties contiguous to the Potomac River in both states and sent to the clerks of court in those counties for posting. After advertising a proposed regulation, at least one public hearing must be held prior to adoption of the regulation. The PRFC holds meetings as required and announces its meetings in local newspapers. The meetings are always open to the public. Citizens may voice their opinions about proposed regulations in person at the public hearings or in writing to the Commission.

Copies of all current regulations and information about any scheduled meetings may be obtained from the Potomac River Fisheries Commission.

INTERSTATE FISHERIES MANAGEMENT

Many marine fish undertake extensive coastal migrations, passing through the waters of several states. Since the harvest of fish in one State can affect the conservation of the species and the harvest in other States, coordinated management of fish among all coastal states is desirable.

Interstate management of fish is accomplished through the Atlantic States Marine Fisheries Commission (ASMFC). This body was created by an interstate compact which joined all of the Atlantic coast states, the District of Columbia, the Potomac River Fisheries Commission and Pennsylvania together to develop coastwide fishery management plans. Each member State is represented by its chief marine fisheries officer, a member of its legislature, and a citizen appointed by its Governor.

The compact creating the ASMFC did not provide for the compliance or enforcement of the Commission's management initiatives. The Atlantic Striped Bass Conservation Act (1984) and the Atlantic Coastal Fisheries Cooperative Management Act (1993) provided for federal compliance sanctions for ASMFC management initiatives. States must comply with the management measures adopted by the ASMFC, or they can be ruled in noncompliance and subject to a federally imposed moratorium on the harvest of the species under management. Compliance involves adopting and providing for enforcement of the ASMFC management initiatives (size, possession, season or harvest quota; or trip limits) by State law or regulation.

ASMFC fishery management plans are developed through a specific process involving several committees composed of scientists, citizens and fishery managers. A management board, technical committee, plan development team, stock assessment committee, and citizen advisory committee are involved in formulating every management plan. Public input is solicited during the plan development phase and at least four public hearings are held at appropriate sites along the East coast on every proposed plan. Citizens wishing to voice an opinion about a specific management proposal may appear in person at a public hearing or provide written comments to the ASMFC. All meetings of the ASMFC, its Interstate Fisheries Management Board, and the management boards for all species are open to the public.

Prior to implementation of a fishery management plan, and periodically after plan implementation, the stock status of the species is reviewed by the stock assessment committee. Compliance with the plan is reviewed annually by the technical committee and the management board.

Information about Commission meetings and operating rules, or fisheries management plans, may be obtained from the Atlantic States Marine Fisheries Commission's website www.asfmc.org.

FEDERAL FISHERIES MANAGEMENT

Fishery management in Federal waters (waters 3-200 miles off the Atlantic coast) is exercised by the Secretary of Commerce through the National Marine Fisheries Service and Regional Fishery Management Councils. The Regional Fishery Management Councils develop fishery management plans, which become federal law when adopted by the Secretary.

The federal waters off the Virginia coast are under the jurisdiction of the Mid-Atlantic Fishery Management Council, although both the New England and South Atlantic Councils have plans which affect Virginia fishermen. The Mid-Atlantic Council is composed of persons representing the states of North Carolina, Virginia, Maryland, Delaware, Pennsylvania, New Jersey, and New York and Northeast Regional Director of the National Marine Fisheries Service.

The development and adoption of fishery management plans follows a specific process, starting when the Council proposes to develop a plan and holds scoping hearings to determine what is known about the fishery and possible management options. The process continues with council meetings, public hearings, review by the Secretary of Commerce, publishing in the Federal Register for further public comment, and formal adoption (with or without modification) by the Secretary of Commerce. Monitoring committees review compliance with management

plans annually, and stock assessment review committees periodically review stock status.

Citizens may express their opinions about federal fishery management proposals in a variety of ways. Comments may be made in person at public hearings or at Council meetings. Written comments may be sent to the Mid-Atlantic Fishery Management Council or may be filed with the Secretary of Commerce during the comment period noted in the Federal Register.

The meetings of the Mid-Atlantic Council, and its various committees, are open to the public. Dates and locations of public hearings and meetings can be obtained from the Council. Copies of federal fishery management plans can be obtained from the Mid-Atlantic Council or the Northeast Regional Director of the National Marine Fisheries Service.

MARYLAND AND NORTH CAROLINA FISHERY REGULATIONS

North Carolina and Maryland control marine fisheries through laws and regulations. Fishermen should contact the fisheries agency for each state to obtain complete information on their respective laws, regulations and management processes.

ECONOMIC IMPACT OF RECREATIONAL FISHING

Fisheries management is a complex process involving much more than simply regulating harvest. By law, management plans must be fair and equitable, must use the best scientific data available, and must consider economic, social and ecological factors while achieving their primary conservation goals.

Recreational fisheries data has not been considered highly reliable in the past, but recent Marina Recreational Information Program (MRIP) efforts have made a significant difference. The MRIP will house all of the nation's non-commercial data collection. Currently NOAA fisheries, state, and national resources agencies and community partners are working together to revamp Saltwater angler surveys. MRIP will succeed the NOAA MRFSS with a few years, to better answer the questions: Who fishes? What's being caught? How many fish are caught? Where and when are the fish caught? In addition, a planned national saltwater angler registry will give NOAA a more definitive pool of survey participants for information about their fishing trips. Initially (2009) anglers who fish recreationally in federal ocean waters or who may catch anadromous species, such as striped bass, will need to sign up (name, address, telephone number, and the region where their fishing is conducted), at no cost until 2011. Beginning in 2011, an annual fee will be required, with anglers under 16, indigenous people, and those who fish only on licensed party, charter, or guide boats exempt from registry.

Saltwater recreational fishing license monies have made two significant contributions to our understanding of the economic impact of recreational fishing in Virginia: 1) bolstering the catch and effort surveys used in the Marine Recreational Fisheries Statistics Survey, and 2) producing two major reports of the economic impact of recreational fishing.

The first economic impact report (Kirkley, J.E. and D. Kerstetter. 1997. "Saltwater Angling and its Economic Importance to Virginia."), using 1994 and 1995 data, documented recreational fishing as a major industry for Virginia producing nearly one-half billion dollars in annual economic output and providing over 10,900 full-time jobs. This industry was the result of over 2.5 million fishing trips taken annually by over 555,000 saltwater fishermen. Approximately 36% of the anglers were out-of-state visitors. The single species producing the most economic output was striped bass – almost 95 million dollars annually. The second economic impact report (Kirkley, J.E., D. Kerstetter and J. Duberg. 2005. VIMS Marine Resource Report No. 2005-9) was completed in December 2005 and used 2004 data. The 2005 report indicated Virginia's saltwater recreational fishery generated $823.7 million in sales or output and $478.4 million in value added or income to the Commonwealth in 2004, supporting 9,092 full and part-time jobs.

Relative to conclusions presented in the 1994 recreational study, there were several differences in the conclusions of the 2005 study. In 1994, the major species or recreational fishery was the Gulf Stream fishery; in the 2005 study, anglers indicated no preferred or targeted species generated the largest economic impacts--$185.3 million in sales or output, $106.0 million in income, and 2,076 full and part-time jobs. Trips for which anglers identified spot and croaker

as being the primary target species generated the second highest level of economic activity--$173.4 million in sales or output, $102.0 million in income, and 1,920 full and part-time jobs. Rockfish or striped bass fishing generated the third highest level of economic impacts--$168.2 million in sales or output, $98.4 million in income, and 1,803 full and part-time jobs. In contrast, the recreational striped bass fishery in 1994 generated $ 113.9 million sales or output (2005 constant dollar value), $ 64.1million in income, and 2,113 full and part-time jobs. Summer flounder generated the fourth highest level of economic impacts, according to the 2005 study, with $154.9 million in sales or output, $89.2 million in value-added, and 1,768 full and part-time jobs.

Both reports are available in their entirety from the Virginia Institute of Marine Science, P. O. Box 1346, Gloucester Point, VA 23062

SALTWATER FISHERMAN'S JOURNAL

The Virginia Marine Resources Commission wants to know about the saltwater fish you caught and if you threw it back or took it home for dinner. How big was it? What species was it? Where did you catch it? This self-reported catch-and-release information will be posted on-line, giving the recreational angler a broader picture of what everyone else is catching – and where.

The Fisherman's Journal is a tool intended to benefit the individual angler, the fishing community, and fishery managers. It allows individual anglers to keep an easy-to-retrieve record of their successful fishing experiences. It allows the fishing community to share and learn about other anglers' successes.

Finally, it benefits fishery managers by allowing them to assess fish populations by analyzing data provided by you, the recreational fisherman.

You will be able to report catch-and-release ranges, in addition to individual fish kept or released. On those days that you catch-and-release 50 bluefish, you can just report the number caught and a range of lengths. Reporting individual measurements on more highly prized species – such as Red Drum, Striped Bass and Flounder – provides a greater benefit for everyone.

Anglers also may report their fishing trip information, including general location, time of day, weather and water conditions and type of gear and bait used. This information could be extremely valuable to other anglers to give them an idea of what is caught, where it is caught, and what bait is working on what species.

This self-reporting program will help anglers to become more successful and will provide fishery managers with important anecdotal information on recreational catches. The voluntary on-line reporting system is called the "Saltwater Fisherman's Journal," and is found at www.vasaltwaterjournal.com.

THE MARINE SPORTFISH COLLECTION PROJECT

Attention saltwater anglers, you catch it, you fillet it, but instead of throwing the remains in the trash, please donate them to science. The Marine Sportfish Collection Project is seeking the carcasses of fish species that are difficult to collect through normal fish sampling efforts.

Anglers are asked to donate their filleted carcasses (head and tail intact) of legal and fresh-caught Cobia, Sheepshead, Red Drum, Black Drum, Tautog, King Mackerel, Spanish Mackerel Tilefish, Grouper and Bluefish over 16 pounds or 36 inches. Scientists want to study the length, age, and sex of the fish. Other species may be added over time.

The information gleaned from your carcasses will help the Virginia Marine Resources Commission assess the health of these fish populations without collecting large numbers of live fish to study. As a direct result of your help, this project will leave more fish out there for you to catch next time.

Freezers for the remains are located at popular bait and tackle shops throughout Tidewater. So before you clean your fish at the dock please check to see if there is a Marine Sportfish Collection Project freezer nearby, follow the instructions provided and fill out the paperwork. In return for donating your fresh-caught and intact fish carcass to science, VMRC will provide a free hat or a tee-shirt that sports a fish skeleton around the state agency's logo.

To locate a project donation site, or obtain information about the previous year's donations, go to: http://mrc.virginia.gov/rec_assessment/index.shtm

MANAGEMENT AGENCIES

Virginia Marine Resources Commission
2600 Washington Ave., Third Floor
Newport News, VA 23607
Phone: (757) 247-2200

Virginia Division of Legislative Services
General Assembly Building
910 Capitol Street, Second Floor
Richmond, VA 23219
(804) 786-3591

Atlantic States Marine Fisheries Commission
1444 Eye Street, NW, Sixth Floor
Washington, DC 20005
(202) 289-6400

Potomac River Fisheries Commission
P.O. Box 9
222 Taylor Street
Colonial Beach, VA 22443
(804) 224-7148 or (800) 266-3904

Mid-Atlantic Regional Fishery Management Council
300 South New Street
Room 2115, Freear Federal Building
Dover, DE 19904
(302) 674-2331 or (877) 446-2362

Northeast Regional Director
National Marine Fisheries Service
One Blackburn Drive
Gloucester, MA 01930
(978) 281-9300

Maryland Department of Natural Resources
Tidewater Administration
Tawes State Office Building
Annapolis, MD 21401
(410) 260-8100

North Carolina Department of Natural Resources & Community Development
Division of Marine Fisheries
P.O. Box 769
Morehead City, NC 28557
(252) 726-7021 or (800) 682-2632

Virginia Department of Game and Inland Fisheries
4010 West Broad Street
P.O. Box 11104
Richmond, VA 23230
(804) 367-1000

ENFORCEMENT AND THE VIRGINIA MARINE POLICE

The Virginia Marine Police (VMP), a division of the Marine Resources Commission, is charged with enforcing saltwater fishing regulations in Virginia waters. The VMP is the largest branch of the state agency.

An operations center maintains continuous radio dispatch with officers stationed throughout the tidal areas of Virginia. Officers work on rotating shifts, providing enforcement and emergency response coverage 24 hours a day.

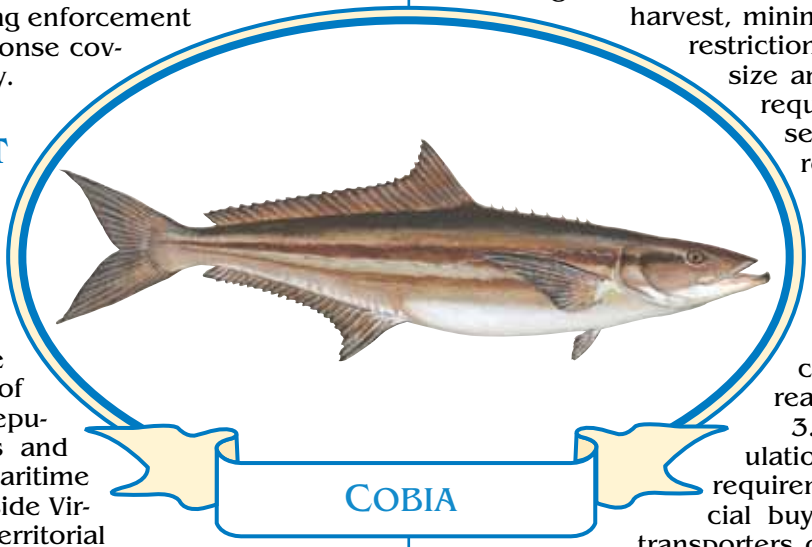
ENFORCEMENT ACTIVITIES

Marine police officers have full police powers to enforce all of the criminal laws of the Commonwealth of Virginia. Many are deputized federal agents and enforce federal maritime and fishery laws outside Virginia's three-mile territorial boundary.

While officers are empowered to enforce all state and federal maritime laws, their mission targets enforcement of fishing and boating regulations.

Officers routinely conduct more than 20,000 boating, safety and regulation compliance inspections each year.

Typically, boat operators are checked for the proper safety equipment – such as personal floatation devices, lights, and signaling equipment – and for any violation of fishing size, season or catch limits. Inspections also are made to determine if a vessel operator is under the influence of alcohol or drugs.



COBIA

The Virginia Marine Police are busier than ever these days, in part because of post-911 homeland security directives and the increasing complexity of fishery management plans aimed at halting population declines in some species of finfish and shellfish.

Fisheries enforcement activities generally fall into one of four distinct categories:

1. Conservation laws and regulations that apply to commercial and recreational fishermen. These regulations include commercial quotas on harvest, minimum size limits, gear restrictions (such as net mesh size and crab pot cull ring requirements), closed seasons and areas, recreational possession limits, and any other regulations designed to protect living marine resources.
2. Licensing of commercial and recreational fishermen.
3. Conservation regulations and licensing requirements for commercial buyers, processors and transporters of marine finfish and shellfish.
4. State health regulations and the National Shellfish Sanitation Program regulations relating to taking and transporting clams and oysters from polluted areas to clean waters so they can purge themselves of contaminants prior to market sale.

SERVICE ACTIVITIES

When lives and property are in jeopardy on Virginia's tidal waters, the Virginia Marine Police is one of the first to respond.

Search and rescue activities are a major re-

Search and rescue activities are a major responsibility of marine police officers.

sponsibility of marine police officers. Fortunately, most of the calls for assistance involve common mishaps, such as engine failure. But each year the VMP handles serious problems, including medical emergencies, boating accidents and drowning fatalities.

Two service activities have a direct relationship to the effectiveness of the enforcement activities of the VMP. First is the time marine police officers must spend in court testifying and prosecuting cases resulting from the summonses written. Efficient and successful prosecution of violations is the only way to ensure good compliance with fishery management regulations.

Second is the time marine police officers spend in public education, such as appearing at boating and fishing shows and manning a display at the Virginia State Fair. These activities often produce significant rewards in garnering compliance with regulations, understanding of the mission and activities of the VMP, and gaining citizen assistance in reporting fishery violations or suspicious activity.

The need for assistance from anglers, boaters, commercial watermen, and other citizens in reporting fishery regulation violations is essential for the protection of Virginia's marine resources.

The VMP covers 120 miles of ocean coastline, more than 1,300 miles of shoreline on the saltwater reaches of tidal rivers, and countless more miles of shoreline on the Eastern Shore seaside and along tidal creeks of the Eastern Shore bayside and the western shore tributary rivers.

Estimates of the number of marine recreational fishermen range from 350,000 to over 1 million, and approximately 3,000 commercial fishermen operate in Virginia waters. Maintaining 24-hour-per-day coverage requires each marine police officer to cover a large area of water and to monitor an enormous number of fishermen and boaters.

COOPERATIVE ENFORCEMENT EFFORTS

Fish are not constrained by the arbitrary political and jurisdictional boundaries which restrict the activities of law enforcement agencies. Some species move up and down the coast and from inshore waters to offshore waters, often passing through the waters of several different political jurisdictions.

The VMP has a good working relationship with many law enforcement agencies, including those listed below:

The Virginia Department of Game & Inland Fisheries, which has primary jurisdiction over freshwater fishing activities. Many species of marine fish periodically migrate across the arbitrary boundaries between the tributary rivers and the Chesapeake Bay, entering "freshwater", and cooperative enforcement efforts are necessary.

The U. S. Coast Guard, which enforces fisheries regulations in federal waters. Many fish species migrate inshore and offshore seasonally, which makes joint enforcement efforts extremely productive.

The National Marine Fisheries Service, which also has enforcement agents for federal waters.

The U. S. Fish & Wildlife Service, which has enforcement agents working with anadramous fish (e.g. striped bass) and Lacey Act violations (transportation of protected wildlife across state lines).

Local Enforcement Agencies, such as local police and sheriff departments in localities near marine waters. They patrol marine waters within their jurisdiction and can provide considerable help to the VMP.

Cooperative enforcement efforts bolster the capabilities of all law enforcement agencies involved and provide much broader enforcement coverage for marine fisheries laws and regulations.

DIRECTORY OF MARINE RESOURCES COMMISSION OFFICES

Main Office:
Virginia Marine Resources Commission
2600 Washington Avenue, 3rd floor
Newport News, VA 23607
(757) 247–2200

Law Enforcement Operations Center:
Virginia Marine Resources Commission
Operations Center
30 Jefferson Avenue
Newport News, VA 23607
(757) 247–2265

Eastern Shore Law Enforcement Office:
Virginia Marine Resource Commission
15237 Authurs Court (street address)
Colonial Square,
Belle Haven, VA 23306
P.O. Box 1328, Exmore, VA 23350
(mailing address)
(757) 414-0713

Middle Area Law Enforcement Office:
Virginia Marine Resources
Commission
6097 George Washington Hwy.
Towne and Country Shopping Center
Gloucester Point, VA 23062
(804) 695-1936

Northern Area Law Enforcement Office:
Virginia Marine Resources Commission
Heathsville Law Enforcement Office
P.O. Box 117
Heathsville, VA 22473
(804) 580–2901

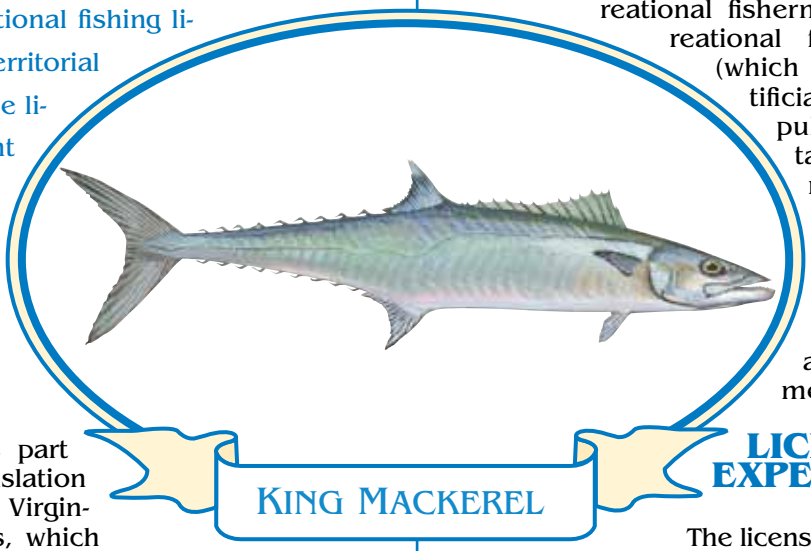
Southern Area Law Enforcement Office:
Virginia Marine Resources Commission
Operations Center
30 Jefferson Avenue
Newport News, VA 23607
(757) 247-2265

VIOLATIONS "HOTLINE"

The Virginia Marine Police maintain a 24 hour toll-free hotline number for reporting violations of fisheries regulations: 1-800-541-4646.

VIRGINIA'S SALTWATER RECREATIONAL FISHING LICENSE

Beginning on January 1, 1993, anglers fishing in Virginia's portion of the Chesapeake Bay and its tidal, saltwater tributaries were required to obtain a saltwater recreational fishing license. Virginia's territorial sea was added to the licensing requirement in 2000. The first increase in licensing fees occurred in 2006.



KING MACKEREL

PURPOSE

The license was part of a package of legislation aimed at improving Virginia's marine fisheries, which was passed by the General Assembly in 1992. In addition to the license, the package included a two year delayed entry system for all commercial fisheries and a commercial harvester's license. The legislation also invested authority in the Marine Resources Commission to limit entry in specific fisheries, as needed. The package was designed to give the Marine Resources Commission both the regulatory authority and a source of funding to enhance marine fishery resources.

The saltwater recreational license was designed to raise revenues to conserve and enhance fish species caught by recreational fishermen. The law creating the license specified that all license monies had to be deposited in a special fund called the Virginia Saltwater Recreational Fishing Development Fund.

Expenditures are limited to programs to conserve and enhance fish species important to recreational fishermen, to improve recreational fishing opportunities (which includes building artificial reefs, access, and public education), to obtain data and conduct research for fisheries management, to create and restore habitat for species important to recreational fishermen, and for law enforcement.

LICENSE FUND EXPENDITURES

The licenses raise approximately $2.4 million annually for recreational fishing projects. A board of citizens representing the interests of the recreational fishery, called the Virginia Recreational Fishing Advisory Board, has been entrusted with the responsibility of reviewing and recommending proposals for expenditures from the Saltwater Recreational Fishing Development Fund. This board is appointed by the Commissioner of the Marine Resources Commission. Their recommendations are approved by the Marine Resources Commission, which has final authority over all Fund expenditures.

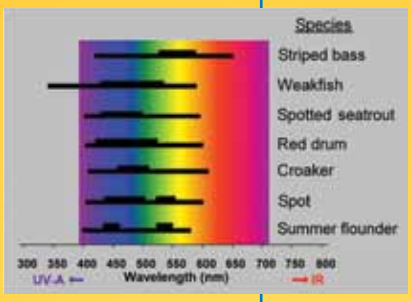
The saltwater recreational license was designed to raise revenue to conserve and enhance fish species caught by recreational fishermen.

www.mrc.virginia.gov/vsrfdf/index.shtm

Projects Funded with Saltwater Recreational License Funds

I. Artificial Reefs

1. Mobjack Bay Artificial Reef
2. Poquoson Artificial Reef
3. Bluefish Rock Artificial Reef
4. Nandua-Pungoteague Artificial Reef
5. Buoy Purchase & Placement for Artificial Reefs
6. Deployment Funds for the Artificial Reef Program
7. Digital Imagery of Virginia's Artificial Reefs
8. Reef monitoring equipment for the Artificial Reef Program
9. Assessment Study of Northern Neck and Poquoson Artificial Reefs



II. Public Access

1. Cranes Creek Landing
2. Glebe Point Fishing Pier
3. Mill Creek Landing
4. Gloucester Point Landing
5. Messick Point Landing
6. Smith Landing and Fishing Pier
7. Elizabeth River Fishing Pier
8. Ocean View Fishing Pier
9. Sandbridge Fishing Pier
10. Cape Charles Fishing Pier
11. Buckroe Fishing Pier
12. Quinby Harbor Enhancements
13. Newport News Wavescreen Fishing Pier
14. Curtis-Merritt Harbor Enhancements

III. Enhancment of Recreational Fishing Opportunities and Public Education

1. Virginia Saltwater Fishing Tournament
2. Virginia Game Fish Tagging Program
3. Virginia Marine Anglers Guide
4. Kiwanis Club Kids Fishing Program
5. Hampton Roads Sunshine Kids Fishing Program
6. Newport News Kids Fishing Program
7. Saxis and Morley's Wharf Kids Fishing Program
8. Hope House and Oak Grove Nursing Home Fishing Program
9. VA Charter Boat Association Kids Fishing Program

IV. Data Collection and Assessment

1. Economic Impact Study of Virginia's Saltwater Recreational Fishery
2. Marine Recreational Fisheries Statistical Survey
3. Virginia Marine Sportfish Collection
4. Chesapeake Bay Multispecies Monitoring and Assessment Program (ChesMMAP)
5. Monitor Recreationally Important Juvenile Fish

V. Fisheries Management Research

1. Sheepshead Biological Assessment
2. Improving Stock Assessment of Weakfish
3. Visual Function in Chesapeake Bay Sport and Prey Fishes
4. Striped Bass Mycobacteriosis
5. Shark and Ray Stock Assessment and Monitoring
6. Establishment of a Chesapeake Bay Trophic Interaction Laboratory Services Program
7. Finfish Aging Laboratory
8. American Shad Monitoring
9. Red Drum Population Structure Study
10. American Eel Monitoring
11. Genetic Assessment of Atlantic Menhaden
12. Social and Economic Study of Atlantic Menhaden
13. Striped Bass Satellite Pop-up Tag Study
14. Summer Flounder Acoustic Tag Study

VI. Habitat Research and Restoration

1. Seagrass Habitat Restoration
2. Utility of Alternative Reefs to Simultaneously Enhance Recreational Fish Production and Oyster Restoration.
3. Effects of Boat Scarring on Seagrass

Note: Includes projects funded totally or in part with recreational saltwater fishing license funds.

License and Registry Information
License fees and exemptions change periodically, please check before you fish to make sure you have the proper license and/or registration number.
www.mrc.virginia.gov
757-247-2200

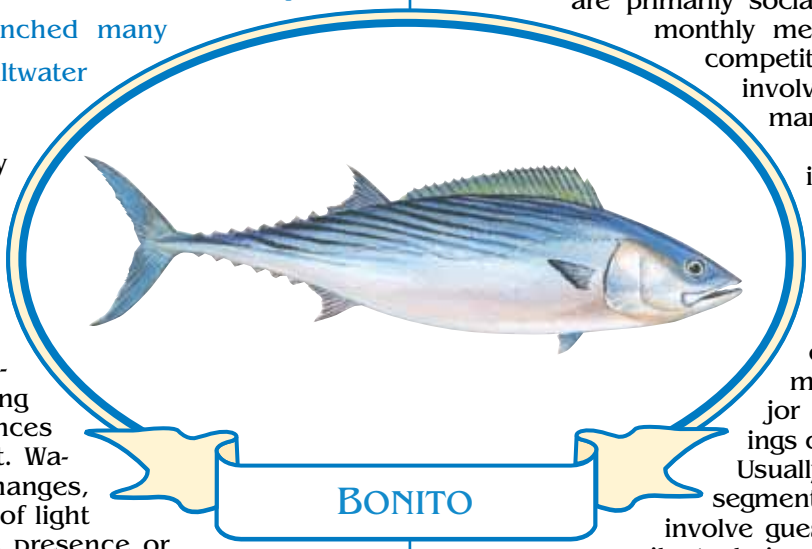
SALTWATER FISHING– WHERE TO BEGIN

Getting hooked on saltwater fishing is easy. The boil of a striped bass with its tail slapping the water as it takes a surface plug at the Chesapeake Bay Bridge-Tunnel or the thrill of a white marlin catapulting from the indigo waters of the Gulf Stream have converted many skeptics into devotees. While the determined tug from a croaker on a simple bottom rig has launched many a young angler's saltwater fishing career.

But the journey from an enthusiastic novice to an accomplished saltwater angler can be daunting. Saltwater fish are not constrained by boundaries, often migrating substantial distances along the East Coast. Water temperature changes, photoperiod (length of light in the day), and the presence or absence of baitfish can trigger movements. Learning when to fish for different species is not an easy task.

The potential area to fish is huge. The Chesapeake Bay and coastal waters of the Atlantic Ocean off Virginia comprise well over 3000 square miles of fishing area within the reach of most boats. How to identify the productive areas to fish is the second challenge.

Then, the tackle, techniques and best baits must be determined. For people who did not have the luxury of growing up on the water, the time needed to learn by "trial and error" is not a viable option while balancing the demands of a career and family. Fortunately, other options exist.



JOIN A CLUB

One of the best roads to becoming a better saltwater fisherman is to join an angling club. There are more than a dozen angling organizations in the eastern portion of Virginia. Some clubs are organized around a single species of fish or type of fishing, while others encourage membership from a broad spectrum of anglers. Some organizations are primarily social in nature, favoring monthly meetings and intraclub competitions, while others are involved mainly in fisheries management.

Clubs enable novice anglers to meet other fishermen, exchange ideas, develop friendships and find new fishing partners. Many clubs hold bimonthly meetings with the major portion of the meetings devoted to education. Usually, the educational segments of the meetings involve guest speakers, who describe techniques for catching certain species of fish.

Club meetings are almost always open to the public, so a potential member can attend before joining. Announcements of club meetings are usually carried in local newspapers in the outdoor news section.

GO TO SHOWS AND ATTEND SEMINARS

Boat shows, sportsman shows and outdoor expositions are a regular feature in eastern Virginia, particularly during the winter months.

The journey from an enthusiastic novice to an accomplished saltwater angler can be daunting. Learning when to fish for different species is not an easy task.

All of the shows have retail exhibits of boats and fishing tackle, and some feature seminars by local experts on various types of saltwater fishing. Usually, the only charge is for admission to the show; the seminars are free. Shows are extensively advertised in local newspapers and on radio.

Local angling experts, charterboat captains and guides, and outdoor writers occasionally hold saltwater fishing seminars. These may last a few hours or all day and may cover the ways to catch a single species of fish or a wide range of fish. Seminars which are not held in conjunction with boat or sportsman shows usually charge a registration fee. Seminars are often advertised with posters or flyers at tackle shops and marinas and are mentioned in the outdoor sections of local newspapers which feature a "calendar of upcoming events". Also, many outdoor writers with local newspapers will mention upcoming seminars in their columns.

GO TO SCHOOL

A few angling experts, charterboat captains and guides offer saltwater fishing classes. Normally, these will run for two or three hours one night a week for several consecutive weeks. Fishing classes charge a registration fee and often are limited in size. Information about upcoming classes can be found on posters and flyers at tackle shops and marinas and in the outdoor section of local newspapers which feature a "calendar of upcoming events". Also, many outdoor writers with local newspapers will mention upcoming classes in their columns.

CHARTER A BOAT OR HIRE A GUIDE

Charterboat captains and guides are professionals. They know the local waters, keep up with new fishing techniques, and know what fish are available and where to catch them. Many professional skippers and top local anglers have gotten their starts by working as mates on charterboats during the summer months.

A good way to learn the basic angling techniques for catching certain species of fish is to charter a boat or hire a guide to take you fishing. For example, if you want to learn how to catch marlin, tuna, and dolphin, charter a boat for an offshore fishing trip out of Rudee Inlet in Virginia Beach or Wachapreague on the Eastern Shore. Pay attention to how the mate rigs the baits, prepares the terminal tackle and how the baits are fished. Most mates and charterboat skippers do not mind answering your questions, but do not expect them to spend the day teaching you how to fish or to give away their favorite fishing locations. The best way to approach the day is to be observant.

Many top saltwater anglers charter boats on a regular basis. Sometimes they want to pursue a type of fishing their boats and equipment are not prepared to handle or they just want to enjoy a day of fishing, without the hassles of preparing baits and tackle, navigating a boat, and cleaning up after the trip is over. Most charterboats welcome experienced anglers and are willing to allow them a greater role in the fishing experience. Of course, this should be discussed with the captain prior to leaving the dock.

More than 200 charterboats and headboats operate in Virginia waters, and they pursue every type of fish that visits local waters. The list of active charterboats is dynamic—both seasonally and annually. Local marinas in the area you plan to fish are a good source for active charterboats. Most active charter Captains advertise and the internet has become a popular and convenient venue. Check-out the listing of clubs and organizations that follow. The Virginia Charter Boat Association has a board membership that encompasses most saltwater fishing areas in Virginia.

MAGAZINES, BOOKS, TELEVISION SHOWS AND VIDEOS

No matter what the subject matter, from finding an exotic vacation spot where you can catch tarpon and billfish to learning how to catch tautog in the Chesapeake Bay, there is probably a publication or video which covers the topic. In fact, the variety of media publications covering outdoor activities is so large, finding the ones which meet a particular person's needs can be a challenge.

Publications and videos can be evaluated according to several criteria. First, what is the subject matter targeted by the publication. Some publications cover a wide range of outdoor activities, such as fishing, hunting, camping, and hiking, while others target a single activity, such as fishing. Publications may further limit their coverage to a more specific activity, such as saltwater fishing, surf fishing or even fishing for a single species of fish.

A second measure of a publication or video is its scope of coverage. Is the focus of the coverage local, regional, national or even international.

Finally, anglers should consider the type of coverage offered by a publication or video. Some publications focus on "how-to" information, while others relate stories and create ac-

tion and adventure tales. Some focus on destinations and travel information, while other focus on the evaluation of equipment. Of course, there are publications and videos combining all of these themes in their offerings.

Publications and videos can be found in numerous places, but the best places to start are local tackle shops, outdoor shops and marinas. They routinely stock these types of products, and they are most likely to carry publications and videos focusing on local fishing opportunities.

Authors and publishers often attend local boat shows and outdoor shows, which gives anglers the opportunity to peruse the product and talk with the author or publisher.

Libraries, bookstores and retail stores with outdoor product sections are a good source for outdoor publications and videos.

Increasingly, the internet is becoming a source of fishing information. Individuals, groups and clubs, tackle shops, charterboat captains, and outdoor publications are maintaining websites providing a wealth of fishing information. Many also feature "note boards", where anglers can ask specific questions and receive answers from the hosting organization and other users of the website. Information available covers a wide range of topics, including local fishing reports, knot tying, satellite surface water temperature information, conservation issues, saltwater fishing regulations, weather and, of course, when, where, and how to catch various species of fish.

VIRGINIA ANGLING CLUBS and ORGANIZATIONS

Bull Island Anglers Club
1294 Poquoson Ave.
Poquoson, VA 23662
www.bullislandanglers.blogspot.com

Central Virginia Sport Fishing Association
c/o Mike Nannery
315 Norwood Drive
Colonial Heights, VA 23834
mnannery@verizon.net

Coastal Conservation Association
Virginia State Office
12642 Broad Street, Suite A
Richmond, VA 23233
www.ccavirginia.org

Eastern Shore Anglers Club
P. O. Box 415
Accomac, VA 23301
www.esanglersclub.org

Eastern Shore Marlin Club
P. O. Box 138
Wachapreague, VA 23480
www.sportfishing-ves.com/esmc/

Falmouth Flats Fly Fishers
P. O. Box 8462
Fredericksburg, VA 22404
www.fflyfishers.org

Great Bridge Fisherman's Association
P. O. Box 15742
Chesapeake, VA 23322

Norfolk Anglers Club
P. O. Box 8422
Norfolk, VA 23503
www.norfolkanglersclub.com

Northampton County Anglers Club
P. O. Box 721
Eastville, VA 23347

Northern Neck Anglers Club
www.chesapeake-fishing.com/nnac/

Peninsula Saltwater Sport Fisherman's Association
P. O. Box 5194
Newport News, VA 23605
www.pswsfa.com

Portsmouth Anglers Club
P. O. Box 7842
Portsmouth, VA 23707
www.portsmouthanglersclub.com

Tidewater Anglers Club
P. O. Box 8275
Norfolk, VA 23503
www.tidewateranglersclub.org

Tidewater Kayak Anglers Association
P. O. Box 4398
Virginia Beach, VA 23454
www.tkaa.org

Virginia Anglers Club
P. O. Box 31494
Richmond, VA 23294

Virginia Beach Anglers Club
P. O. Box 8602
Virginia Beach, VA 23450
www.virginiabeachanglersclub.org

Virginia Beach Billfish Foundation
P. O. Box 3826
Virginia Beach, VA 23454
www.vbbf.org

Virginia Charter Boat Association
P. O. Box 1217
Gloucester Point, VA 23062
www.fishva.org

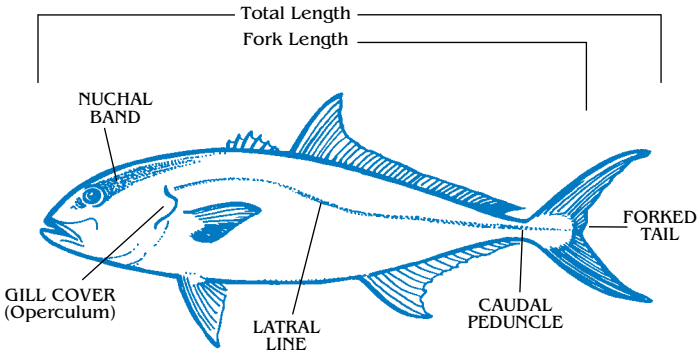
Virginia Coastal Fly Anglers
P. O. Box 2866
Virginia Beach, VA 23450
www.vcfa.org

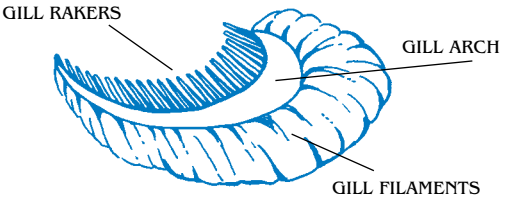
FISH IDENTIFICATION GUIDE

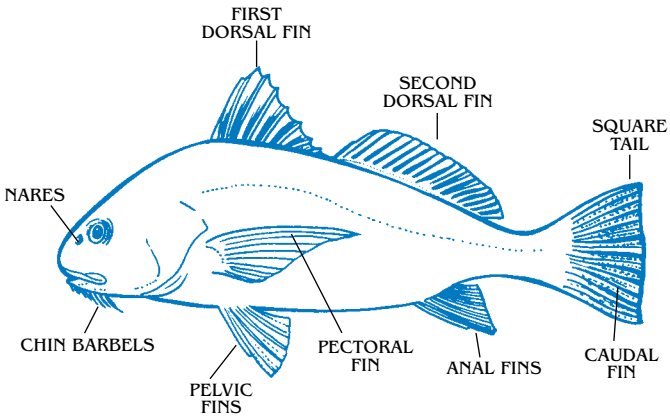
The identification of different species of fish has become an important concern for recreational fishermen. The proliferation of regulations relating to minimum sizes and possession limits compels fishermen to make the proper identification of every fish caught.

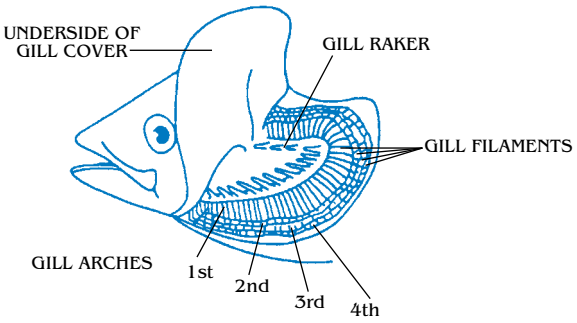
Most species of fish are distinctive in appearance and relatively easy to identify. However, closely related species, such as members of the same "family" of fish, can present problems. For these species it is important to look for certain distinctive characteristics to make a positive identification.

The ensuing fish identification guide depicts more than 50 species of fish commonly encountered in Virginia waters. In addition to color illustrations of each species, the description of each species lists the distinctive characteristics which enable a positive identification.









DEFINITIONS

Anal Fin – The fin on the bottom of fish located between the anal vent (hole) and the tail.

Barbels – Slender strands extending from the chins of some fish (often appearing similar to whiskers) which perform a sensory function.

Caudal Fin – The tail fin of fish.

Caudal Peduncle – The narrow portion of a fish's body immediately in front of the tail.

Demersal Fish – Fish that live on the bottom.

Dorsal Fin – The fin running down the back of fish. The dorsal fin is often divided into two distinct portions: the first or spinous dorsal fin, which is closest to the head of the fish and often contains hard spines; and the second dorsal fin.

Finlets – The series of small fins situated behind the dorsal and anal fins on some species of fish.

Forked Tail – A caudal fin marked by the extension of the top and bottom portions of the fin substantially further from the caudal peduncle area than the center portion of the fin.

Fork Length – The measurement of a fish's length from the tip of the nose to the inside of the fork in the tail.

Fusiform – Fish shape marked by being tapered at both ends, such as the members of the tuna family.

Gill Arch – The white bony structure supporting the gills of fish.

Gill Cover – The exterior gill cover, also known as the operculum.

Gillrakers – The white bony projections coming from the gill arch.

Incisor Teeth – Front teeth sharpened to form a cutting edge.

Keel – A ridge or projection, often present on caudal peduncle.

Lateral Line – The sensory organ with the appearance of a line which runs lengthwise down each side of a fish.

Lunate – curved or shaped like a crescent.

Molars – Rear teeth flattened for use in grinding or crushing.

Nuchal Band – A dark band extending from behind or near the eye of a fish across the back of the neck toward the first dorsal fin.

Ocellated Spot – A dark spot encircled by a band of another, lighter color; a spot with the appearance of being surrounded by a halo.

Operculum – The exterior gill cover.

Otoliths – The bony structures, generally spherical in shape, found in the inner ear of fish; also called ear stones.

Pectoral Fins – The fins appearing on each side of the fish immediately behind the gill opening.

Pelagic Fish – Fish that live or are associated with open ocean waters.

Pelvic Fins – Pair of fins located on the underside of fish below and slightly rearward of pectoral fins.

Peritoneum – The lining of the stomach cavity.

Pharyngeal Teeth – The set of grinding or mashing teeth or plates found in the throat of some fish, such as red drum.

Scute – A hard plate, often sharp, found in the caudal peduncle area on some fish.

Spiracle – An air or breathing hole.

Square Tail – A caudal fin generally equal in length from top to bottom.

Striated – Marked or appearing to be marked with grooves, furrows or ridges.

Swim Bladder – A sac or pouch of tissue which is used by fish to maintain a neutral or certain level of buoyancy.

Total Length – The measurement of a fish's length from the tip of the nose to the tip of the tail.

Underslung Jaw – A mouth located on the under side of the head, slightly rearward of nose, which opens downward; also known as an inferior jaw.

RED DRUM

(Channel Bass, Redfish, Puppy Drum, Spottail Bass) Sciaenops ocellatus

Description: copper to bronze colored back, fading to a white belly; may be more silvery in appearance in clear or ocean waters; one to several ocellated spots occur at the base of the tail; caudal fin is slightly lunate and pectoral fin is rounded; large scales and underslung jaw.

Similar Fish: closely related and similar in appearance to Black Drum; distinguishable by lack of chin barbels (which are present on black drum), rounded shape of pectoral fin, ocellated spot or spots at base of tail, slightly lunate caudal fin, and generally more streamlined body shape.

Size: up to 100 pounds; average size is 10 – 50 pounds; small fish, called puppy drum, are found in river estuaries,bays, and coastal waters and range from 8 – 20 inches in length.

BLACK DRUM

Pogonias cromis

Description: bronze, copper or grayish back, fading to a light colored belly; occassionally has a more silvery appearance; color fades after death to a grayish or grayish-green hue; high arched back gives most fish a "humpback" shape; 10 to 14 pairs of barbels are prominent under chin; caudal fin is square and pectoral fin comes to a pronounced point; juvenile fish (generally under 15 pounds) display 4 to 6 dark vertical bars, which fade in adults.

Similar Fish: closely related and similar in appearance to Red Drum; distinguishable by absence of ocellated spot or spots at the base of the tail (which are present on red drum), the presence of chin barbels, pointed pectoral fin, square caudal fin and "humpback" body shape. Juveniles are similar in appearance to sheepshead, which have 5 to 6 vertical bars on their sides; however, sheepshead lack chin barbels, have a significantly forked tail, a fully connected first and second dorsal fin (in black drum the first dorsal fin is distinct from second dorsal fin), and prominent teeth, which are absent in black drum.

Size: up to 120 pounds; average size is 20 – 70 pounds; occasionally, juvenile fish in the 6 – 16 inch range are common in Chesapeake Bay and estuarine waters.

ATLANTIC CROAKER

(Croaker, Hardhead) Micropogonias undulatus

Description: silvery color overall with a white belly; often has a faint bronze or golden cast, with yellowish fins; back often has small brassy spots, that align into wavy lines down the fish's sides; underslung jaw features 3 to 5 pairs of barbels under the chin; caudal fin is convex in shape; gill cover is hard and sharp.

Similar Fish: Spot

Size: up to 8 pounds; average size is 8–14 **inches (½ pound – 2 pounds)**

SPOT

(Norfolk Spot, Yellowbelly)
Leiostomus xanthurus

Description: silvery color overall with a white belly; a prominent black spot is present behind the gill cover and above the base of the pectoral fin; several wavy lines, brassy in color, extend down the back; caudal fin is slightly concave; larger individuals in the late summer often exhibit a distinct yellow coloration on their bellies.

Similar Fish: Atlantic Croaker

Size: up to 2½ pounds; average size is 5 – 10 inches (under a pound).

SPOTTED SEATROUT

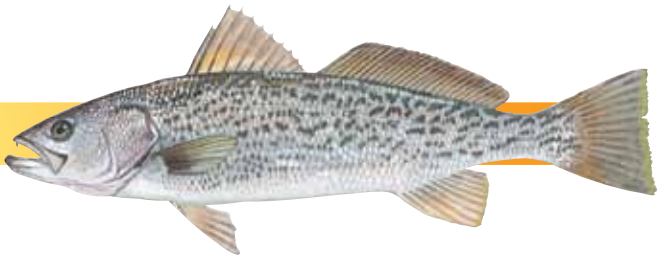
(Speckled Trout, Spotted Trout, Speckle)
Cynoscion nebulosus

Description: grayish silver back (often with a bluish, iridescent tint) fading to silver sides with a white belly; distinct round black dots are present on back and sides, and they extend onto second part of the dorsal fin and the caudal fin; body is long and slender; upper jaw possesses two large canine teeth.

Similar Fish: closely related and similar in appearance to the Weakfish or Gray Trout; distinguishable by the black dots which extend onto second dorsal fin and caudal fin (gray trout lack any black markings on these fins).

Size: up to 17 pounds; average size is 1½ – 4 pounds.

WEAKFISH



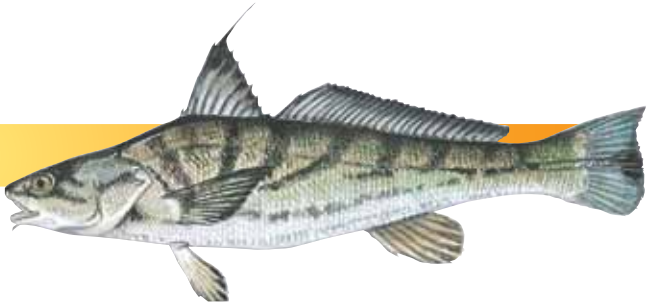
(Gray Trout, Yellowfin Trout, Squeteague, Tiderunner) ***Cynoscion regalis***

Description: silvery body and sides with some olive shading along the top of the back; numerous dark blotches appear on the back and the sides, some of which may appear to align and form wavy lines; fins are a uniform dusky color, some of which may have a yellowish margin; body is long and slender; upper jaw possesses two large canine teeth.

Similar Fish: closely related and similar in appearance to the Spotted Seatrout; distinguishable by the dorsal and caudal fins which are a uniform dusky coloration without any markings (spotted seatrout have black dots on these fins).

Size: up to 20 pounds; average size ranges from ½ – 8 pounds.

NORTHERN KINGFISH



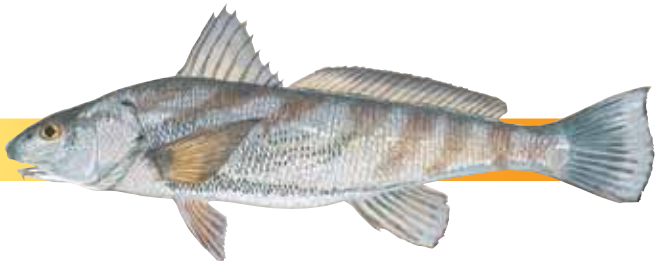
(Roundhead, Sea Mullet, Whiting, King Whiting, Virginia Mullet) Menticirrhus saxatilis

Description: long, slender body is dark in coloration; the top of the back tends to be dark fading to grayish sides; 5 or 6 dark bars occur on the back of this fish; fins are dusky, often with a blackish tinge or tip and the first dorsal fin posesses a long, soft spine; underslung mouth features a single barbel under the chin.

Similar Fish: closely related and similar in appearance to the Southern Kingfish; distinguishable by the darker coloration and long spine on first dorsal fin.

Size: up to 3 pounds; average size ranges from ½ – 1 pound.

SOUTHERN KINGFISH



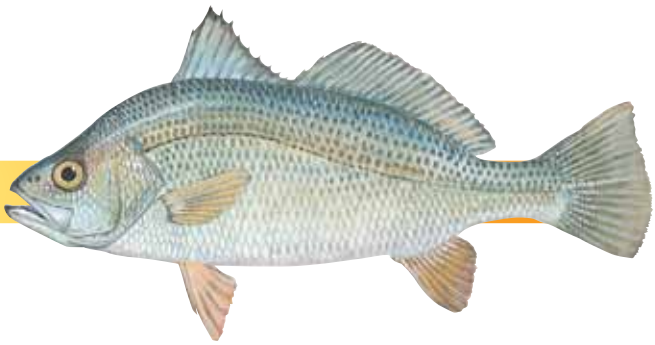
(Roundhead, Sea Mullet, Whiting, King Whiting, Virginia Mullet)Menticirrhus americanus

Description: long, slender body is grayish-silver on the sides; 6 to 8 very faint dusky bars may be present along the back and sides; fins are dusky in color; underslung mouth features a single barbel under the chin.

Similar Fish: closely related and similar in appearance to Northern Kingfish; distinguishable by lighter coloration and absence of long spine on first dorsal fin.

Size: up to 3 pounds; average size ranges from ½ – 1 pound.

SILVER PERCH



(Perch, Sand Perch) Bairdiella chrysoura

Description: small member of the drum family with bright silvery coloration fading to a white belly; fish from estuarine waters that are not clear may have a slightly darkish coloration along the top of the back; easily distinguishable from other members of the drum family by lack of chin barbels and mouth that is not underslung.

Similar Species: White Perch; distinguishable by lighter, silvery coloration and lack of spines in dorsal fin (white perch have sharp spines in first dorsal fin).

Size: under 1 pound; average size ranges from 4 – 7 inches.

STRIPED BASS

(Rockfish, Striper) Morone saxatilis

Description: overall coloration is silvery with a white belly; back tends to be a dark, olive or dusky brownish color; 7 or 8 pronounced black stripes run horizontally down the back and sides of the fish; the spines in the first dorsal fin are stiff and the gill cover is hard and sharp.

Size: up to 125 pounds; average size ranges from 4 – 15 pounds.

BLUEFISH

(Blue, Chopper, Snapper, Tailor Blue) Pomatomus saltatrix

Description: long body is bluish green in coloration, fading to a light colored belly; tail is sharply forked and the mouth features razor sharp teeth.

Similar Fish: Pollock and several species of jacks are somewhat similar in appearance to bluefish, but all lack the formidable set of teeth prominent in bluefish.

Size: up to 31¾ pounds; average size is 1 – 15 pounds.

SUMMER FLOUNDER

(Flounder, Fluke) Paralichthys dentatus

Description: rounded, flat body is brown on one side (the left side) and white on the other side; both eyes appear on the brown (left) side of the fish; caudal fin is convex and the mouth features sharp, cone-like teeth; summer flounder feature five ocellated spots on their brown side, three tending to form a triangle just above the base of the tail.

Similar Fish: closely related and similar in appearance to the Southern Flounder; distinguishable by the presence of ocellated spots on the back of the summer flounder (southern flounder may have blotches and/or spots but lack the conspicuous ocellated spots found on summer flounder); Gulf Flounder, which are not common north of Cape Hatteras, are similar in appearance, but feature only three ocellated spots – one above the lateral line, one below it and one touching it, and these spots may become indistinct in larger fish.

Size: up to 20 pounds; average size is ½ – 5 pounds.

COBIA

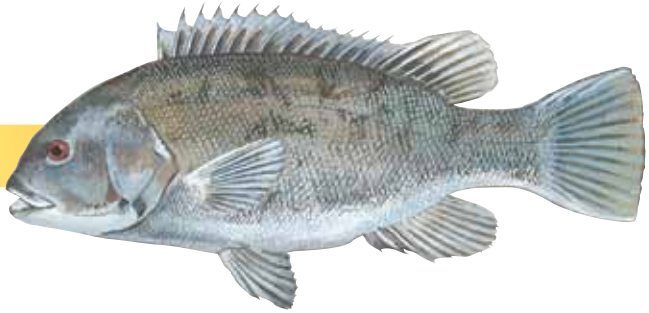
(Bonito, Ling, Crabeater,)
Rachycentron canadum

Description: large, long fish which is dark, chocolate brown on the back and sides fading to a white belly; juveniles often display a brown back with a white horizontal stripe, a very dark stripe and a second white stripe down the sides; the tail is deeply forked and the first dorsal fin is absent (replaced by 7 to 9 short spines) but they feature a pronounced second dorsal fin; the lower jaw protrudes past the upper jaw.

Similar Fish: None, although cobia often swim at the surface with second dorsal fin sticking out of the water, causing many people to mistake them for sharks. Juvenile cobia are similar in appearance to remoras, but lack the large suction pad on the top of the head of remoras.

Size: up to 135 pounds; average size ranges from 10 – 50 pounds.

TAUTOG



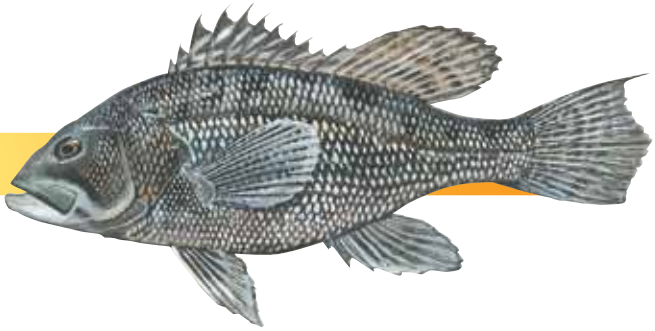
(Blackfish, Chub, 'Tog, White Chin,)
Tautoga onitis

Description: a thick-bodied fish characterized by thick lips, blunt snout, and large, irregular teeth (incisors in front, molars in the rear); coloration is varied from a chocolate brown, to gray or a blackish olive on the back and sides with a white belly; some fish have irregular blotches on the side, but this mottling pattern, often associated with spawning activity, is not present in all individuals; males have a more blunt head, a more pronounced white chin, and a distinct white spot on their side.

Similar Fish: closely related to and similar in appearance to the Cunner; distinguishable by lack of scales on the gill cover (cunner have scales on their gill covers) and by size (cunner rarely achieve weights of 1 pound).

Size: up to 25 pounds; average size ranges from 1 – 6 pounds.

BLACK SEA BASS

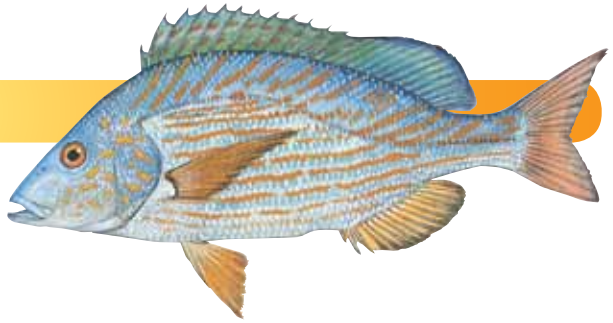


(Sea Bass, Black Will) Centropristis striata

Description: coloration is black to a very dark brown on the back and sides; the belly and fins also tend to be dark in color; females have a uniformly curved slope from the top of the back to the head, while large males have a pronounced hump forward of the dorsal fin; individual fish may exhibit a pronounced iridescent aquamarine to bluish coloration with some highlights of red in the area forward and below the dorsal fin, behind the head and especially on males on and around the hump, which may be associated with spawning activity; a long filament extends from the upper part of the caudal fin.

Size: up to 10 pounds; average size ranges from ½ – 3 pounds.

PIGFISH



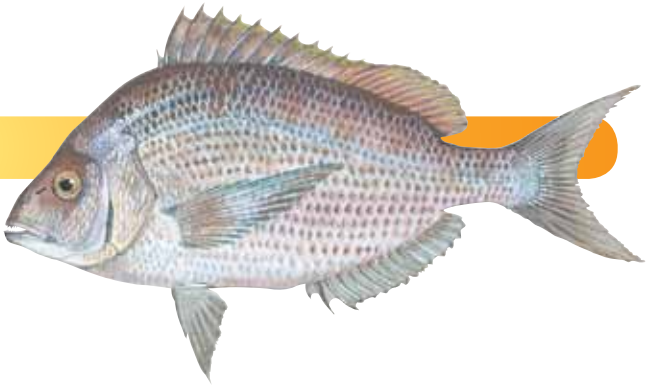
(Hogfish) Orthopristis chrysoptera

Description: coloration is grayish along the back fading to silver along the sides and a silvery white belly; brassy to bronze mottled marks are scattered over much of the body; fins tend to be a dull golden color; the first dorsal fin has distinct spines; the name derives from the grunting noise these fish make when removed from the water.

Similar Fish: Pinfish.

Size: up to 2 pounds; average size is ½ – 1 pound.

SCUP



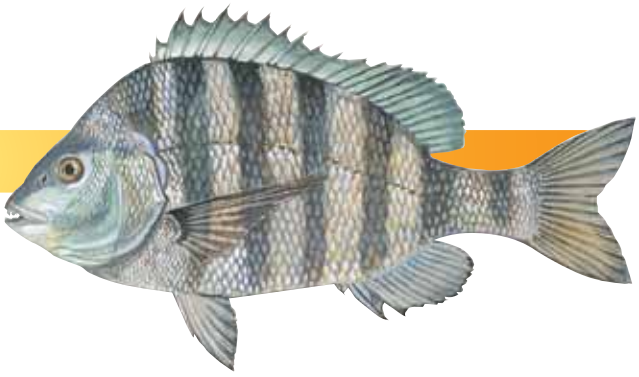
(Porgy, Silver Porgy) Stenotomus chrysops

Description: a deep bodied fish that is grayish to grayish brown along the back and sides, fading to a light gray belly; dorsal fin has pronounced spines and the mouth has distinct incisor and molar teeth; pectoral fin is pointed and relatively long for the size of the fish.

Similar Fish: Longspine Porgy and several porgies prevalent on reefs in the southern Atlantic.

Size: up to 4 pounds; average size ranges from 1 – 1½ pounds.

SHEEPSHEAD



(Convict Fish) Archosargus probatocephalus

Description: a deep bodied fish that is grayish in color along the back and sides with a belly that is only slightly lighter in color; 5 to 6 black (or very dark brown) bars run down the sides; mouth is filled with formidable incisor and molar teeth; pectoral fin is long and pointed.

Similar Fish: Similar in body shape and size to several porgies; most similar in appearance to small black drum, but easily distinguishable by single dorsal fin structure (black drum have separate first and second dorsal fins), mouth with incisor and molar teeth (black drum lack substantial teeth in their mouth, having crushing plates, called pharyngeal teeth, deep in their throat) and absence of chin barbels (black drum have pronounced chin barbels).

Size: up to 20 pounds; average size ranges from 2 – 8 pounds.

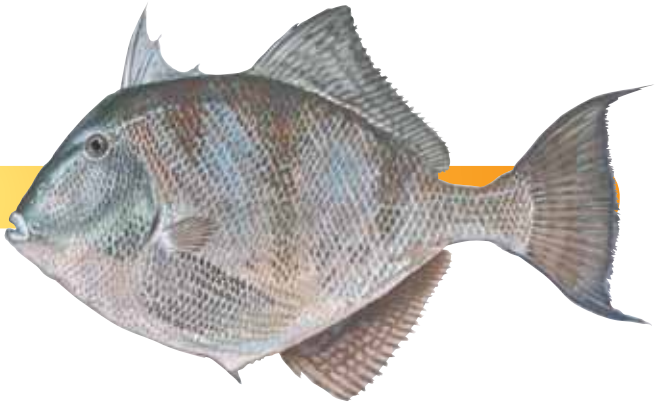
SPADEFISH

Chaetodipterus faber

Description: deep bodied fish with pointed second dorsal and anal fins, which give the fish an almost triangular shape; coloration is silvery gray with 4 to 6 prominent black bars running down the sides; juveniles are very dark in color; the mouth is noticeably small relative to the overall size of the fish and lacks teeth.

Size: up to 15 pounds; average size ranges from 1 – 6 pounds.

GRAY TRIGGERFISH

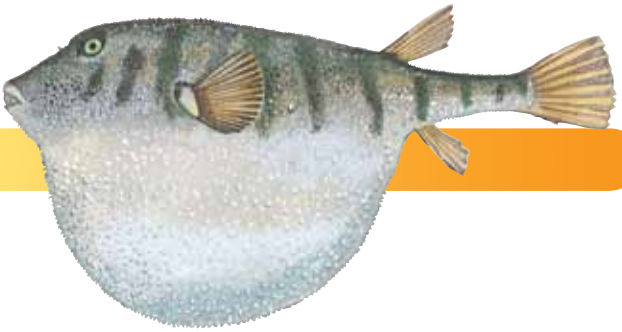


(Triggerfish) Balistes capriscus

Description: deep bodied fish with a large first spine in the first dorsal fin; grayish overall in color, some individuals may show some darker mottling; mouth features pronounced lips and large teeth; body is covered with tough skin.

Size: up to 12 pounds; average size 1 – 5 pounds.

NORTHERN PUFFER



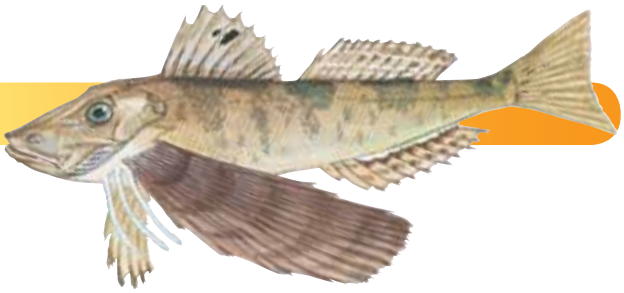
(Blow Toad, Blowfish, Swell Toad)
Sphoeroides maculatus

Description: blunt, "boxlike" body shape, which can rapidly be altered by swelling of the belly with air or water into a spherical shape; mouth features large, "rabbitlike" incisor teeth; coloration is light brownish on the back and sides with a white belly; several dark vertical bars run down the sides; fins have a yellowish or yellowish orange tinge; skin is tough and coarse, similar to sandpaper.

Similar Fish: Southern Puffer (rare north of Florida); Smooth Puffer, which has a very smooth skin and attains a larger size; Burrfish, which have pronounced spines protruding from the skin.

Size: up to 2 pounds; average size is under a pound.

NORTHERN SEA ROBIN

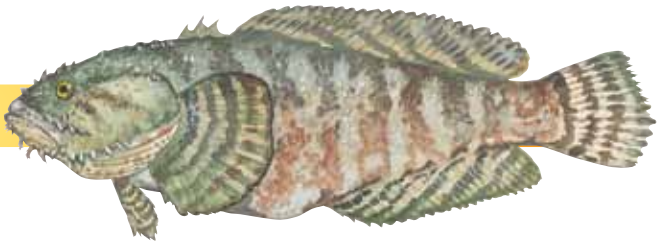


(Sea Robin) Prionotus carolinus

Description: long, tapered body follows a broad head featuring a tough, bony covering with numerous spines; large, rounded pectoral fins can spread out to form "wings"; at the base of each pectoral fin are 3 to 4 feelers, which are sensory organs the fish use to "walk" along the bottom and feel for various forage items; color is brownish with hints of orange along the back, fading to a grayish brown along the sides, and a white belly; fins have a brownish orange or brownish yellow hue.

Size: up to 4 pounds; average size is less than 1 pound.

OYSTER TOADFISH

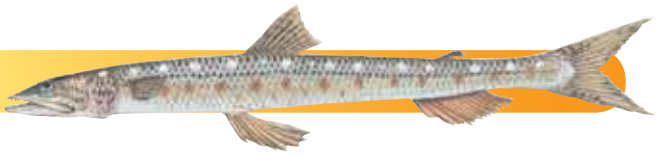


(Toadfish, Mud Toad, Oyster Toad)
Opsanus tau

Description: the oyster toadfish will not win any beauty contests; this species features a broad, flat head with a large mouth and plenty of small teeth; the body is tapered and the skin is slimy and lacks scales; bony protrusions and spines are present at the rear of the head; coloration is yellowish brown with some hints of orange.

Size: up to 6 pounds; average size ranges from $\frac{1}{2}$ – 2 pounds.

LIZARDFISH



Synodus foetens

Description: a long, slender fish with a body that is almost cylindrical in shape; the head is pointed and the mouth is large and full of sharp teeth; the skin looks similar to the skin on a reptile, but scales are present; coloration is brown to grayish brown, with a white belly.

Size: small, less than a pound.

HOUNDFISH

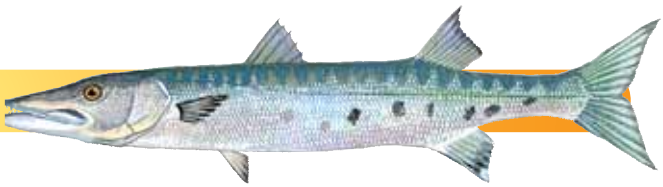
Tylosurus crocodilus

Description: a very long, slender fish with a cylindrically shaped body and a bony head with long, bony jaws armed with sharp teeth; the dorsal fin is located well toward the rear of the body; coloration is greenish to bluish green along the back fading to silvery or silvery green sides and belly.

Similar Fish: closely related and similar in appearance to Atlantic Needlefish; distinguishable by much larger average size of houndfish (Atlantic needlefish rarely exceed 1 pound in local waters), the presence of a silvery horizontal stripe on Atlantic needlefish (absent on houndfish), and the presence of a caudal peduncle with a keel on the houndfish (no keel on caudal peduncle of Atlantic needlefish).

Size: up to 10 pounds; average size 3 - 6 pounds.

GREAT BARRACUDA



(Barracuda)
Sphyraena barracuda

Description: a long, slender fish with a pointed snout and a large mouth full of sharp teeth; coloration is silver with a green or grayish green back; several black or dark spots may occur on the sides toward the tail of the fish.

Similar Fish: Sennet, which are small relatives of the barracuda.

Size: up to 60 pounds; average size ranges from 7 – 20 pounds.

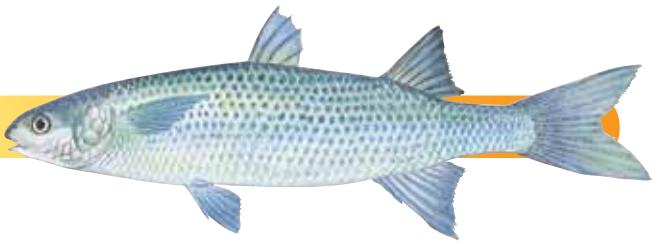
TARPON

(Silver King) Megalops atlanticus

Description: a long fish featuring a single dorsal fin with a long trailing filament, a large mouth with a protruding lower jaw, large scales, and deeply forked tail; occasionally, they are said to look like an overgrown herring; coloration is silver, although the back may be greenish gray or bluish gray.

Size: up to 230 pounds; average size is 35 – 90 pounds.

STRIPED MULLET



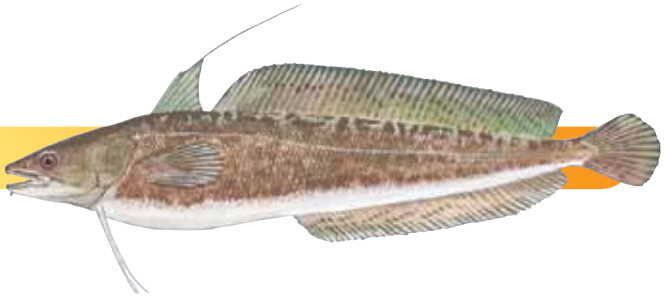
(Mullet, Jumping Mullet) Mugil cephalus

Description: long, cylindrically shaped fish featuring a small mouth and two distinct dorsal fins; body covered with relatively large scales and hard spines are present in first dorsal fin; coloration is greenish, bluish green or bluish gray along the back fading to silvery sides and a silvery white belly; may have faint, dark stripes down the back.

Similar Fish: closely related and similar in appearance to White Mullet; difficult to distinguish between the two species, but striped mullet has 8 rays or soft spines in the anal fin (white mullet have 9 rays).

Size: up to 6 pounds; average size is under 2 pounds.

RED HAKE

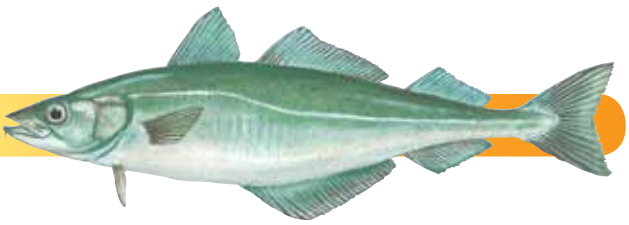


(Ling Cod) Urophycis chuss

Description: long, tapered body shape featuring a short first dorsal fin with an elongated filament and a long second dorsal fin; a single chin barbel is present; caudal fin is rounded; coloration is brownish to grayish brown, with some hints of red, along the back and upper sides fading to a yellowish, off-white belly.

Size: up to 9 pounds; average size is under 2 pounds.

POLLOCK



Pollachius virens

Description: long, tapered body features a head with a pointed snout, a plump midsection on most fish and a tapered rear; three distinct dorsal fins, a chin barbel and a forked caudal fin highlight the fin structure; coloration is bluish green to olive green along the back fading to a gray or greenish silver along the sides and a silvery belly.

Similar Fish: similar in color and shape to a bluefish; distinguisable by absence of teeth (bluefish are armed with sharp teeth), presence of three distinct dorsal fins (bluefish has two dorsal fins) and presence of a chin barbel (none on bluefish). Also, closely related to and similar in body shape and fin structure to Atlantic cod, but distinguishable by much more prominent chin barbel on cod and coloration (cod have many color phases and tend to exhibit much more color including brown and reddish or dark spots along the back and sides).

Size: up to 35 pounds, average size is 1 – 6 pounds.

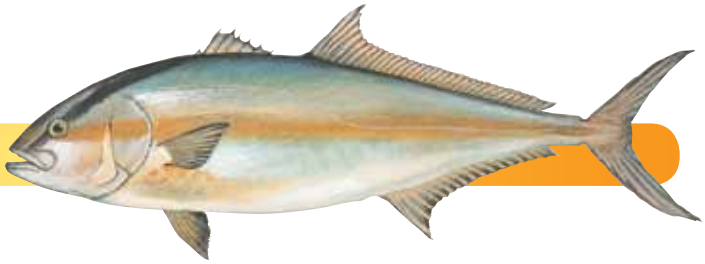
BUTTERFISH

Peprilus tricanthus

Description: round or oval shaped body featuring a head with a blunt snout and a small mouth; fin structure is highlighted by a deeply forked caudal fin, no first dorsal fin, which is replaced with 3 or 4 spines, and a long second dorsal fin; coloration pale blue to bluish green along the back fading to a silvery belly.

Size: up to 1 pound; average size is smaller.

GREATER AMBERJACK



(Amberjack) Seriola dumerili

Description: large, streamlined fish with a deeply forked, crescent shaped tail, caudal peduncle features a keel without scutes (which are hard, bony projections), a short, rounded pectoral fin and a dark nuchal band (stripe) running from the first dorsal fin through the eye; coloration is olive to dark amber on the back, fading to silvery sides and a white belly, although the overall color has a light yellow or amber tinge.

Similar Fish: Almaco Jack, Banded Rudderfish, Lesser Amberjack. Differentiation of these species is tricky. Banded rudderfish are a very small jack with six prominent dark bars, running down their sides (juvenile amberjack have similar bars, but the bars fade and disappear in larger amberjack). Amberjack have 7 spines in their first dorsal fin, 30 – 34 dorsal rays in their second dorsal fin and 11 – 19 gillrakers; banded rudderfish have 8 dorsal spines in their first dorsal fin, 34 – 39 dorsal rays in their second dorsal fin, and 12 – 16 gillrakers. Almaco jacks have 7 dorsal spines in their first dorsal fin, 28 – 31 dorsal rays in their second dorsal fin, and 21 – 26 gillrakers. Lesser amberjack have 8 dorsal spines in their first dorsal fin, 29 – 32 dorsal rays in their second dorsal fin, and 21 – 24 gillrakers.

Size: up to 130 pounds; average size ranges from 30 – 60 pounds.

BANDED RUDDERFISH

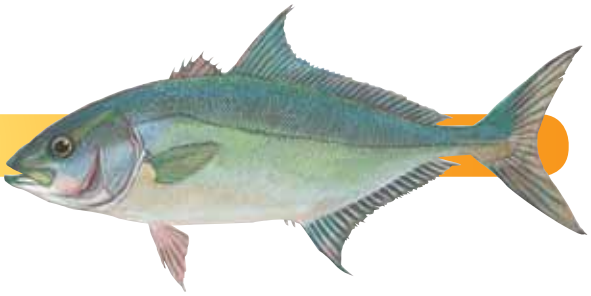
Seriola zonata

Description: small jack similar in body shape to the amberjack (streamlined with a deeply forked, crescent shaped tail, caudual peduncle has a keel without scutes, a short, rounded pectoral fin and a dark nuchal band); coloration is olive to dark amber on the back fading to silvery sides, although the fish has an overall light yellow or amber tinge; 6 prominent dark (often dark olive color) bars run down the sides of this fish.

Similar Fish: Greater Amberjack, Almaco Jack, Pilotfish; To differentiate among species, see Great Amberjack.

Size: up to 10 pounds; average size ranges from $\frac{1}{2}$ – 2 pounds.

ALMACO JACK



Seriola rivoliana

Description: streamlined fish with a deeply forked, crescent shaped tail, a caudal peduncle with a keel but no scutes, a short rounded pectoral fin, and a dark nuchal band; coloration is olive to bluish green to dark amber on the back, fading on the sides with a light colored belly; overall coloration has a light bluish green or olivaceous tinge.

Similar Fish: Amberjack and Banded Rudderfish; overall body shape is shorter and wider, and second dorsal and anal fins tend to be higher in relation to body width than in other species; also, caudal fin, while distinctively forked, is less crescent shaped than other species; to differentiate among species, see Greater Amberjack.

Size: up to 55 pounds; average size ranges from 8 – 25 pounds.

CREVALLE JACK

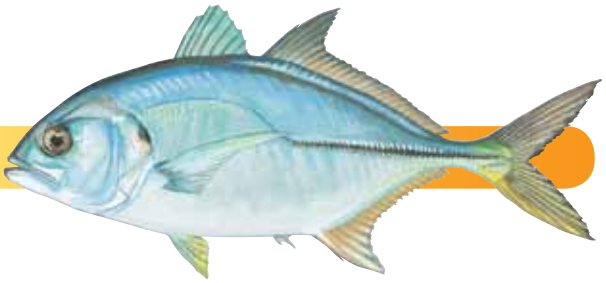
(Hardtail) Caranx hippos

Description: streamlined shape with a tapered body, although the head is relatively blunt (high forehead); deeply forked, crescent shaped tail, pointed, sickle shaped pectoral fin, and caudal peduncle keel with scutes (scutes are hard and very sharp, often inflicting severe cuts on anglers handling the fish by the tail); coloration is greenish gold along the back fading to a silver or yellowish silver sides and a yellow belly; a black spot is present on the gill cover and another black spot is present at the base of the pectoral fin.

Similar Fish: Blue Runner, Bar Jack, Horse Eye Jack

Size: up to 55 pounds; average size ranges from 3 – 20 pounds.

BLUE RUNNER



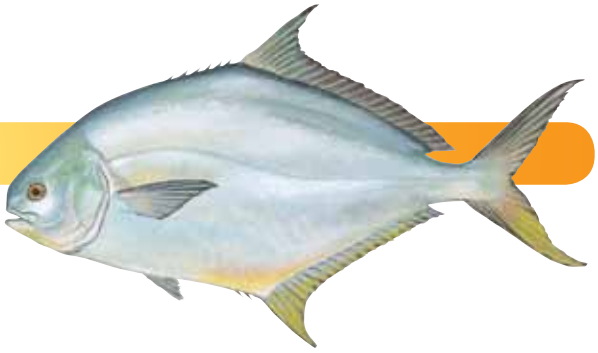
Caranx crysos

Description: streamlined shape, similar in most respects to crevalle jack, but lacking the blunt head; deeply forked, crescent shaped tail, pointed, sickle shaped pectoral fin and caudal peduncle keel with scutes are present; coloration is bluish green along the back, silvery sides with a silvery belly with shades or hints of yellow; a dark spot is present on gill cover and tips of caudal fin feature dark spots, but lacks the dark spot at the base of pectoral fin which is present on crevalle jacks.

Similar Fish: Crevalle Jack, Bar Jack, Horse Eye Jack

Size: up to 5 pounds; average size is approximately 1 pound.

POMPANO

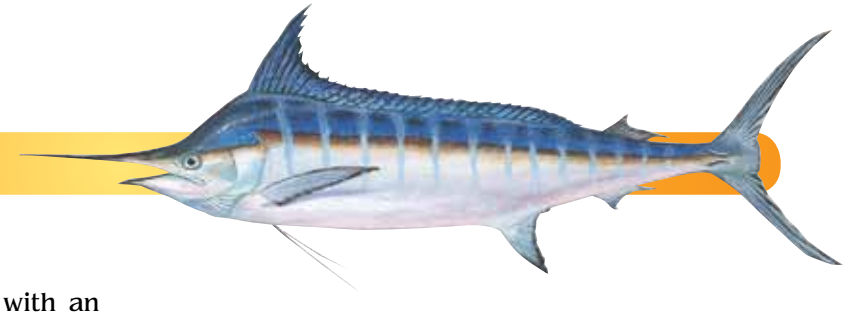


(Florida Pompano) Trachinotus carolinus

Description: rounded, flattened body with a small, underslung mouth; deeply forked tail and a small pectoral fin; coloration is greenish gray with some yellowish hints along the back fading to silver sides and a silvery yellow belly.

Size: up to 7 pounds; average size ranges from 1/2 – 2 pounds.

BLUE MARLIN



Makaira nigricans

Description: the largest Atlantic billfish, with an elongated body colored dark blue or cobalt blue on top fading to a silvery white belly; may have some golden hues when the fish is alive, especially where the bluish back fades to silvery, and several pale vertical bars may be present down the sides; first part of dorsal fin and the anal fin are pointed.

Similar Fish: closely related and similar in appearance to White Marlin; distinguishable by pointed dorsal and anal fins (white marlin have rounded dorsal and anal fins) and size (white marlin in excess of 130 pounds are extremely rare)

Size: up to 1500 pounds; average size ranges from 200 – 500 pounds.

WHITE MARLIN

Tetrapturus albidus

Description: elongated body colored dark blue or cobalt blue on top fading to silvery white belly; first part of dorsal fin is rounded and features small black or dark spots; anal fin is rounded.

Similar Fish: closely related and similar in appearance to Blue Marlin; distinguishable by rounded first part of dorsal fin (which also features spots) and rounded anal fin (dorsal and anal fins of blue marlin are pointed).

Size: up to 180 pounds; average size ranges from 40 – 70 pounds.

SAILFISH

Istiophorus platypterus

Description: elongated body features a greatly enlarged dorsal fin, like a sail, from which the fish derives its name; coloration is dark blue or cobalt blue on top fading to silvery white belly; the large dorsal fin features numerous small, dark spots.

Similar Fish: White Marlin, Blue Marlin, Longbill Spearfish.

Size: up to 125 pounds; average size ranges from 30 – 60 pounds.

LONGBILL SPEARFISH

Tetrapturus pfluegeri

Description: a relatively small fish, whose elongated body features an elongated dorsal fin; coloration is dark blue or cobalt blue on top fading to silvery white belly.

Size: up to 75 pounds; average size ranges from 20 – 35 pounds.

DOLPHIN

(Dolphinfish, Mahi-Mahi)
Coryphaena hippurus

Description: colorful fish tending to show a bluish green or turquoise top, fading to greenish sides fading to a yellowish belly; small bluish green dots can be found over entire body; body is elongated and tapers sharply from the head to the tail; males feature a very blunt forehead, while females exhibit a rounded forehead; caudal fin is deeply forked.

Similar Fish: Pompano Dolphin.

Size: up to 85 pounds, average size ranges from 2 – 15 pounds.

WAHOO

Acanthocybium solanderi

Description: a long, slender fish with a pointed snout and mouthful of sharp teeth; gills lack the white "teeth" or protrusions called gillrakers; coloration is dark blue or cobalt blue on top, fading to pale blue sides and a silvery blue belly; dark, verticle bands are present along the sides, similar to the stripes on a tiger.

Similar Fish: King Mackerel; distinguishable by the lack of gillrakers, a first dorsal fin which is longer and much fuller, and a caudal fin which is decidedly more upright (much less pronounced fork).

Size: up to 150 pounds; average size ranges from 20 — 35 pounds.

KING MACKEREL

(Kingfish, King) Scomberomorous cavalla

Description: a long, slender fish with a deeply forked tail, caudal peduncle keel and a mouthful of sharp teeth; coloration is bluish green, bluish gray, or dark gray on the top fading to silvery sides and belly; fins are a uniform, dusky color.

Similar Fish: closely related and similar in appearance to Spanish Mackerel, particularly in juvenile king mackerel which have bronze spots on their sides which fade in adult fish; distinguishable from Spanish mackerel by 1) dusky coloration of first dorsal fin (Spanish mackerel have a jet black forward portion of first dorsal fin; 2) lateral line which makes a pronounced dip at the start of the second dorsal fin (Spanish mackerel have a lateral line that dips gradually and relatively evenly from the head to the tail;) 3) 6 – 10 gillrakers on each gill arch (Spanish mackerel have 11 – 16 gillrakers on each gill arch); 4) spots on juvenile king mackerel are a dull bronze color (on Spanish mackerel the spots are a bright golden color).

Size: up to 90 pounds; average size is 7 – 25 pounds.

SPANISH MACKEREL

Scomberomorous maculatus

Description: a slender fish with a deeply forked tail, caudal peduncle keel, and a mouthful of sharp teeth; coloration is green or greenish blue on top fading to silver sides and belly; a large number of irregular bright golden spots adorn the sides; front portion of first dorsal fin is jet black in color.

Similar Fish: closely related and similar in appearance to Cero Mackerel and King Mackerel; distinguishable from cero mackerel by the alignment and shape of golden spots on the sides (Spanish mackerel have irregular spots round in shape; cero mackerel have spots which are long and thin (elongated), close together and are aligned so if they were connected they would form lines running down the sides; also cero mackerel have a single golden line running down each side); cero mackerel are extremely rare north of southern Florida; see king mackerel to differentiate between king and Spanish mackerel.

Size: up to 13 pounds; average size ranges from 1 – 3 pounds.

ATLANTIC MACKEREL

(Boston Mackerel) Scomber scombrus

Description: small fish favoring cold water; coloration is dark green along the back fading to a silvery belly; dark wavy lines run from the top to midway down the sides; does not have a swim bladder.

Similar Fish: Chub Mackerel; distinguishable by absence of spots below lateral line (chub mackerel have spots) and absence of swim bladder (chub mackerel have a swim bladder).

Size: up to 5 pounds; average size is 1 – 2 pounds.

LITTLE TUNNY

(False Albacore) Euthynnus alletteratus

Description: streamlined body shape tapering from head to tail; small finlets are present between dorsal and anal fins and the upright tail (caudal fin); coloration is dark greenish or dark greenish blue along the top and upper sides fading to silvery below; wavy stripes are present on the rear portion of the back (above the lateral line) and several dark spots appear below the base of the pectoral fin; caudal peduncle keel is present.

Similar Fish: Atlantic Bonito and Skipjack Tuna; distinguishable by location and placement of stripes on body.

Size: up to 35 pounds; average size ranges from 10 – 15 pounds.

ATLANTIC BONITO

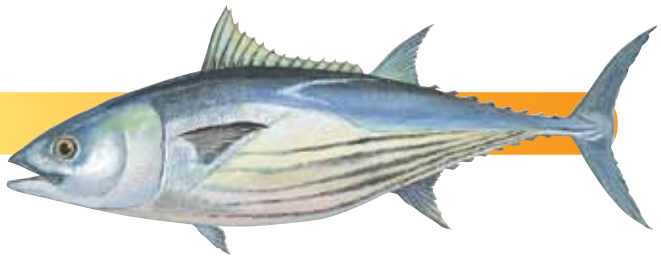
(Bonito, Bonito Mackerel) Sarda sarda

Description: streamlined body shape tapering from head to tail; small finlets are present between dorsal and anal fins and the caudal fin; coloration is dark blue on top and upper sides fading to a silvery belly; several straight stripes run along the back tilted upward as they run from behind the head to the top of the back; caudal peduncle keel is present.

Similar Fish: Little Tunny and Skipjack Tuna; distinguishable by location and placement of stripes on body. Atlantic bonito have noticeable teeth, which are not as conspicuous in little tunny and skipjack tuna.

Size: up to 20 pounds; average size ranges from 4 – 8 pounds.

SKIPJACK TUNA



(Oceanic Bonito, Skippy) Euthynnus pelamis

Description: streamlined body shape tapering from head to tail; small finlets are present between dorsal and anal fins and the caudal fin; coloration is dark blue to bluish black on the top fading to silvery on the belly; 4 to 6 horizontal stripes run along the lower sides and belly; caudal peduncle keel is present.

Similar Fish: Little Tunny and Atlantic Bonito; distinguishable by location and placement of stripes on body.

Size: up to 40 pounds; average size ranges from 5 – 15 pounds.

BLUEFIN TUNA

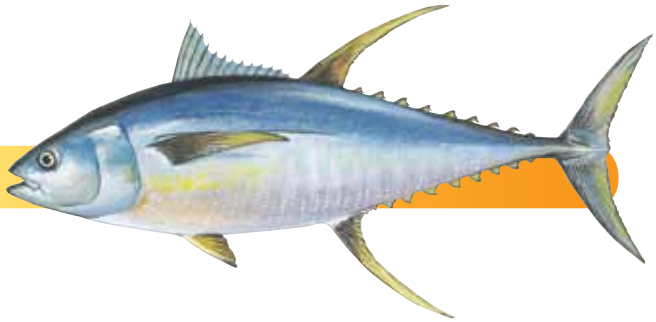
(Horse Mackerel) Thunnus thynnus

Description: streamlined body tapering from head to tail; small finlets, usually tinged yellow, are present between dorsal and anal fins and the caudal fin; pectoral fin is short; coloration is dark blue to nearly black on top, fading along the sides with a white belly; often several series of small, very light-colored spots are present on the belly.

Similar Fish: closely related and similar in appearance to Yellowfin Tuna and Bigeye Tuna; distinguishable from both species by 1) short pectoral fin, which does not extend rearward on its body to the start of the second dorsal fin (pectoral fin extends at least this far on both yellowfin and bigeye tuna), and 2) the gillrakers on first gill arch (bluefin tuna have 34 – 43 gillrakers on arch, while yellowfins have 27 – 33 gillrakers and big-eyes have 25 – 29 gillrakers).

Size: up to 1400 pounds; average size ranges from 30 - 150 pounds.

YELLOWFIN TUNA



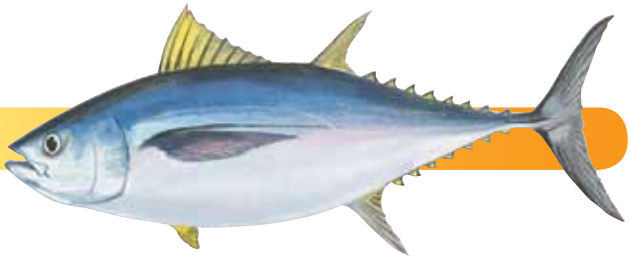
(Allison Tuna) Thunnus albacares

Description: streamlined body tapering from head to tail; finlets, colored yellow, are present between dorsal and anal fins and the caudal fin; second dorsal and anal fin tend to be elongated (particularly on larger fish) and are colored yellow; pectoral fin is long, extending past the start of the second dorsal fin; coloration is dark blue on the top, fading along the sides with golden or yellow highlights to a light colored belly.

Similar Fish: closely related and similar in appearance to Bluefin Tuna and Bigeye Tuna; distinguishable from both species by 1) length of pectoral fin, which extends rearward past start of second dorsal fin (pectoral fin on bluefin tuna does not extend to start of second dorsal fin, while on bigeye tuna it extends just to the start of second dorsal fin); and, 2) its liver, which has a smooth surface on all sides and is not symmetrical in shape (both bluefin and bigeye tuna have livers which are striated on one side, which is caused by blood vessels just under the surface of the liver, and are symmetrically shaped); distinguishable from bluefin tuna by number of gillrakers on first gill arch (yellowfin tuna have 27 – 33 gillrakers on gill arch, while bluefin tuna have 34 – 43 gillrakers); often, the very similar appearance of bigeye and yellowfin tuna necessitates examination of the liver for a positive identification.

Size: up to 385 pounds; average size ranges from 30 - 80 pounds.

BIGEYE TUNA



Thunnus obesus

Description: streamlined body tapers from head to tail; finlets, which are yellow tinged by black, are present between dorsal and anal fins and the caudal fin; dorsal and anal fins tend to be yellow in color; pectoral fin is long, extending rearward just to the start of the second dorsal fin; coloration is dark blue on top fading along the sides to a white belly; first gill arch has 25 – 29 gillrakers; eye is larger relative to the size of the head than for either bluefin or yellowfin tuna.

Similar Fish: closely related and similar in appearance to Bluefin Tuna and Yellowfin Tuna; see descriptions of Bluefin Tuna and Yellowfin Tuna for distinguishing characteristics.

Size: up to 375 pounds; average size ranges from 100 – 250 pounds.

ALBACORE

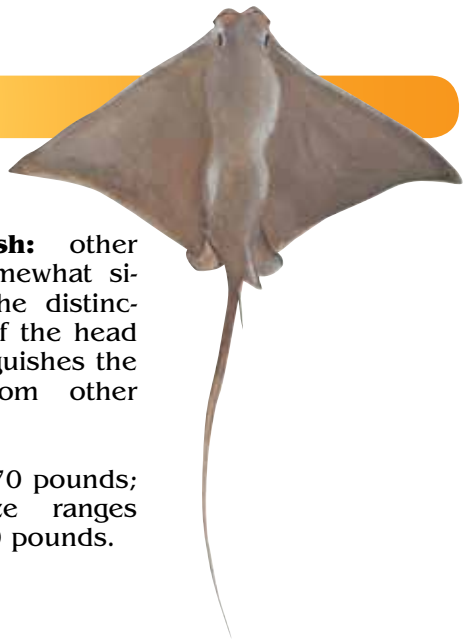
Thunnus alalunga

Description: streamlined body tapers from head to tail; finlets, dusky in coloration, are present between dorsal and anal fins and the caudal fin; pectoral fin is extremely long, extending past the start of the anal fin; coloration is dark blue on top fading to a silvery white sides and belly; first dorsal fin is yellow.

Similar Fish: similar to other tunas, but easily distinguishable by extremely long pectoral fins.

Size: up to 90 pounds; average size 25 – 45 pounds.

COWNOSE RAY



(Bat Ray, Bullfish) Rhinoptera bonasus

Description: broad, flat body is formed by wing-like pectoral fins; long, whiplike tail features a barbed spine at the base of the tail; front of the head has an indentation in the middle giving it a similar appearance to a cow's nose, which gives rise to its name; coloration is brown or brownish with a mustard yellow tint on the back with a white or off-white belly.

Similar Fish: other rays are somewhat similiar but the distinctive shape of the head easily distinguishes the cownose from other rays.

Size: up to 70 pounds; average size ranges from 20 – 40 pounds.

SOUTHERN STINGRAY

(Stingray) Dasyatis americana

Description: broad, diamond-shaped body is formed by winglike pectoral fins and a pointed head; long, whiplike tail features a barbed spine near the base of the tail; coloration is brown to grayish brown on the back with a white or off-white belly.

Similar Fish: closely related and very similar in appearance to the Atlantic stingray; distinguishable by pointed sides or wings (Atlantic stingray has rounded sides or wings) and placement of barbed spine (more forward on southern stingray, closer to the end of the tail on the Atlantic stingray).

Size: up to 175 pounds; average size ranges from 30 – 75 pounds.

SMOOTH BUTTERFLY RAY

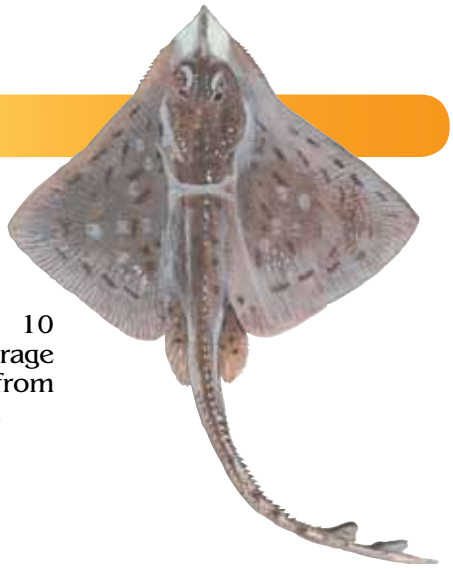
Gymnura micrura

Description: broad, diamond-shaped body, which is much wider than it is long, is formed by winglike pectoral fins and a pointed head; short tail has no spine; coloration is mustard yellow to brownish on the back with an off-white belly.

Similar Fish: closely related and similar in appearance to the spiny butterfly ray; distinguishable by lack of barbed spine on tail (spiny butterfly ray has a barbed spine).

Size: up to 150 pounds; average size ranges from 25 – 70 pounds.

CLEARNOSE SKATE

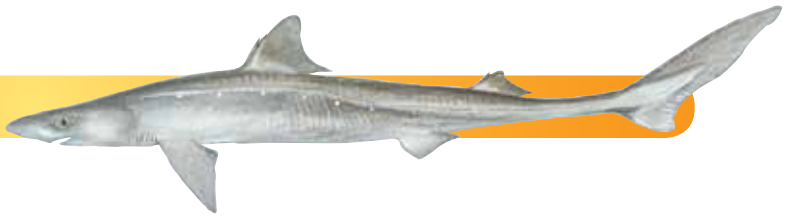


(Skate) Raja eglanteria

Description: broad diamond-shaped body with a pronounced pointed snout which is almost translucent; long tail features numerous spines (none barbed) running along the back and down the tail; coloration is brown or grayish brown along the back with numerous darker spots and some light spots; belly is white.

Size: up to 10 pounds; average size ranges from 2 – 5 pounds.

SPINY DOGFISH



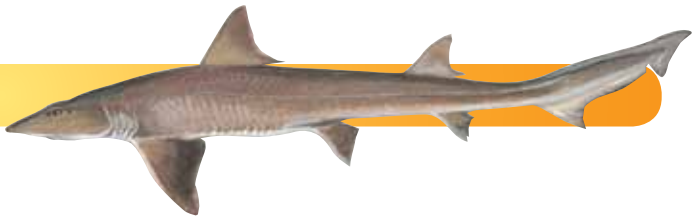
Sqalus acanthias

Description: long, slender body with two dorsal fins of nearly equal size; pelvic fin on the underside of the fish is positioned between the two dorsal fins and anal fin is absent; jaw is filled with small teeth with points bent toward rear of the mouth, positioned closely together to form a continuous cutting edge; a spiracle (airhole) is positioned behind the relatively large eye; coloration is gray along the back fading to pale gray with a white belly; young spiny dogfish have numerous white spots along the back.

Similar Fish: closely related and similar in appearance to the smooth dogfish; distinguishable by lack of anal fin (smooth dogfish has an anal fin) and the presence of spines at the start of each dorsal fin (smooth dogfish lack spines). Also, spiny dogfish may appear similar to Atlantic sharpnose sharks, which have small white spots along the back. However, the two species are easily distinguishable by size of dorsal fins (spiny dogfish have fins nearly equal in size, while the sharpnose shark has a first dorsal fin substantially larger than the second); presence of an anal fin on sharpnose shark (none on spiny dogfish); presence of spines at start of dorsal fins on spiny dogfish (none on sharpnose shark), and presence of distinct individual teeth in sharpnose shark.

Size: up to 30 pounds, average size 5 – 15 pounds.

SMOOTH DOGFISH



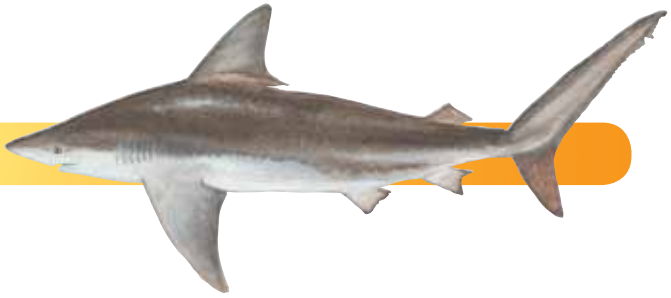
Mustelus canis

Description: long slender body with two dorsal fins of nearly equal size; pelvic fin on underside of fish is positioned between two dorsal fins, while anal fin is rear of the second dorsal fin; jaw features flat, pavement-like teeth and a spiracle (airhole) is located behind the relatively small eye; coloration is gray to brownish along the back fading to a pale gray along the sides with a white belly.

Similar Fish: closely related and similar in appearance to the spiny dogfish; distinguishable by presence of anal fin (absent in spiny dogfish) and absence of spines at the start of dorsal fins (present in spiny dogfish).

Size: up to 40 pounds; average size 4 – 15 pounds.

SANDBAR SHARK



(Brown Shark, Sand Shark)
Carcharhinus milberti

Description: long slender body with large first dorsal fin and small second dorsal fin; distinctive ridge exists along top of back between the first and second dorsal fins; height of first dorsal fin exceeds 10% of shark's total length and first dorsal fin extends farther forward on the body than on similar sharks; coloration is gray to grayish brown along the back and sides fading to a lighter colored abdomen.

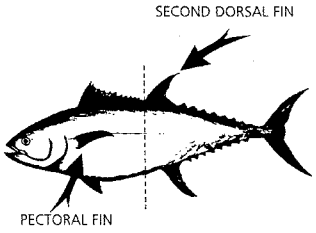
Similar Sharks: Dusky shark; distinguishable by larger size of first dorsal fin (dusky's first dorsal fin height is smaller than 10% of its total body length) and location of first dorsal fin (dusky shark's first dorsal fin starts at or rearward of the connection of the pectoral fins to the body).

Size: up to 350 pounds; average size is 10 – 50 pounds.

Note: Chesapeake Bay is the largest nursery area in the world for sandbar sharks, and small specimens (10-25 pounds) are extremely abundant during the summer months. People often refer to the sand shark, which is not a true species of shark but is a generic reference to any small toothy shark, and most likely they are referring to the sandbar shark in local waters. Identification of the shark species is extremely difficult, often relying on comparisons of fin lengths or placement. A good guide for shark identification is **Angler's Guide to Sharks of the Northeastern United States,** by John G. Casey. This was a publication of the Department of the Interior, Bureau of Sport Fisheries and Wildlife, Circular Number 179.

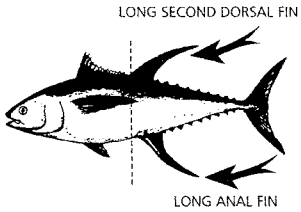
TUNA IDENTIFICATION CHART

LENGTH OF PECTORAL FIN



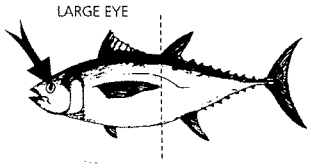
BLUEFIN TUNA

Bluefin tuna have a short pectoral fin, which does not reach the first part of the second dorsal fin.



YELLOWFIN TUNA

Yellowfin tuna have a pectoral fin which reaches past the first part of the second dorsal fin. Also, yellowfin tuna weighing more than 70 pounds may have long second dorsal and anal fins.

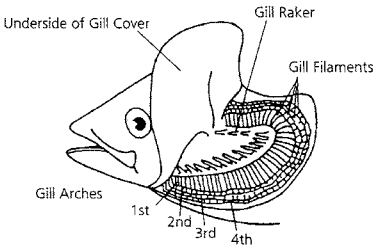


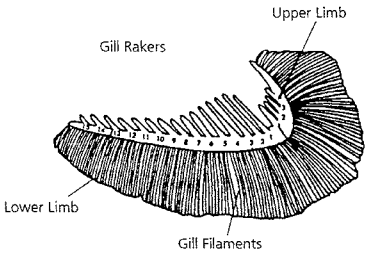
BIGEYE TUNA

Bigeye tuna have a pectoral fin longer than the bluefin tuna but shorter than the yellowfin tuna. Its length generally just reaches the start of the second dorsal fin. Eye is distinctively large.

Note: Pectoral Fin length may not be sufficient to distinguish the yellowfin tuna from the bigeye tuna.

NUMBER OF GILL RAKERS





Bluefin Tuna
34-43 gill rakers on each gill arch

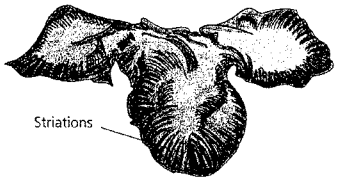
Yellowfin Tuna
27-33 gill rakers on each gill arch

Bigeye Tuna
25-29 gill rakers on each gill arch

Gill rakers are the white, bony bumps on the gill arch of a fish. Fish have four gill arches on each side of their head. Each tuna species has a distinct number of gill rakers on each arch, so counting the number of gill rakers can assist in identifying different tunas. In the picture above the gill rakers are numbered; the total of the gill rakers on both the upper and lower limb of the gill arch is the number used to assist in identifying the species of tuna.

Note: There is some overlap on the gill raker count of yellowfin and bigeye tuna; however, the bluefin tuna has a distinctive number of gill rakers making its identification easy.

SHAPE AND TEXTURE OF THE LIVER

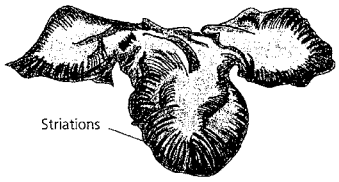


BLUEFIN TUNA

The liver of a bluefin tuna is symmetrical in shape, with the middle portion tending to be longer than the two side portions. Blood vessels occur close to the surface of the bottom side of the liver, giving it a streaked or striated look and texture.

YELLOWFIN TUNA

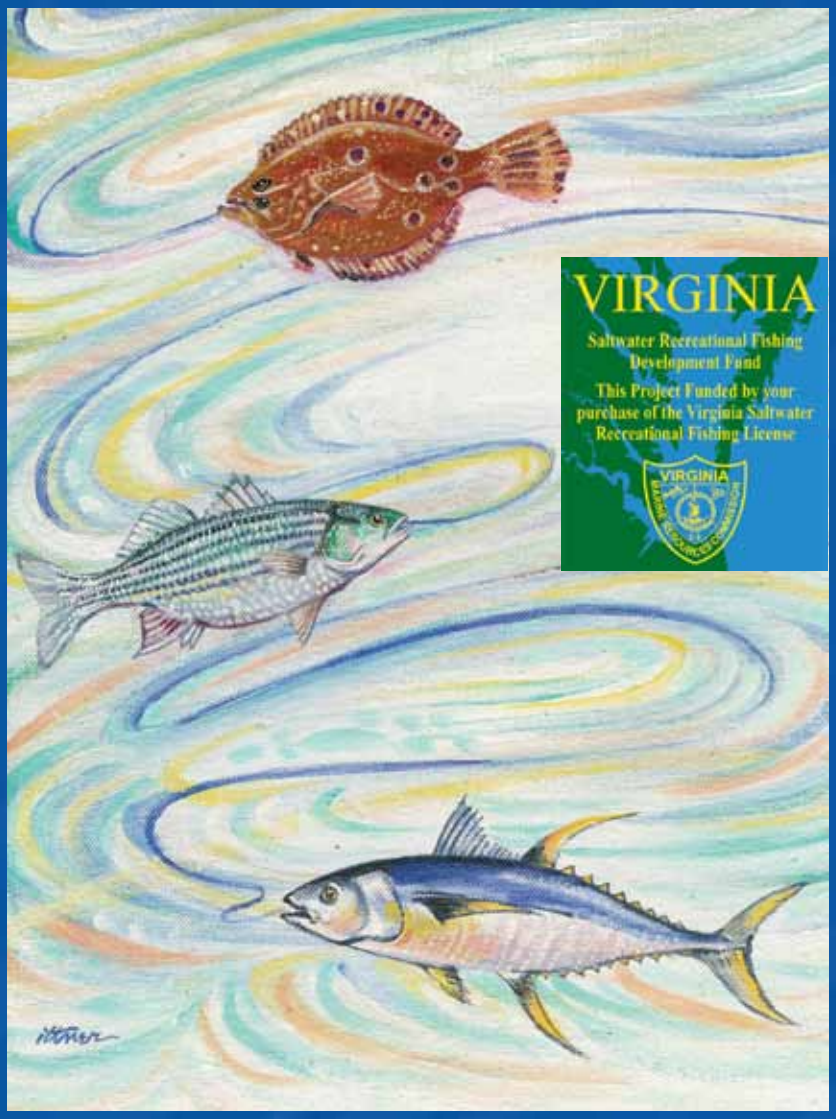
The liver of the yellowfin tuna is not symmetrical in shape, with the middle and one side long and the other side short. There are no blood vessels near the surface of either side of the liver, giving the liver a very smooth appearance.



BIGEYE TUNA

The liver of a bigeye tuna is symmetrical in shape, with the middle portion tending to be longer than the two side portions. Blood vessels occur close to the surface of the bottom side of the liver, giving it a streaked or striated look and texture.

NOTES



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