NEW YORK STATE
Department of Environmental Conservation

NEW YORK STATE
ARTIFICIAL REEF GUIDE

ON.NY.GOV/ARTIFICIALREEFSNY

Artificial Reefs

Long Island's Sunken Treasure

Long Island beaches are a national treasure, world-renowned for their fine white sand, spectacular waves, miles of boardwalks, beach trails, restaurants, picnic areas, and beautiful sunrises and sunsets. Just miles offshore visitors can find Long Island's "Sunken Treasure," 12 artificial reefs developed by New York State to improve sport fishing and provide new and exciting diving destinations.

Largest Expansion in State History

In 2018, New York State commenced the largest expansion of artificial reefs in State history. Recycled material, including boats, barges, old Tappan Zee Bridge materials, steel trusses, pipes, and girders, concrete panels, and much more have been deployed on existing reef sites to enhance the marine habitat.

Recreation on the Reefs

Investing in our local marine habitat and enhancing artificial reef sites provides new opportunities for all New Yorkers to enjoy our valuable and unique marine environment. The recycled structures that are deployed on artificial reefs provide additional fishing and diving opportunities, and support businesses that employ thousands of Long Islanders.

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Division of Marine Resources Artificial Reef Guide

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Cover photo by Shaun Snee

Share Your Reef Observations with Us!

Please feel free to share any photos you have of fishing or diving on our reefs and let us know if we have permission to use them. Each year, we will select one or two photos for the cover of this guide or one of our artificial reef webpages!

Email your photos to: artificialreefs@dec.ny.gov

Report Environmental Crimes

To contact an Environmental Conservation Police Officer or report suspected violations, call the DEC Law Enforcement Dispatch Center at

1-844-DEC-ECOs (1-844-332-3267)

or use the online reporting system at

https://www.dec.ny.gov/regulations/67751.html

Recreational Marine Fishing Registry

Who Needs to Register

You need to register if you are 16 and older and are:

- Fishing for saltwater fish species in the marine and coastal district.
- Fishing for migratory fish of the sea (striped bass, American eel, hickory shad, American shad, anadromous river herring) within tidal waters of the Hudson River and its tributaries, or in waters of the Delaware River or Mohawk River.

Get Your Sporting Licenses or Register for Marine Fishing

- Online: **https://decals.dec.ny.gov/DECALSCitizenWeb**
- By Phone: **1-866-933-2257** (Mon - Fri 8:30 AM - 7:00 PM and Sat 9:00 AM - 5:00 PM)

New York State Marine and Coastal District

Recreational Saltwater Fishing Regulations

Before heading out, make sure to check the fishing regulations for updates or changes. You can do this by checking out our webpage at **https://www.dec.ny.gov/outdoor/7894.html** or by downloading the NY Fishing, Hunting & Wildlife App here:

Recreational Lobster Permit

If you are heading out to the reefs and are hoping to take home a lobster, you are required to have a Recreational Lobster Permit. **This non-commercial permit allows a NYS resident to set no more than five lobster pots, and take or land no more than six legal lobsters in one day by this or any other legal method for the holder's own or family use.**

How to Apply

- Visit **https://www.dec.ny.gov/outdoor/100613.html** to download an application or contact the Marine Permit Office at **(631) 444-0470.**

American lobster in a steel pipe on Hempstead Reef

Photo by Chris LaPorta

Artificial Reefs in New York

The New York State Artificial Reef Program was officially created in 1962, although the documented construction of New York's first artificial reef dates back to the 1920s in the Great South Bay. DEC established a Marine Artificial Reef Development and Management Plan in 1993.

Currently, New York has 12 artificial reef sites, including:

- Two in Long Island Sound
- Two in Great South Bay
- Eight in the Atlantic Ocean on the south shore of Long Island

The Reef Program uses the "patch reef" method of construction where clean rock, concrete, and steel in various forms are placed on discrete parts of the reef site leaving natural bottom habitat in between. Placing different material in "patches" on each site provides a variety of habitats for marine life and has been documented to increase species diversity.

Under the NYSDEC Reef Development and Management Plan, the Reef Program has successfully enhanced New York's artificial reef sites through the addition of hundreds of patch reefs. Patch reefs have been created using a variety of materials that meet both national standards and New York Reef Program guidelines.

The Reef Program has worked cooperatively with federal agencies (U.S. Army Corps of Engineers, U.S. Coast Guard and National Marine Fisheries Service), local fishing clubs, and other groups to improve reef sites through reef material donation and project sponsorship.

In 2018, the NYS Artificial Reef Program began the largest expansion in state history. This expansion includes the deployment of cleaned recycled materials from the New York State Canal Corporation (NYSCC), New York State Thruway Authority, New York State Department of Transportation (DOT), the New York Power Authority (NYPA), and the U.S. Army Corps of Engineers.

Tautog (blackfish) swim over pipes on Rockaway Reef.

Photo by Dan Mundy

What is an artificial reef?

Artificial reefs are manmade structures which are recycled to provide additional habitat to fish and other aquatic organisms. They are made with a variety of hard, durable materials, which are selected based on their function, compatibility, durability, stability, and availability. These characteristics ensure that, once deployed, the material will provide suitable habitat for marine life that is safe, effective, and long lasting.

Artificial Reefs Create Marine Habitat

Artificial reefs are used to create complex habitat in areas which lack intricate natural hard bottom structure. This is common off the shores of New York which primarily have flat sand/silt bottoms. Artificial reefs enhance the environment by creating a biologically diverse area which provides food and shelter to a range of marine organisms. Over time, hard structures on the reefs are covered with algae, mussels, barnacles, sponges, anemones, hydroids, temperate corals, and other types of encrusting organisms.

Many fish and crustacean species, including black sea bass, tautog (blackfish), scup (porgy), summer flounder (fluke), and lobsters are attracted to reefs and the surrounding area for food and shelter. Fish also use artificial reefs for spawning. As an artificial reef matures, it resembles a natural reef and provides increased fishing and diving opportunities for the public.

Charter fishing boat off Fire Island National Seashore

Artificial Reef Citizen Science

Do you fish or dive New York's artificial reefs?

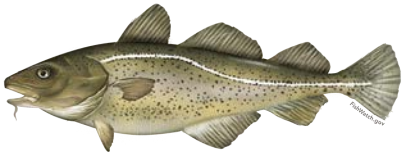
While visiting New York's artificial reefs, you can observe a variety of unique marine habitats, organisms, and environmental conditions. Please consider sharing your observations with the DEC Artificial Reef Program. The information you provide via our survey will help us learn more about the marine life on our artificial reefs and how to improve your experience on our reefs. The survey can be downloaded and completed from your phone or home computer: **https://www.dec.ny.gov/outdoor/9211.html**

Using a smart phone or tablet, scan the QR code to access the digital survey

Matthew Kessinger holding his New York State Record 13.45lb Atlantic bonito caught off of Atlantic Beach Reef in November 2020.

Matt Roth holding a 17.3lb blackfish (tautog) caught off Atlantic Beach Reef in Fall 2020.

Popular Sportfish of Artificial Reefs



Atlantic Cod

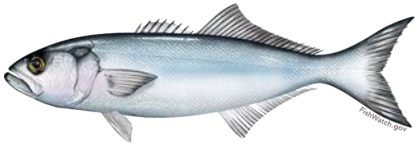
Atlantic cod are a cold-water species found from Greenland to Cape Hatteras, North Carolina. They spawn in the winter and early spring and can live over 20 years. Cod are sensitive to increasing ocean temperatures, which have been linked to declining cod populations. Cod are seasonal visitors to artificial reefs and use reef structure for shelter and foraging.

Tautog (Blackfish)*

Blackfish reside along the Atlantic coast from Nova Scotia to Georgia. They are slow growing and can live up to 40 years. They migrate inshore during the spring and move offshore as the water temperature drops through the fall. Blackfish use their strong jaws and teeth to chew up crabs, mussels, clams, and barnacles. They are commonly seen around natural and artificial structures. Blackfish are one of the most prized and sought-after species on our artificial reefs.

Black Sea Bass

Black sea bass can be found on the eastern seaboard from Maine to Florida. In the northeast, they migrate inshore in the summer and offshore in the winter. As ocean temperatures have warmed, black sea bass populations have expanded northward. Black sea bass begin their lives as females and some become males between 2 and 5 years old. Black sea bass can live up to 20 years. These fish live among rocks, wrecks, and other underwater structures and are highly sought after on artificial reefs.



Bluefish

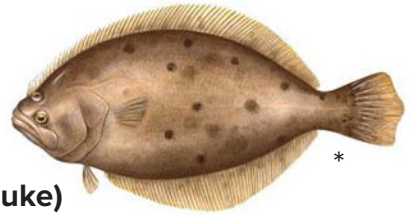
Bluefish inhabit temperate waters throughout much of the world. They are voracious predators and are known for their sharp teeth, which they use to make quick work of their prey. They can live up to 12 years and migrate into New York waters in the spring and summer. Bluefish stop at artificial reefs to feed. Anglers seek them out for their fight and willingness to attack lures thrown their way.

Scup (Porgy)

Scup, or porgy, inhabit marine waters between Massachusetts and North Carolina. They are a schooling fish that can live up to 20 years. They migrate inshore during the spring and are found on artificial reefs feeding on worms, small crustaceans, and fish. They are a popular sportfish that provide a good fight for their size.

Striped bass

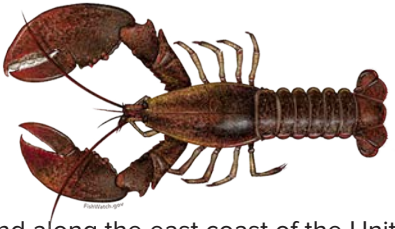
The striped bass inhabits the Atlantic coast from Canada to Florida. They are anadromous, which means they migrate from saltwater into fresh water to spawn. They migrate north in the spring, and back south in the fall, where they overwinter offshore. Striped bass can live up to 30 years and frequent NYS' artificial reefs searching for a meal.



Summer Flounder (Fluke)

Summer flounder (fluke) occur along the coast from Nova Scotia to Florida. They are bottom-dwelling fish that camouflage themselves in the bottom and ambush unsuspecting prey. Fluke migrate inshore in the spring and offshore in the winter. They begin their lives with eyes on both sides of their body. The right eye moves to the left side as they develop into juveniles. They can live up to 14 years and can be found on the bottom in and around artificial reefs.

Common Species of Artificial Reefs



American Lobster

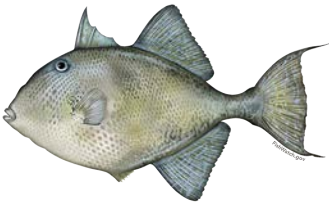
The American lobster is found along the east coast of the United States, primarily from Maine to New Jersey. In order to grow, lobsters shed their shells (molt) as they get bigger. Female lobsters carry eggs for up to 11 months, after which baby lobsters hatch and are released into the water column. Lobsters are sensitive to temperature and tend to avoid areas with temperatures above 68°F. Look for them hiding in cracks and crevices of the artificial reef materials.

Bergall (Cunner)

Cunner live among pilings, jetties, and artificial reefs from Canada to the Chesapeake Bay. People sometimes confuse them with blackfish, but cunner are generally smaller, less stout, and have a more pointed snout. Anglers often consider them a nuisance for stealing bait, but cunner can be eaten, and provide fun for the kids when many other fish aren't biting.

Conger Eel

Conger eel live from Massachusetts to the Gulf of Mexico in the United States. People often confuse them with the American eel; look for the conger's longer dorsal fin and snout. Like the American eel, conger eel spawn once in their lifetime. Adult eels of both species spawn in the Sargasso Sea, and larvae ride the ocean currents along the coast, where they eventually settle and begin to grow.

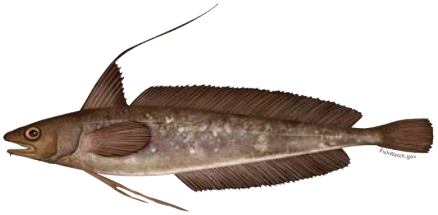


Gray Triggerfish

Ranging along the U.S.' entire eastern coast, gray triggerfish show up in New York waters in the summer. They forage in artificial reefs for benthic invertebrates such as crabs, shrimp, and mussels that they crush with their strong jaws and teeth. Triggerfish can live up to 16 years.

Ocean Pout **

Ocean pout inhabit marine waters from Canada to Delaware. They can reach up to 3 feet long and weigh up to 14 pounds. They range over a wide array of depths and are thought to move seasonally between different substrates. They mainly feed on invertebrates like worms and crabs, but will also eat other fish when given the opportunity. They prefer rocky areas and artificial structures.



Red Hake (Ling)

Red hake are also known as ling and can be found from Canada to North Carolina. They prefer colder water temperatures—up to 54°F. They use artificial reefs for feeding and hiding from predators. Red hake are related to the Atlantic cod and can live up to 14 years.

Rock Crab

Rock crabs reside along the east coast of the United States from Canada to South Carolina. They can be found in shallow waters to depths over 2,000 feet. Rock crabs are often confused with Jonah crabs but are generally smaller, have a smoother carapace (shell) edge, and purplish-brown spots.

Sea Robin

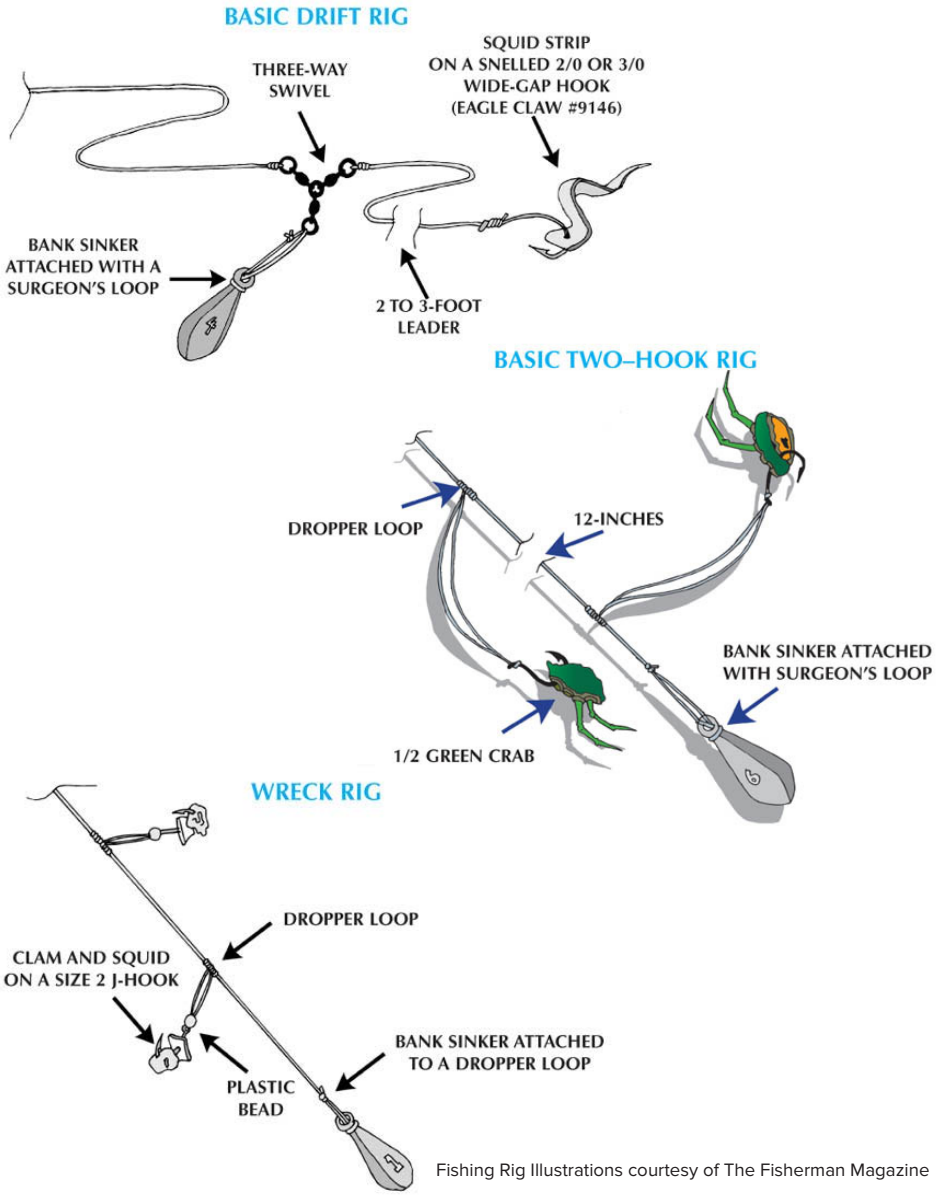
In New York, the two common sea robins are the striped sea robin and the northern sea robin. Both species are generally found from southern New England to the Carolinas. Sea robins have bony heads with spines and use their wing-like pectoral fins to walk along the bottom and stir up prey. When caught, they often make a croaking sound. Although not commonly kept for food, they are a good eating fish.

Photo credits:

* ASMFC fish illustrations by Dawn Witherington

** Drawing provided courtesy of the Maine Department of Marine Resources Recreational Fisheries program and the Maine Outdoor Heritage Fund

Fishing: Popular Rigs for Reefs



Fishing Rig Illustrations courtesy of The Fisherman Magazine

Fishing: Catch and Release Best Practices

Sport fishing can cause injury to fish through the acts of hooking, landing, and unhooking the catch. This is not a problem for fish that will be kept for eating, but injuries to fish that are released back into the water can result in death.

Many anglers assume that if a fish swims away after release, it will survive, but this is not always the case. Most fish that do not survive after release die because an angler doesn't understand how their actions and environmental conditions combine to harm the fish.

Catch-and-release can be broken into three phases: capture, handling, and release. The tips and practices below will help to ensure fish have the greatest chances for survival after release.

Capture

- Fish using tackle appropriate to the size class of the fish you are targeting. Never fight a fish to exhaustion as this can impair swimming ability post release.
- Use non-offset circle hooks when fishing with live or cut bait. Circle hooks usually hook a fish in the jaw and not in the gut or throat, making it easier and faster to release the fish.
- Avoid treble hooks, and crush or file off barbs on hooks to reduce de-hooking time.
- If a fish becomes gut-hooked, cut the leader as closely as possible to the hook and leave the hook in place; it will rust out after a short time.
- Do not gaff a fish unless it is legal size and you intend to keep it.
- Consider the environmental conditions when hooking and fighting a fish. Warmer water holds less dissolved oxygen and increases the rate at which a fish's body uses oxygen, so anglers should avoid long fights in warm water.

Handling

- Minimize the fish's exposure to air, keeping it in the water at all times if possible.
- Warm air temperatures and/or direct sunlight will cause a fish's gills and body to lose moisture rapidly.
- Handle fish with wet hands, and if using a landing net, use a "knotless" one that does not remove slime or scales from the fish.
- Because fish live in a relatively weightless environment, holding a fish vertically shifts internal organs unnaturally and can dislocate bones in the fish's spine. If you must handle a fish, hold it horizontally and firmly, and support its weight under the belly. Never hold a fish by its eyes or gills.
- Be prepared by having any necessary tools on hand before landing a fish to help reduce the time a fish may be out of the water during the de-hooking process.

Release

Always revive your catch before releasing it:

- While in control of the fish, orient it headfirst into the current, then gently move the fish in a side-to-side pattern so that water flows through the mouth and over the gills.
- Keep the fish moving forward; never move it backward as that can impede the ability of the gills to extract oxygen from the water.
- Do not let the fish go until it is able to swim strongly out of your grasp.

Barotrauma

Ever pull up a fish while bottom fishing and have it come up looking like the fish in the pictures below? Some fish have swim bladders which help them control their buoyancy. These air-filled sacs expand as the fish is reeled to the surface due to their inability to release gases as the pressure rapidly changes. Signs of fish with barotrauma injuries include bulging eyes or vent, bloated belly, and/or the stomach protruding from its mouth. The survival of a fish displaying barotrauma is low as the fish is likely to float on the surface.

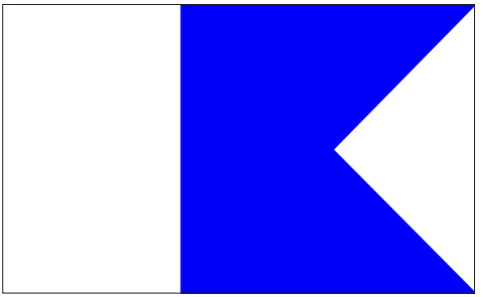
The best way to improve the survival of a fish displaying barotrauma, is by returning a fish down to the depth (and pressure) where it was caught. This will re-compress the gas in the fish's body. You can build your own "fish descender" or purchase one (search online for "fish descending devices"). The undersized fish you catch and release are the future of the fishery, so do your best to help them survive!

Artificial Reef Etiquette

- Do not crowd boats that were on the site before you.
- Keep an eye out for diver-down flags and stay clear of areas where people are diving.
- Observe all state and federal fishing regulations.
- Do not throw trash overboard. Fishing line, plastic, and other types of garbage can kill marine life and entangle divers.
- Refer to pages 10-11 for tips on how to properly handle and release your catch.

Diving New York's Artificial Reefs

- Always dive with the proper SCUBA certifications.
- Plan out your dive and make sure to display the proper dive flag.
- Be aware of your surroundings as some reef materials can pose danger to a diver.
- Dive safely and at your own risk.
- Respect the marine life.



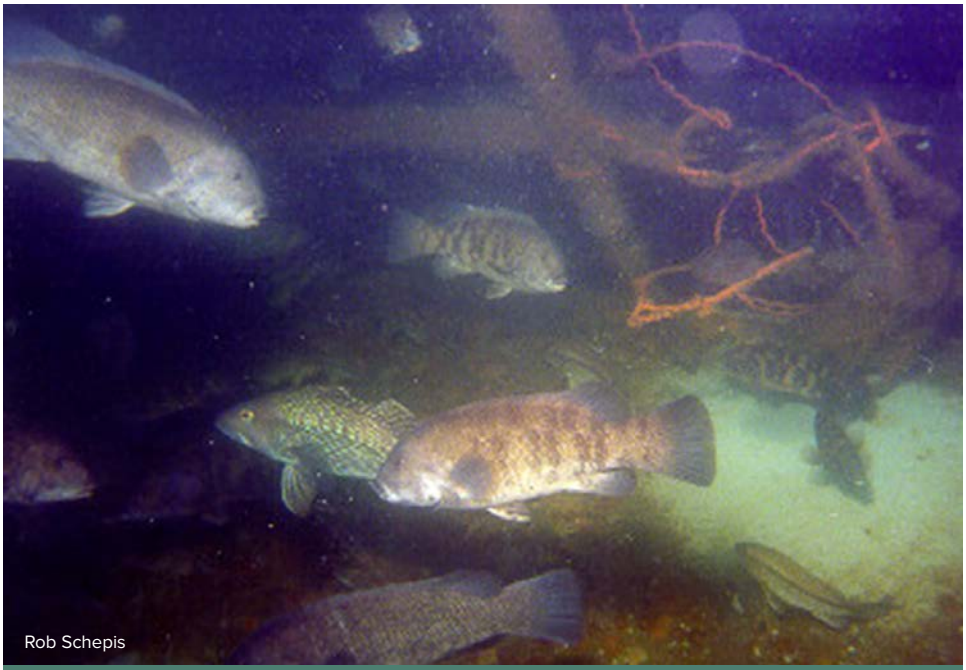
Help Support Our Mission

Did you know that most New York reefs were built with donated materials and resources from fishing and diving clubs, government agencies, private businesses and individuals? In the past, some private organizations working cooperatively with DEC adopted sites to build patch reefs while enjoying the local fishing and diving benefits they provide. The time, effort, and support given by these groups to the Artificial Reef Program is greatly appreciated. If you are interested in adopting a site, donating material, or getting involved in building New York's reefs, please contact **631-444-0438** or **artificialreefs@dec.ny.gov.**

Reef Material Coordinates

All coordinates in this guide are DGPS. Many factors can result in errors of the reef structure coordinates and we encourage you to notify us of any inaccuracies. Only materials that can still be identified or adequately located are displayed on the charts. Some sites have had additional materials placed on the reef, but they are not charted, because they have since become buried or have disintegrated/fallen apart.

Site Name	LATITUDE/LONGITUDE COORDINATES				Site Details
	NW Corner	NE Corner	SW Corner	SE Corner	
Atlantic Beach Reef	40°32.020 73°43.700	40°32.020 73°42.400	40°31.530 73°43.700	40°31.530 73°42.400	**Location**: Atlantic Ocean, 3.0 nautical miles south of Atlantic Beach. **Size**: 413 acres (2000 yards x 1000 yards). **Depth**: 55 to 64 feet.
Fire Island Reef	40°36.100 73°13.500	40°36.100 73°11.500	40°35.600 73°13.500	40°35.600 73°11.500	**Location**: Atlantic Ocean, 2.0 nautical miles south of the Fire Island Lighthouse. **Size**: 744 acres (3000 yards x 1200 yards). **Depth**: 62 to 73 feet. ***Fish pots banned by NYS law****
Hempstead Reef	40°31.250 73°33.350	40°31.500 73°31.370	40°30.670 73°33.520	40°30.920 73°31.550	**Location**: Atlantic Ocean, 3.3 nautical miles south of Jones Beach State Park. **Size**: 744 acres (3000 yards x 1200 yards). **Depth**: 50 to 72 feet.
Kismet Reef	40°38.110 73°13.060	40°38.280 73°12.450	40°38.090 73°13.050	40°38.260 73°12.440	**Location**: Great South Bay,120 yards north of the South Beach, between Kismet and the National Seashore dock. **Size**: 10 acres (1000 yards x 50 yards). **Depth**: 16 to 25 feet. ***Fish pots banned by NYS law****
Matinecock Reef	40°54.580 73°37.740	40°54.690 73°37.250	40°54.480 73°37.700	40°54.580 73°37.210	**Location**: Long Island Sound, 0.5 nautical miles north of Peacock Point. **Size**: 41 acres (800 yards x 250 yards). **Depth**: 30 to 40 feet. ***Fish pots banned by NYS law****
McAllister Grounds (Fishing Line) Reef	40°32.300 73°39.700	40°32.300 73°39.200	40°32.100 73°39.700	40°32.100 73°39.200	**Location**: Atlantic Ocean, 2.8 nautical miles south of Long Beach. **Size**: 115 acres (925 yards x 600 yards). **Depth**: 50 to 53 feet. ***Fish pots banned by NYS law****



Tautog and black sea bass swim over the clam dredge vessel Cape Fear *on Moriches Reef.*

Site Name	LATITUDE/LONGITUDE COORDINATES				Site Details
	NW Corner	NE Corner	SW Corner	SE Corner	
Moriches Reef	40°43.470 72°46.640	40°43.540 72°46.360	40°43.400 72°46.620	40°43.470 72°46.330	**Location**: Atlantic Ocean, 2.4 nautical miles south of Moriches Inlet. **Size**: 14 acres (450 yards x 150 yards). **Depth**: 70 to 75 feet. ***Fish pots banned by NYS law***
Rockaway Reef	40°32.730 73°51.210	40°32.730 73°49.920	40°32.200 73°51.210	40°32.200 73°49.920	**Location:** Atlantic Ocean, 1.6 nautical miles south of Rockaway Beach. **Size:** 413 acres (2000 yards x 1000 yards). **Depth:** 32 to 40 feet. ***Fish pots banned by NYS law***
Shinnecock Reef	40°48.160 72°28.670	40°48.210 72°28.300	40°48.040 72°28.700	40°48.090 72°28.330	**Location:** Atlantic Ocean, 2.0 nautical miles south of Shinnecock Inlet. **Size:** 35 acres (680 x 250 yards). **Depth:** 79 to 84 feet. ***Fish pots banned by NYS law***
Smithtown Reef	40°55.975 73°11.170	40°56.005 73°11.070	40°55.920 73°11.140	40°55.955 73°11.035	**Location:** Long Island Sound, 1.6 nautical miles northwest of Stony Brook Harbor entrance. **Size:** 3 acres (150 yards x 100 yards). **Depth:** 38 to 40 feet. ***Fish pots banned by NYS law***
Twelve Mile Reef	40°37.250 72°32.250	40°37.250 72°30.930	40°36.250 72°32.250	40°36.250 72°30.930	**Location:** Atlantic Ocean, 12.0 nautical miles from Moriches and Shinnecock Inlets. **Size:** 850 acres (2025 yards x 2025 yards). **Depth:** 123 to 143 feet.
Yellowbar (Fisherman) Reef	40°37.930 73°14.640	40°38.040 73°14.390	40°37.900 73°14.630	40°38.010 73°14.370	**Location:** Great South Bay, 900 yards east of the Robert Moses Fixed Bridge. **Size:** 7 acres (400 yards x 85 yards). **Depth:** 25 to 40 feet. ***Fish pots banned by NYS law***

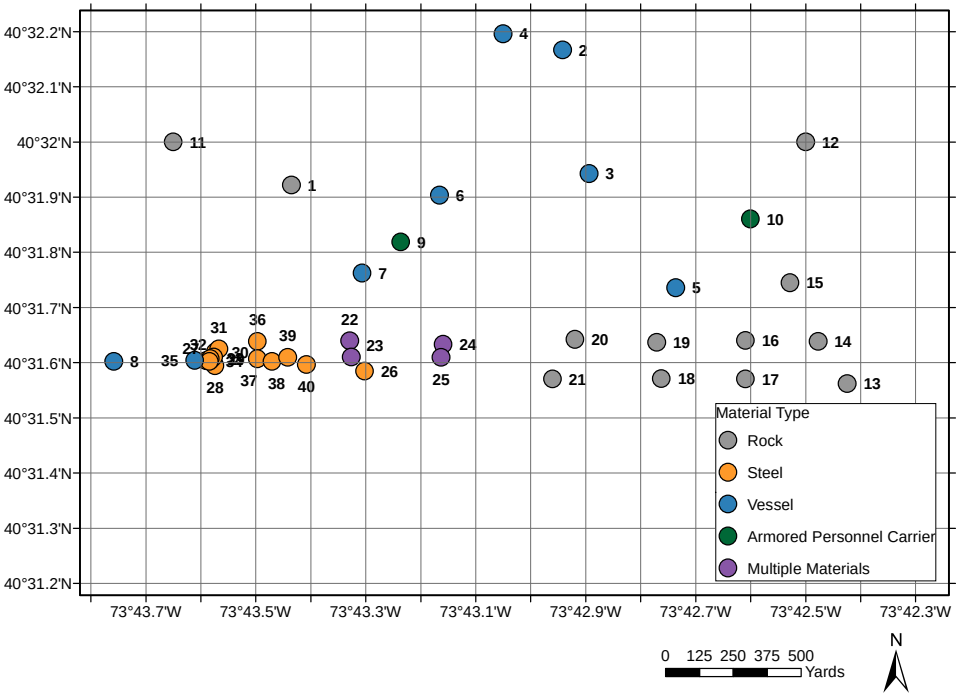
Shaun Snee

Atlantic Beach Reef

Atlantic Beach Reef Boundary Coordinates			
NW Corner	**NE Corner**	**SW Corner**	**SE Corner**
40°32.020 73°43.700	40°32.020 73°42.400	40°31.530 73°43.700	40°31.530 73°42.400

ID No.	Atlantic Beach Reef Material Coordinates			
	Material	**Latitude**	**Longitude**	**Year Deployed**
1	Rock Pile	40°31.921	73°43.435	N/A
2	80' Barge	40°32.166	73°42.942	N/A
3	85' Barge	40°31.942	73°42.894	N/A
4	100' Barge	40°32.196	73°43.05	N/A
5	140' Barge	40°31.736	73°42.736	N/A
6	150' Barge	40°31.903	73°43.166	N/A
7	150' Wooden Barge	40°31.762	73°43.306	N/A
8	84' Tugboat Fran S	40°31.818	73°43.236	1970s
9	Armored Personnel Carriers	40°31.86	73°42.6	1995
10	Armored Personnel Carriers	40°31.602	73°43.758	1996
11	Rock Pile-West Coordinate	40°32.0	73°43.650	1998-2001
12	Rock Pile-East Coordinate	40°32.0	73°42.500	1998-2001
13	Rock Pile	40°31.562	73°42.424	2003-2004
14	Rock Pile	40°31.638	73°42.477	2003-2004
15	Rock Pile	40°31.745	73°42.528	2003-2004
16	Rock Pile	40°31.640	73°42.609	2003-2004
17	Rock Pile	40°31.570	73°42.609	2003-2004
18	Rock Pile	40°31.571	73°42.762	2003-2004
19	Rock Pile	40°31.636	73°42.771	2003-2004
20	Rock Pile	40°31.642	73°42.919	2003-2004
21	Rock Pile	40°31.570	73°42.960	2003-2004
22	Steel Pipe, Steel Girders, Concrete Barriers	40°31.639	73°43.329	2019
23	Steel Pipe, Steel Girders, Concrete Barriers	40°31.610	73°43.326	2019
24	Steel Pipe, Steel Girders, Concrete Barriers	40°31.633	73°43.159	2019
25	Steel Pipe, Steel Girders, Concrete Barriers	40°31.609	73°43.163	2019
26	Steel Buoys	40°31.584	73°43.302	2019
27	Steel Turbine Rotor and Steel Pontoon	40°31.603	73°43.590	2019
28	Steel Pontoons	40°31.594	73°43.574	2019
29	Steel Barge Section	40°31.605	73°43.581	2019
30	Steel Barge Section	40°31.619	73°43.573	2019
31	Steel Barge Section	40°31.624	73°43.567	2019
32	Steel Barge Section	40°31.610	73°43.576	2019
33	Steel Turbine Shells	40°31.607	73°43.582	2019
34	Steel Turbine Shells	40°31.602	73°43.584	2019
35	75' Steel Barge	40°31.604	73°43.611	2019
36	Steel Centerbeam Railcars	40°31.638	73°43.497	2020
37	Steel Centerbeam Railcars	40°31.607	73°43.497	2020
38	Steel Centerbeam Railcars	40°31.602	73°43.470	2020
39	Steel Centerbeam Railcars	40°31.609	73°43.442	2020
40	Steel Centerbeam Railcars	40°31.596	73°43.408	2020

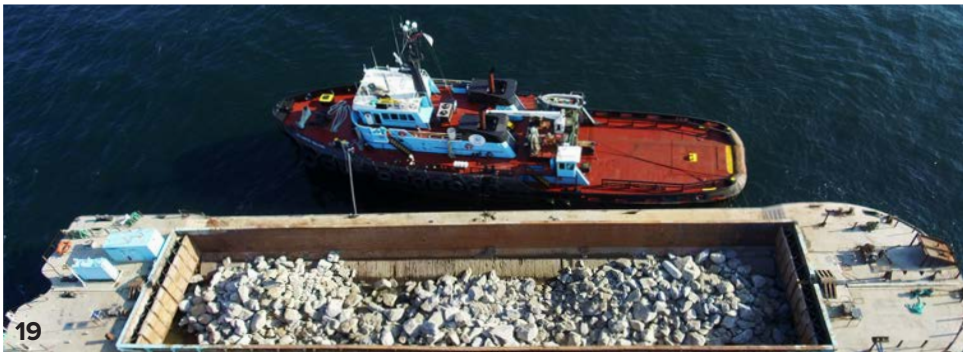
Atlantic Beach Reef



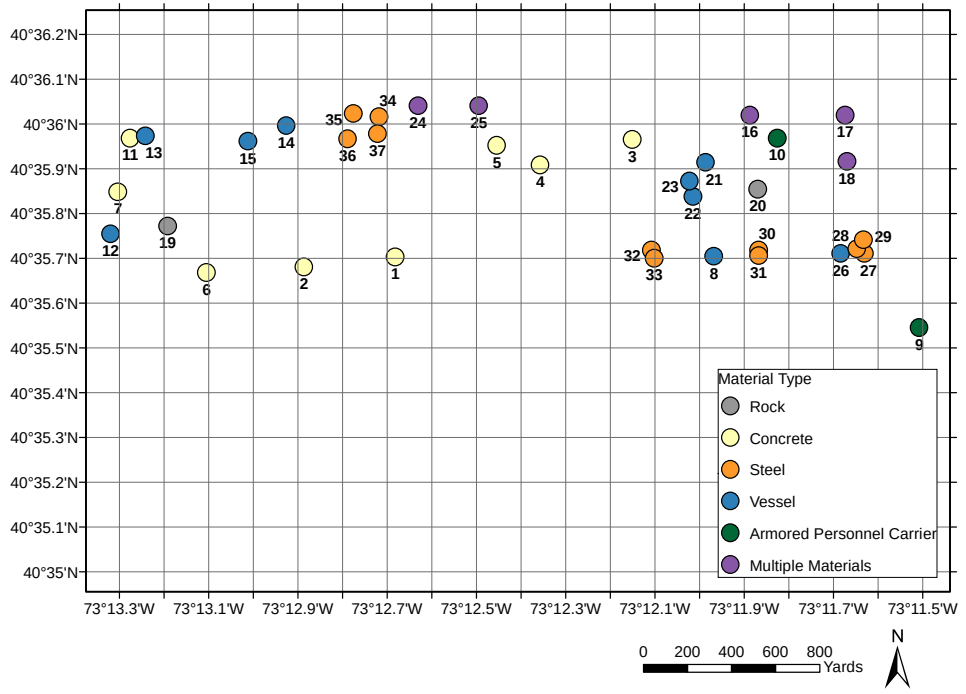
Fire Island Reef

Fire Island Reef Boundary Coordinates			
NW Corner	**NE Corner**	**SW Corner**	**SE Corner**
40°36.100 73°13.500	40°36.100 73°11.500	40°35.600 73°13.500	40°35.600 73°11.500

ID No.	Fire Island Reef Material Coordinates			
	Material	**Latitude**	**Longitude**	**Year Deployed**
1	Debris Field	40°35.703	73°12.682	N/A
2	Debris Field	40°35.681	73°12.886	N/A
3	Rubble Pile	40°35.965	73°12.151	N/A
4	Rubble Pile	40°35.908	73°12.357	N/A
5	Rubble Pile	40°35.952	73°12.454	N/A
6	Rubble Pile	40°35.668	73°13.105	N/A
7	Rubble Pile	40°35.848	73°13.304	N/A
8	150' Drydock	40°35.704	73°11.968	1986
9	Armored Personnel Carriers	40°35.545	73°11.508	1995
10	Armored Personnel Carriers	40°35.968	73°11.826	1996
11	Concrete Culvert	40°35.968	73°13.276	1998
12	43" Steel Sailboat *Courtesan*	40°35.754	73°13.32	1998
13	110' Steel Barge with 9 Concrete Pipes	40°35.973	73°13.242	1999
14	50' Steel Clam Dredge Boat *Mary N*	40°35.996	73°12.926	2003
15	45' Steel Clam Dredge Boat *Alec N*	40°35.961	73°13.012	2003
16	Steel Pipe, Concrete Columns, Road Deck Panels	40°36.020	73°11.887	2018
17	Steel Pipe, Concrete Columns, Road Deck Panels	40°36.020	73°11.674	2018
18	Steel Pipe, Concrete Columns, Road Deck Panels	40°35.916	73°11.67	2018
19	Jetty Stone	40°35.772	73°13.192	2018
20	Jetty Stone	40°35.854	73°11.870	2018
21	110' Steel Scow Barge *Air Force Scow*	40°35.914	73°11.986	2018
22	100' Steel Dump Scow DS-24	40°35.838	73°12.015	2018
23	30' Steel Scow Barge Piano Scow	40°35.872	73°12.022	2018
24	Road Deck Panels, Concrete Pipe Piles	40°36.040	73°12.631	2018
25	Road Deck Panels, Concrete Pipe Piles	40°36.040	73°12.495	2018
26	53' Steel Vessel M/V *Hudson*	40°35.711	73°11.684	2019
27	Steel Tainter Gate	40°35.711	73°11.631	2019
28	Steel Miter Gate/Lift Bridge/Pontoon Structure	40°35.721	73°11.648	2019
29	Steel Miter Gate/Lift Bridge/Pontoon Structure	40°35.741	73°11.633	2019
30	Steel Bridge Girders, Steel Pipe, Steel Lifting Towers	40°35.718	73°11.868	2019
31	Steel Bridge Girders, Steel Pipe, Steel Lifting Towers	40°35.706	73°11.868	2019
32	Steel Bridge Girders, Steel Pipe, Steel Lifting Towers	40°35.718	73°12.108	2019
33	Steel Bridge Girders, Steel Pipe, Steel Lifting Towers	40°35.700	73°12.102	2019
34	Steel Centerbeam Railcars	40°36.016	73°12.718	2020
35	Steel Centerbeam Railcars	40°36.023	73°12.776	2020
36	Steel Centerbeam Railcars	40°35.967	73°12.784	2020
37	Steel Centerbeam Railcars	40°35.978	73°12.722	2020



Fire Island Reef

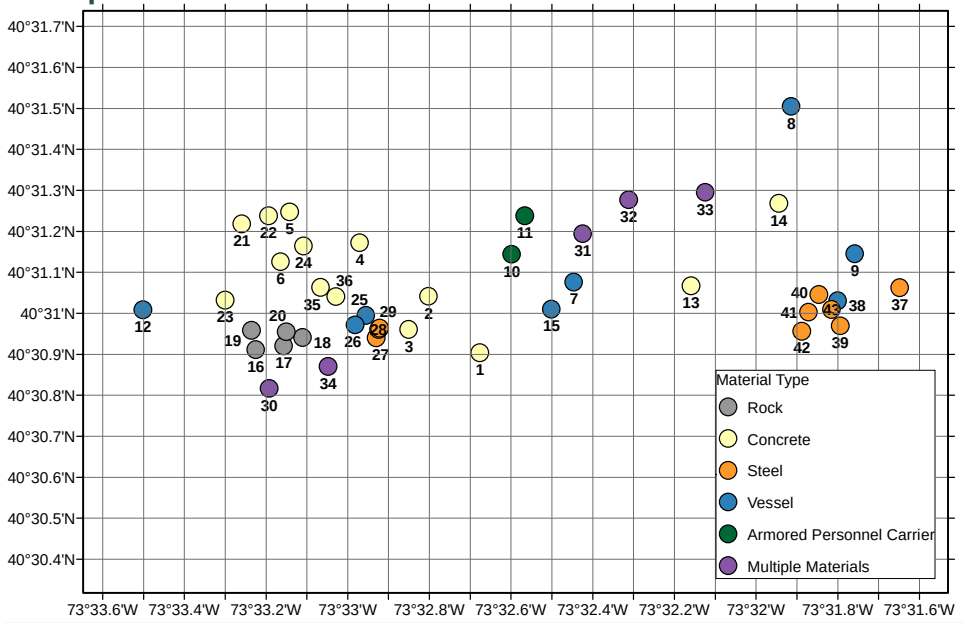


Hempstead Reef

Hempstead Reef Boundary Coordinates			
NW Corner	**NE Corner**	**SW Corner**	**SE Corner**
40°31.250 73°33.350	40°31.500 73°31.370	40°30.670 73°33.520	40°30.920 73°31.550

ID No.	Hempstead Reef Material Coordinates			
	Material	**Latitude**	**Longitude**	**Year Deployed**
1	Rubble Pile	40°30.903	73°32.676	N/A
2	Rubble Pile	40°31.041	73°32.802	N/A
3	Rubble Pile	40°30.96	73°32.85	N/A
4	Rubble Pile	40°31.171	73°32.97	N/A
5	Rubble Pile	40°31.247	73°33.142	N/A
6	Rubble Pile	40°31.125	73°33.164	N/A
7	40' Vessel	40°31.076	73°32.446	N/A
8	100' Wood Drydock	40°31.504	73°31.914	1990
9	110' Navy Barge	40°31.145	73°31.758	1993
10	Armored Personnel Carriers	40°31.143	73°32.598	1995
11	Armored Personnel Carriers	40°31.237	73°32.566	1996
12	78' Steel Trawler *Lucisaura*	40°31.008	73°33.501	1998
13	Concrete Bridge Slabs	40°31.067	73°32.159	1998
14	Concrete Bridge Slabs	40°31.268	73°31.944	1998
15	2- 40' Steel Barges	40°31.010	73°32.501	2000
16	Rock Pile	40°30.910	73°33.223	2013
17	Rock Pile	40°30.919	73°33.156	2013
18	Rock Pile	40°30.940	73°33.109	2013
19	Rock Pile	40°30.959	73°33.233	2014
20	Rock Pile	40°30.954	73°33.15	2014
21	Concrete Buoy Anchors	40°31.218	73°33.259	2016
22	Concrete Buoy Anchors	40°31.237	73°33.194	2018
23	Concrete Columns, Road Deck Panels	40°31.032	73°33.30	2018
24	Concrete Columns, Road Deck Panels	40°31.164	73°33.108	2018
25	115' Steel Vessel *Wards Island*	40°30.994	73°32.955	2018
26	75' Steel Derrick Boat DB-1	40°30.971	73°32.982	2018
27	Steel Bridge Trusses	40°30.94	73°32.93	2018
28	Steel Power Plant Turbine	40°30.960	73°32.924	2018
29	Steel Power Plant Turbine	40°30.963	73°32.922	2018
30	Steel Pipe, Concrete Columns, Road Deck Panels	40°30.816	73°33.192	2018
31	Steel Pipe, Concrete Columns, Road Deck Panels	40°31.193	73°32.424	2018
32	Steel Pipe, Concrete Columns, Road Deck Panels	40°31.294	73°32.124	2018
33	Steel Pipe, Concrete Columns, Road Deck Panels	40°31.294	73°32.179	2018
34	Concrete Filled Steel Pilings	40°30.87	73°33.048	2018
35	Concrete Drawbridge Gatehouse, Bridge Support Concrete, Concrete Barriers	40°31.063	73°33.066	2019
36	Concrete Drawbridge Gatehouse, Bridge Support Concrete, Concrete Barriers	40°31.040	73°33.029	2019
37	Steel Centerbeam Railcar	40°31.062	73°31.648	2020
38	70' Steel Tugboat *Jane*	40°31.030	73°31.800	2020
39	Steel Power Plant Turbine	40°30.969	73°31.794	2020
40	Steel Centerbeam Railcars	40°31.045	73°31.846	2020
41	Steel Centerbeam Railcars	40°31.002	73°31.871	2020
42	Steel Centerbeam Railcars	40°30.956	73°31.888	2020
43	Steel Centerbeam Railcars	40°31.009	73°31.815	2020

Hempstead Reef

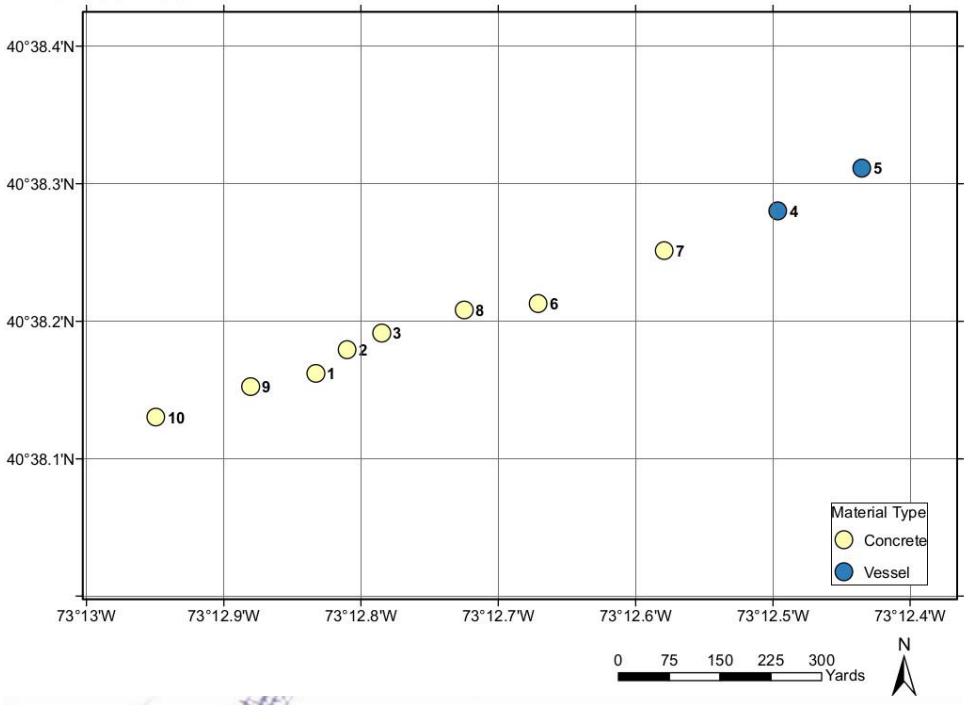


Kismet Reef

Kismet Reef Boundary Coordinates			
NW Corner	**NE Corner**	**SW Corner**	**SE Corner**
40°38.110 73°13.060	40°38.280 73°12.450	40°38.090 73°13.050	40°38.260 73°12.440

ID No.	Kismet Reef Material Coordinates			
	Material	**Latitude**	**Longitude**	**Year Deployed**
1	Concrete Blocks	40°38.162	73°12.833	1965
2	Concrete Blocks	40°38.179	73°12.810	1965
3	Concrete Blocks	40°38.191	73°12.785	1965
4	100' Barge	40°38.280	73°12.496	1965
5	85' Barge	40°38.311	73°12.435	1965
6	Concrete Ballasted Tires	40°38.208	73°12.725	1967-1968
7	Concrete Ballasted Tires	40°38.213	73°12.671	1967-1968
8	Concrete Culvert	40°38.251	73°12.579	1974
9	Rubble Pile	40°38.152	73°12.880	1990-1991
10	Concrete Barriers	40°38.130	73°12.949	2019

Kismet Reef

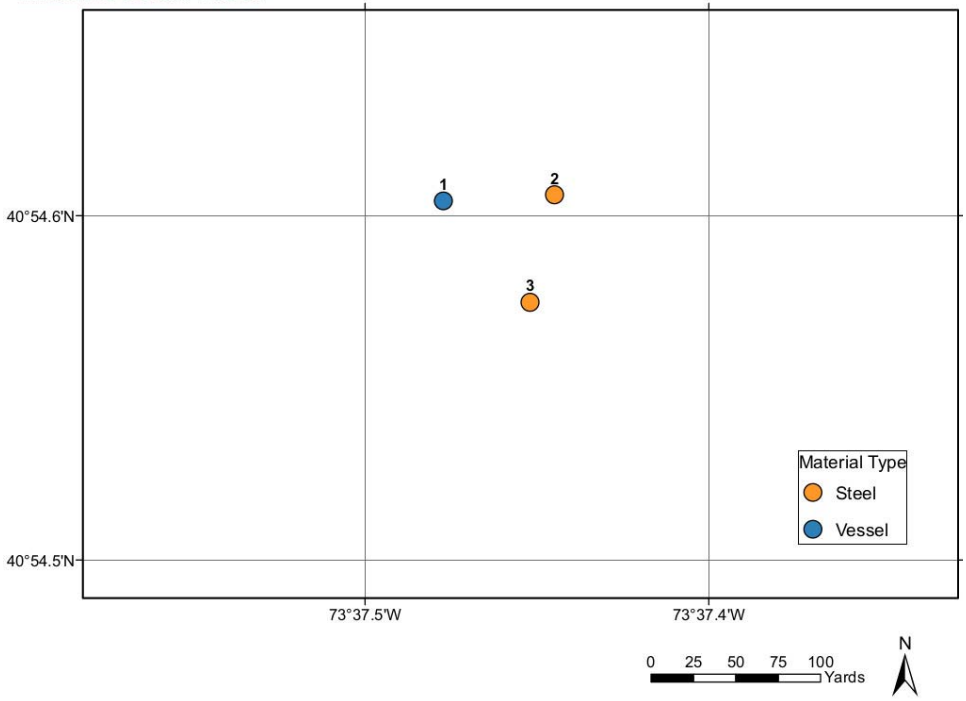

40°38.4'N
40°38.3'N
40°38.2'N
40°38.1'N
73°13'W
73°12.9'W
73°12.8'W
73°12.7'W
73°12.6'W
73°12.5'W
73°12.4'W
1
2
3
4
5
6
7
8
9
10
Material Type
Concrete
Vessel
0 75 150 225 300
Yards
N

Matinecock Reef

Matinecock Reef Boundary Coordinates			
NW Corner	**NE Corner**	**SW Corner**	**SE Corner**
40°54.580 73°37.740	40°54.690 73°37.250	40°54.480 73°37.700	40°54.580 73°37.210

ID No.	Matinecock Reef Material Coordinates			
	Material	**Latitude**	**Longitude**	**Year Deployed**
1	46' Steel Barge with Pontoons	40°54.604	73°37.477	2019
2	Steel Pontoons	40°54.606	73°37.445	2019
3	Steel Pontoons	40°54.575	73°37.452	2019

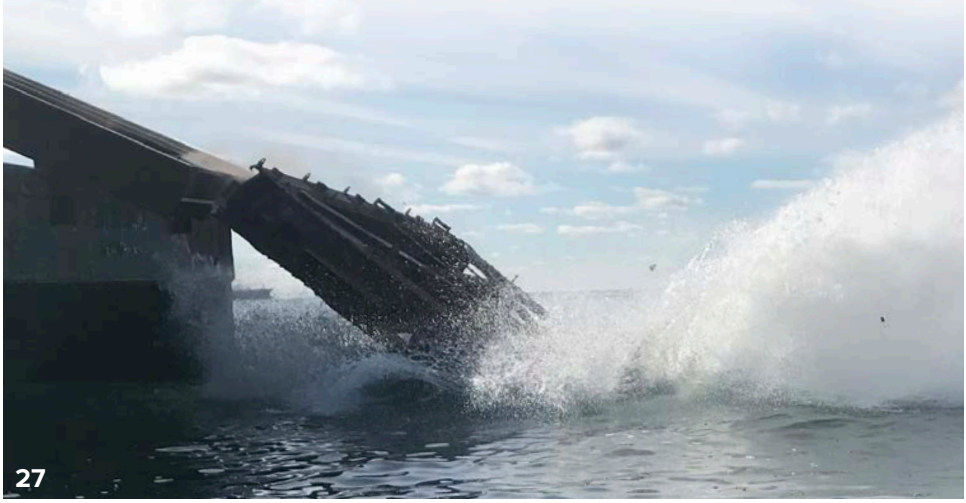
Matinecock Reef



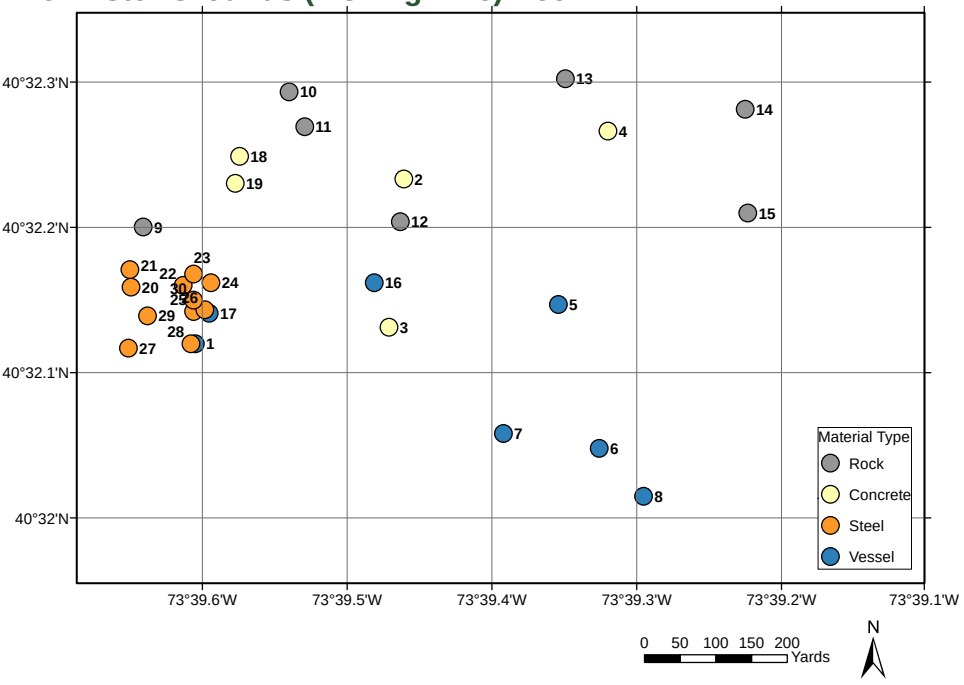
McAllister Grounds (Fishing Line) Reef

McAllister Grounds (Fishing Line) Reef Boundary Coordinates			
NW Corner	**NE Corner**	**SW Corner**	**SE Corner**
40°32.300 73°39.700	40°32.300 73°39.200	40°32.100 73°39.700	40°32.100 73°39.200

ID No.	McAllister Grounds (Fishing Line) Reef Material Coordinates			
	Material	**Latitude**	**Longitude**	**Year Deployed**
1	60' Steel Barge	40°32.120	73°39.605	1999
2	Concrete Bridge Sections	40°32.233	73°39.461	2000
3	Concrete Bridge Sections	40°32.131	73°39.471	2000
4	Concrete Bridge Sections	40°32.266	73°39.320	2000
5	43' Bi-metal Sailboat *Beyond*	40°32.147	73°39.354	2000
6	40' Dredge Barge	40°32.048	73°39.326	2000
7	28' Steel Workboat	40°32.058	73°39.392	2000
8	40' Dredge Barge	40°32.015	73°39.295	2000
9	Red Shale Pile	40°32.200	73°39.641	2002
10	Red Shale Pile	40°32.293	73°39.540	2002
11	Red Shale Pile	40°32.269	73°39.529	2002
12	Red Shale Pile	40°32.204	73°39.463	2002
13	Red Shale Pile	40°32.302	73°39.349	2002
14	Red Shale Pile	40°32.281	73°39.225	2002
15	Red Shale Pile	40°32.210	73°39.223	2002
16	37' Steel Crane Barge	40°32.162	73°39.481	2003
17	27' Steel Workboat *Evan Miller*	40°32.141	73°39.595	2004
18	Concrete Barriers	40°32.249	73°39.574	2019
19	Concrete Barriers	40°32.230	73°39.577	2019
20	Steel Barge Section	40°32.159	73°39.649	2019
21	Steel Barge Section	40°32.171	73°39.650	2019
22	Steel Barge Section	40°32.160	73°39.613	2019
23	Steel Barge Section	40°32.168	73°39.606	2019
24	Steel Barge Section	40°32.162	73°39.594	2019
25	Steel Barge Section	40°32.142	73°39.606	2019
26	Steel Barge Section	40°32.143	73°39.598	2019
27	Steel Miter Gate	40°32.117	73°39.651	2019
28	Steel Miter Gate	40°32.120	73°39.608	2019
29	Steel Power Plant Turbine	40°32.139	73°39.638	2019
30	Steel Buoy Stems	40°32.150	73°39.606	2019



McAllister Grounds (Fishing Line) Reef

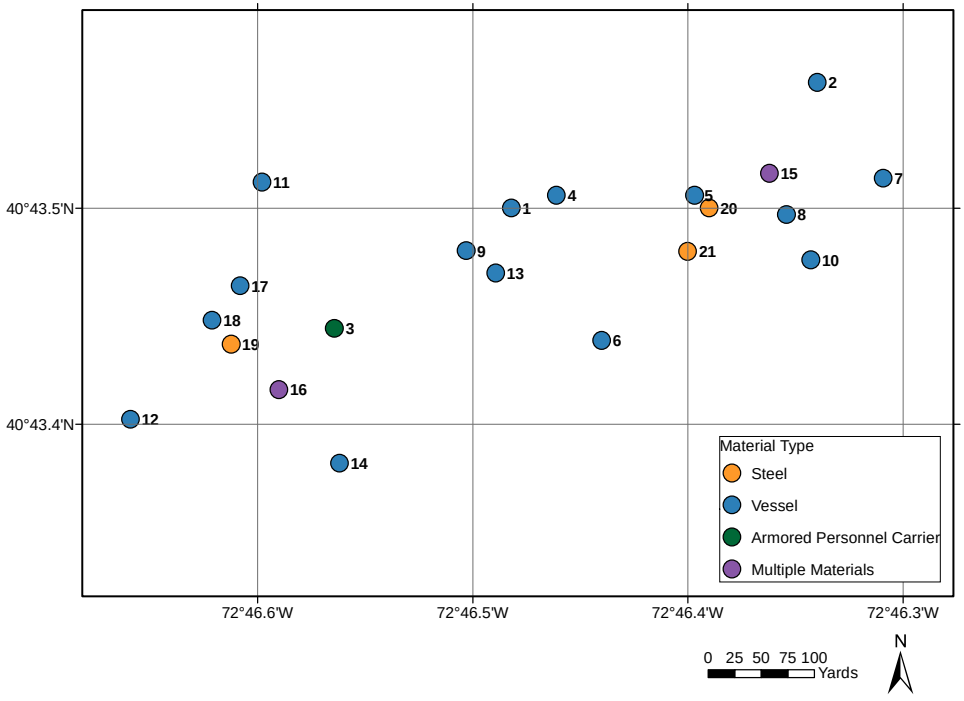


Moriches Reef

Moriches Reef Boundary Coordinates			
NW Corner	**NE Corner**	**SW Corner**	**SE Corner**
40°43.470 72°46.640	40°43.540 72°46.360	40°43.400 72°46.615	40°43.470 72°46.330

ID No.	Moriches Reef Material Coordinates			
	Material	**Latitude**	**Longitude**	**Year Deployed**
1	190' Steel Barge	40°43.500	72°46.482	1995
2	60' Steel Barge	40°43.558	72°46.340	1995
3	Armored Personnel Carriers	40°43.444	72°46.564	1998
4	90' Steel Trawler *Niagara Falls*	40°43.506	72°46.461	1998
5	76' Steel Trawler *Captain Sam*	40°43.506	72°46.397	1998
6	112' Steel Trawler *Saint George II*	40°43.439	72°46.440	1999
7	80' Steel Barge No. 335	40°43.514	72°46.309	1999
8	112' Steel Clam Dredge *Cape Fear*	40°43.497	72°46.354	2000
9	70' Steel Trawler *Two Friends*	40°43.480	72°46.503	2001
10	100' Steel Barge	40°43.476	72°46.343	2001
11	80' Steel Trawler *Ana Palmira*	40°43.512	72°46.598	2002
12	167' Steel Vessel *The Boat*	40°43.402	72°46.659	2002
13	90' Steel Tugboat *J.J.*	40°43.470	72°46.489	2003
14	77' Steel Fishing Vessel *Vickey*	40°43.382	72°46.562	2004
15	Steel Pipe, Concrete Columns, Road Deck Panels	40°43.516	72°46.362	2018
16	Steel Pipe, Concrete Columns, Road Deck Panels	40°43.416	72°46.59	2018
17	25' Steel Pump Boat	40°43.464	72°46.608	2018
18	50' Steel Self Propelled Scow	40°43.448	72°46.621	2018
19	Steel I-Beams	40°43.437	72°46.612	2018
20	Steel Centerbeam Railcars	40°43.500	72°46.390	2020
21	Steel Centerbeam Railcars	40°43.480	72°46.400	2020

Moriches Reef

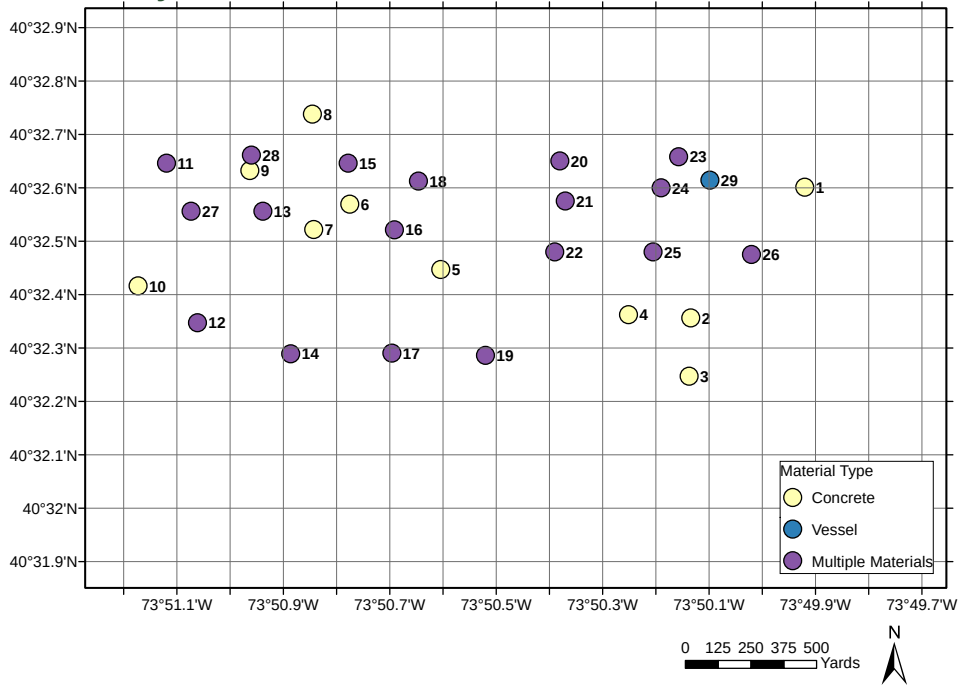


Rockaway Reef

Rockaway Reef Boundary Coordinates			
NW Corner	**NE Corner**	**SW Corner**	**SE Corner**
40°32.730 73°51.210	40°32.730 73°49.920	40°32.200 73°51.210	40°32.200 73°49.920

ID No.	Rockaway Reef Material Coordinates			
	Material	**Latitude**	**Longitude**	**Year Deployed**
1	Rubble Pile	40°32.601	73°49.920	N/A
2	Rubble Pile	40°32.356	73°50.134	N/A
3	Rubble Pile	40°32.247	73°50.137	N/A
4	Rubble Pile	40°32.362	73°50.251	N/A
5	Rubble Pile	40°32.447	73°50.604	N/A
6	Rubble Pile	40°32.569	73°50.775	N/A
7	Rubble Pile	40°32.522	73°50.843	N/A
8	Rubble Pile	40°32.738	73°50.845	N/A
9	Rubble Pile	40°32.632	73°50.963	N/A
10	Rubble Pile	40°32.416	73°51.173	N/A
11	Concrete Coated Steel Pipes	40°32.646	73°51.119	2015
12	Concrete Coated Steel Pipes	40°32.345	73°51.060	2015
13	Concrete Coated Steel Pipes	40°32.556	73°50.938	2015
14	Concrete Coated Steel Pipes	40°32.289	73°50.886	2015
15	Concrete Coated Steel Pipes	40°32.646	73°50.778	2015
16	Concrete Coated Steel Pipes	40°32.522	73°50.693	2015
17	Concrete Coated Steel Pipes	40°32.290	73°50.696	2015
18	Concrete Coated Steel Pipes	40°32.612	73°50.646	2015
19	Concrete Coated Steel Pipes	40°32.286	73°50.52	2015
20	Concrete Coated Steel Pipes	40°32.650	73°50.380	2015
21	Concrete Coated Steel Pipes	40°32.575	73°50.370	2015
22	Concrete Coated Steel Pipes	40°32.481	73°50.389	2015
23	Concrete Coated Steel Pipes	40°32.658	73°50.157	2015
24	Concrete Coated Steel Pipes	40°32.600	73°50.190	2015
25	Concrete Coated Steel Pipes	40°32.480	73°50.210	2015
26	Concrete Coated Steel Pipes	40°32.475	73°50.020	2015
27	Steel Pipe, Concrete Columns, Road Deck Panels	40°32.556	73°51.073	2018
28	Steel Pipe, Concrete Columns, Road Deck Panels	40°32.661	73°50.960	2018
29	100' Steel Dump Scow DS-109	40°32.614	73°50.098	2018

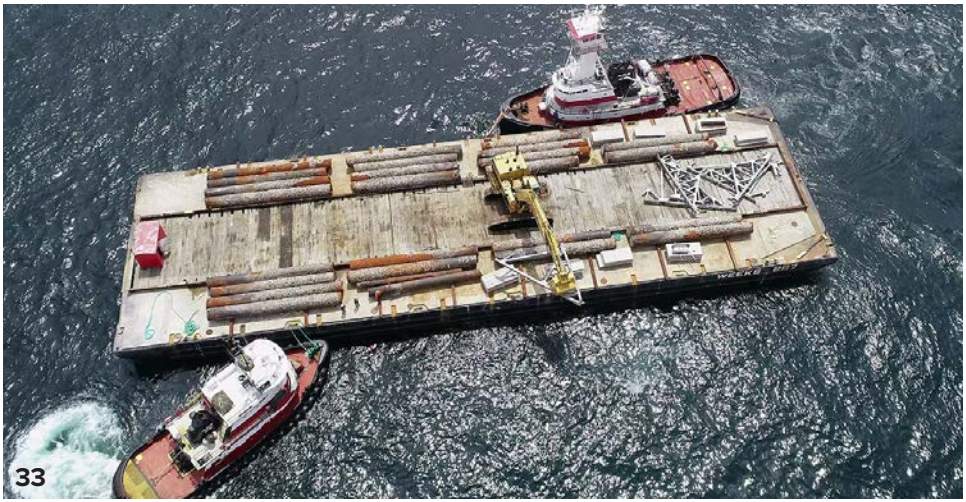
Rockaway Reef



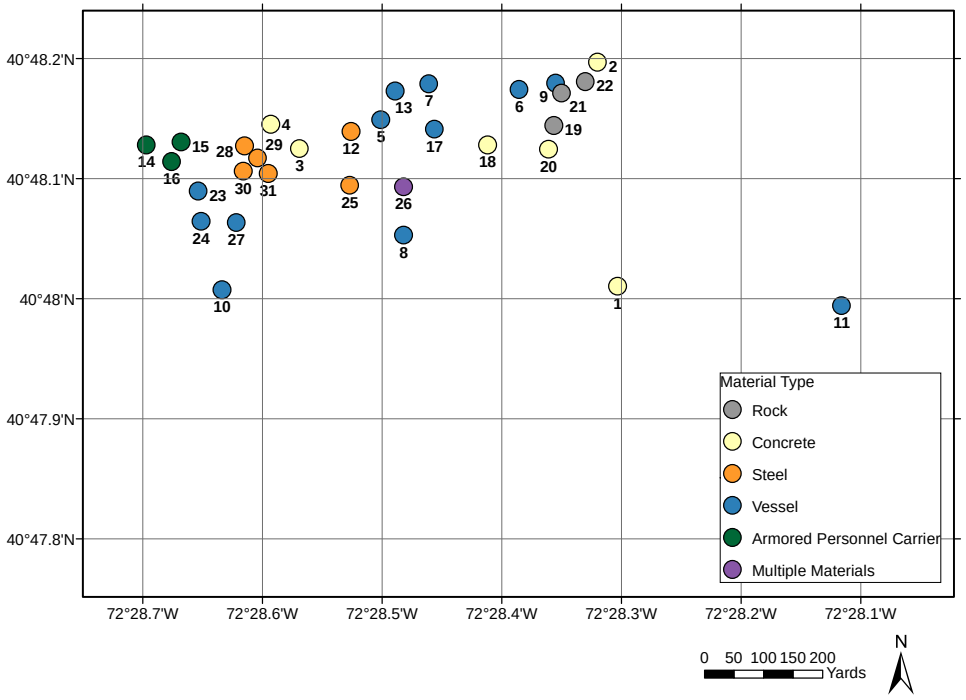
Shinnecock Reef

Shinnecock Reef Boundary Coordinates			
NW Corner	**NE Corner**	**SW Corner**	**SE Corner**
40°48.160 72°28.670	40°48.210 72°28.300	40°48.040 72°28.700	40°48.090 72°28.330

ID No.	Shinnecock Reef Material Coordinates			
	Material	**Latitude**	**Longitude**	**Year Deployed**
1	Concrete Rubble	40°48.010	72°28.303	N/A
2	Concrete Blocks	40°48.197	72°28.320	N/A
3	Concrete Rubble	40°48.125	72°28.569	N/A
4	Concrete Rubble	40°48.145	72°28.593	N/A
5	70' Vessel	40°48.149	72°28.501	N/A
6	50' Vessel	40°48.174	72°28.3854	1987
7	60' Steel Dredge Barge	40°48.179	72°28.461	1987
8	46' Steel Hull	40°48.053	72°28.482	1987
9	51' Wood Vessel *Lieutentant*	40°48.179	72°28.355	1990
10	157' Wood Drydock	40°48.007	72°28.634	1990
11	50' Vessel *Mayflower*	40°47.994	72°28.116	1991
12	Brenton Reef Lighthouse Tower	40°48.139	72°28.526	1993
13	80' Steel Trawler *Sea Mist*	40°48.173	72°28.489	1994
14	Armored Personnel Carriers	40°48.128	72°28.697	1998
15	Armored Personnel Carriers	40°48.130	72°28.668	1998
16	Armored Personnel Carriers	40°48.114	72°28.676	1998
17	120' Steel Trawler *Mandy Ray*	40°48.141	72°28.456	1998
18	Concrete Buoy Anchors	40°48.128	72°28.412	2004
19	Jetty Stone	40°48.144	72°28.357	2004
20	Concrete Buoy Anchors	40°48.124	72°28.361	2004
21	Jetty Stone	40°48.171	72°28.35	2004
22	Jetty Stone	40°48.181	72°28.330	2004
23	40' Steel Vessel Tender #6	40°48.089	72°28.654	2018
24	74' Steel Tugboat *Reliable*	40°48.064	72°28.651	2018
25	Steel Pipe, I-Beams, Steel Columns, Steel Girders, Small Bridge Trusses	40°48.094	72°28.527	2018
26	Steel Trusses, Steel Pipe, Road Deck Panels	40°48.093	72°28.482	2018
27	100' Steel Dump Scow DS-106	40°48.063	72°28.622	2018
28	Steel Centerbeam Railcars	40°48.127	72°28.615	2020
29	Steel Centerbeam Railcars	40°48.117	72°28.604	2020
30	Steel Centerbeam Railcars	40°48.106	72°28.616	2020
31	Steel Centerbeam Railcar	40°48.104	72°28.595	2020



Shinnecock Reef

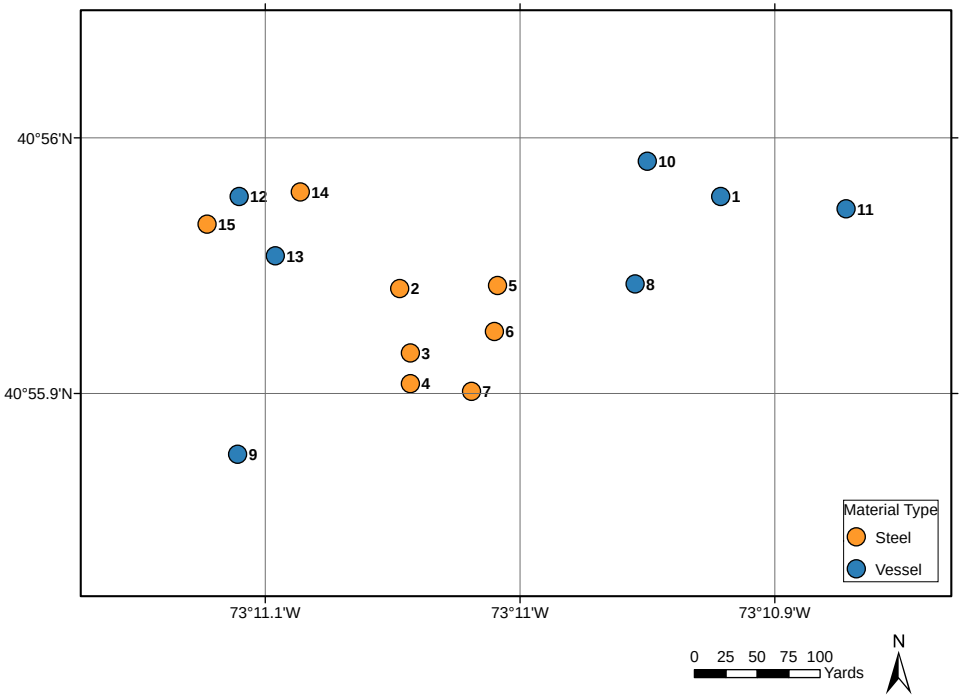


Smithtown Reef

Smithtown Reef Boundary Coordinates			
NW Corner	**NE Corner**	**SW Corner**	**SE Corner**
40°55.975 73°11.170	40°56.005 73°11.070	40°55.920 73°11.140	40°55.955 73°11.035

ID No.	Smithtown Reef Material Coordinates			
	Material	**Latitude**	**Longitude**	**Year Deployed**
1	190' Wood Barge	40°55.977	73°10.921	1979
2	Steel Cylinder	40°55.941	73°11.047	1980
3	Steel Cylinder	40°55.916	73°11.043	1980
4	Steel Cylinder	40°55.904	73°11.043	1980
5	Steel Cylinder	40°55.942	73°11.009	1980
6	Steel Cylinder	40°55.924	73°11.010	1980
7	Steel Cylinder	40°55.901	73°11.019	1980
8	330' Wood Barge	40°55.943	73°10.955	1981
9	250' Steel Barge	40°55.876	73°11.111	1982
10	320' Steel Barge	40°55.991	73°10.950	1984
11	80' Wood Barge	40°55.972	73°10.872	1984
12	40' Steel Vessel Tender #7	40°55.977	73°11.110	2018
13	40' Steel Vessel Tender #8	40°55.954	73°11.096	2018
14	Steel Pipe	40°55.979	73°11.086	2018
15	Steel Pipe	40°55.966	73°11.123	2018

Smithtown Reef

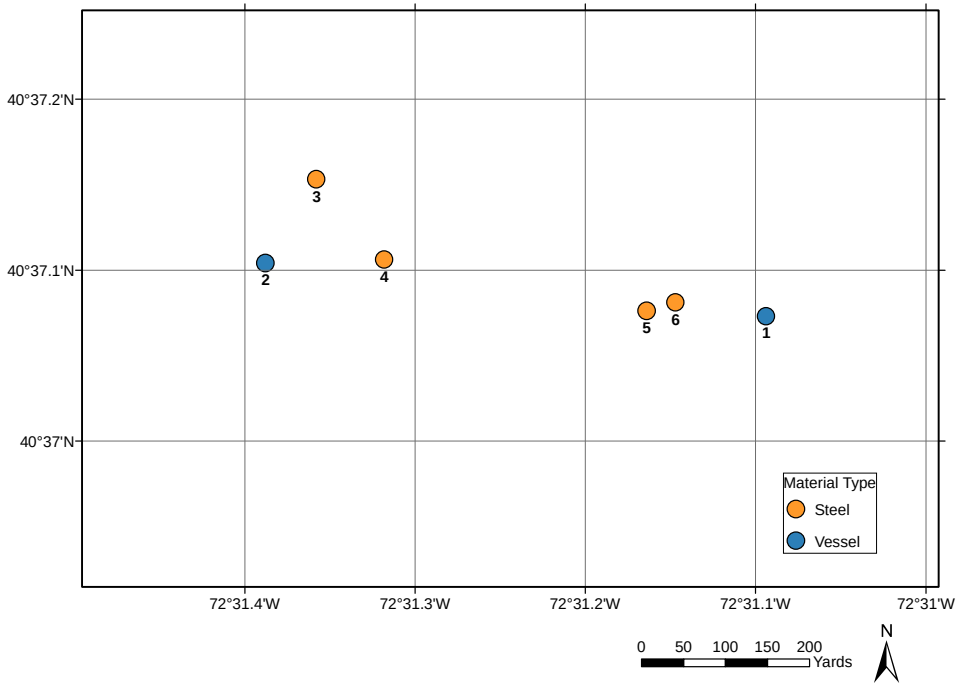


Twelve Mile Reef

Twelve Mile Reef Boundary Coordinates			
NW Corner	**NE Corner**	**SW Corner**	**SE Corner**
40°37.250 72°32.250	40°37.250 72°30.930	40°36.250 72°32.250	40°36.250 72°30.930

ID No.	Twelve Mile Reef Material Coordinates			
	Material	**Latitude**	**Longitude**	**Year Deployed**
1	100' Steel Tugboat *Dauntless*	40°37.073	72°31.094	2019
2	102' Steel Tugboat *Relentless*	40°37.104	72°31.388	2019
3	Steel Centerbeam Railcars	40°37.153	72°31.358	2020
4	Steel Centerbeam Railcars	40°37.106	72°31.318	2020
5	Steel Centerbeam Railcars	40°37.076	72°31.164	2020
6	Steel Centerbeam Railcars	40°37.081	72°31.147	2020

Twelve Mile Reef

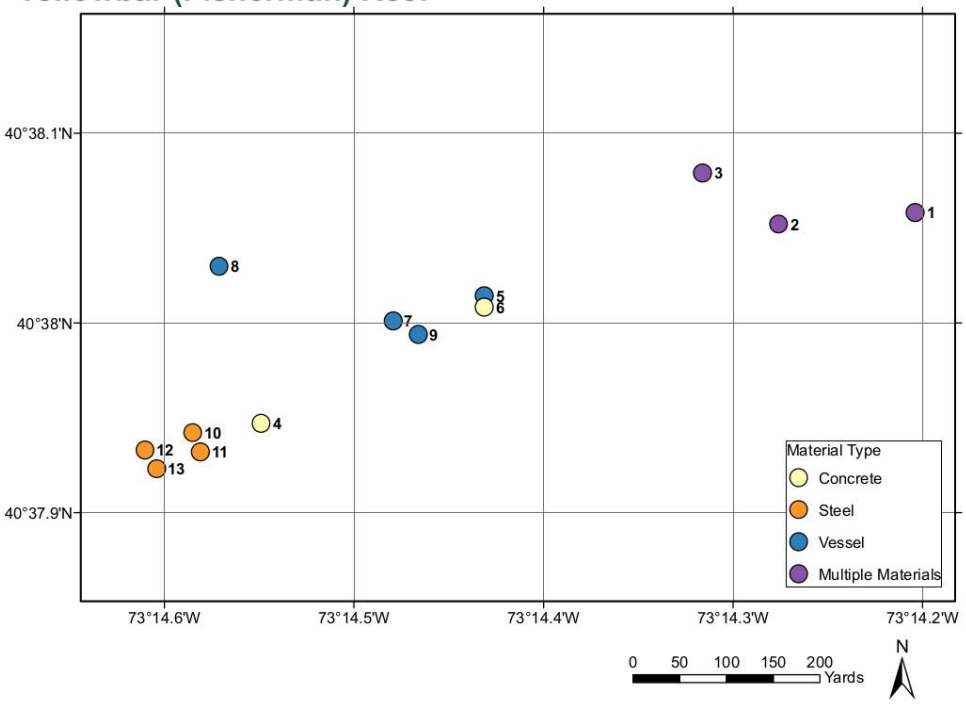


Yellowbar (Fisherman) Reef

Yellowbar (Fisherman) Reef Boundary Coordinates			
NW Corner	**NE Corner**	**SW Corner**	**SE Corner**
40°37.930 73°14.640	40°38.040 73°14.390	40°37.900 73°14.630	40°38.010 73°14.370

ID No.	Yellowbar (Fisherman) Reef Material Coordinates			
	Material	**Latitude**	**Longitude**	**Year Deployed**
1	Unknown	40°38.058	73°14.204	N/A
2	Unknown	40°38.052	73°14.276	N/A
3	Unknown	40°38.079	73°14.316	N/A
4	Reef Balls	40°37.947	73°14.549	1997
5	36' Steel Cruiser *Charade*	40°38.008	73°14.431	1999
6	Concrete Culvert	40°38.014	73°14.431	2000
7	62' Wooden Trawler *Connie F*	40°38.001	73°14.479	2001
8	48' Wooden Vessel *Peregrine*	40°38.030	73°14.571	2002
9	60' Steel Barge CorEW33	40°37.994	73°14.466	2004
10	Steel Pontoon	40°37.942	73°14.585	2019
11	Steel Pontoon	40°37.932	73°14.581	2019
12	Steel Pontoon	40°37.933	73°14.610	2019
13	Steel Pontoon	40°37.923	73°14.604	2019

Yellowbar (Fisherman) Reef



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