Attachment E

NMFS Essential Fish Habitat Assessment and Consultation

Essential Fish Habitat Assessment, July 2019

For

New York State Department of Environmental Conservation Artificial Reef Program

New York State Marine and Coastal District and Surrounding Federal Waters

Submitted Pursuant to 6 NYCRR Part 617.10

By the New York State Department of Environmental Conservation,

On behalf of the New York State Department of Environmental Conservation, Division of Marine Resources

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1 Introduction

Essential fish habitat (EFH) is defined under section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) (Public Law 94-265), as amended by the Sustainable Fisheries Act (SFA) of 1996 (Public Law 104-267), as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." The SFA requires that EFH be identified for those species actively managed under Federal fishery management plans (FMPs). This includes species managed by the eight regional Fishery Management Councils (FMCs), established under the MSFCMA, as well as those managed by National Marine Fisheries Service (NMFS) under FMPs developed by the Secretary of Commerce.

EFH designations emphasize the importance of habitat protection to healthy fisheries and serve to protect and conserve the habitats of marine and estuarine finfish and invertebrates. EFH includes key physical, chemical, and biological attributes of both the water column and the underlying substrate, including sediment, hard bottom, and other submerged structures that support survival and growth of designated species. Under the EFH definition, necessary habitat is that which is required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem. EFH may be designated for the complete life cycle of a species, including spawning, feeding, and growth to maturity, or may be specific for each life stage (egg, larval, juvenile, adult, and spawning adult).

The New York State Department of Environmental Conservation (NYSDEC)'s Artificial Reef Program (Program) was started in 1962 to develop and manage artificial reefs in the state and federal waters surrounding the New York State Marine Coastal District (MCD) under the Division of Marine Resources (DMR). The Program currently maintains a dozen reef sites in the waters of New York's Marine and Coastal District (MCD) and adjacent Federal waters. Program goals are to administer and manage artificial reef habitat as part of a fisheries management program, provide fishing and diving opportunities, and enhance or restore fishery resources and associated habitat through the selective placement of artificial reef habitat (i.e. natural rock, concrete and steel) in the MCD under Programmatic guidelines.

In 1993, the NYSDEC completed a Generic Environmental Impact Statement (GEIS)/Reef Plan which allowed for the issuance of a permit for the development of artificial reefs at specific locations within the MCD, and adjacent Federal waters. As the Program developed, additional NYSDEC and United States Army Corps of Engineers (USACE) permits were obtained to place material to meet specific goals of the Program outlined in the GEIS/Reef Plan. Since then, New York State artificial reefs have been developed according to the goals of the Artificial Reef Program to provide fishing and diving opportunities, enhance or restore fisheries habitat, and manage artificial reef resources as part of an overall fisheries program (NYSDEC 1993).

Artificial reefs are developed using the patch reef system. Patch reef development includes the placement of material in discrete locations or "targets" separated by undisturbed benthic habitat. This method results in a smaller disruption of the site's natural benthic footprint thereby reducing impacts to the benthic community. Materials are transported to the reef site either by barge (i.e. natural stone and concrete) or towed out by vessel (i.e. steel barges or vessels) under Program supervision. The materials are deployed on pre-designated site targets to produce a patch reef configuration. This construction method results in a larger overall project footprint but allows for the area between the patches to remain as undisturbed benthic habitat thereby reducing impacts to the benthic community. The different artificial reef structures attract a variety of marine life including recreationally important

finfish and crustacean (i.e. lobster) species sought by anglers and divers. Artificial reefs provide structure for benthic organisms such as anemones, corals, sponges, hydroids, and bryozoans that would not otherwise be able to colonize on the sandy, unstable seafloor sediments that are dominant in the region. These reefs also provide shelter and foraging ground for marine organisms such as structure associated fish and other demersal species. This is particularly important for juvenile fish and crustaceans that are especially susceptible to predation (NYSDEC 2015).

The following EFH Assessment has been prepared to support the environmental reviews necessary for the issuance of the required federal and state permits and authorizations related to the NYSDEC Artificial Reef Program.

1.1 Project Location

The Project is situated within the New York State Marine Coastal District (MCD) and the adjacent Federal waters surrounding Long Island. Artificial reefs are located within the marine and estuarine waters of the Atlantic Ocean, Great South Bay, and Long Island Sound (see Figure 1). Reefs are strategically located near or are accessible to Long Island harbors and embayments through local inlets.

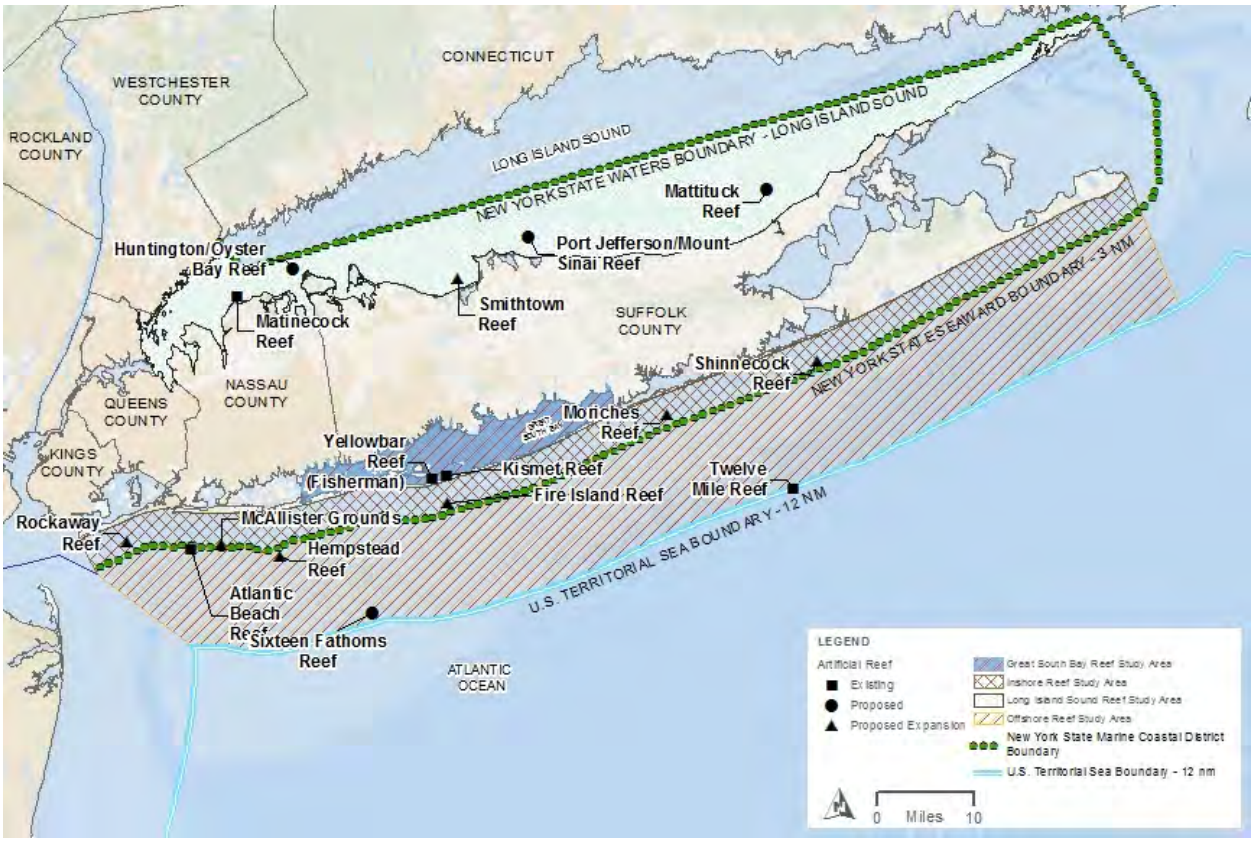


Figure 1: Artificial Reef Locations

The area, depth, and development status of each reef site are described in Table 1 below.

Table 1: Summary of Reef Site Development

Reef Name	Year Developed	Reef Site Depth (ft)	Controlling Depth (ft)[1]	Total Acreage	Development Status (%)	Remaining Acreage to be Developed	Materials Currently At Site
McAllister Grounds	1949	50-53	40	115	75%	28.75	3 vessels, 4 barges, 7 pieces of a 100' scow, 2 steel miter gates, 3 steel dam gates, 1 steel power plant turbine, rock, concrete barriers, and concrete bridge rubble.
Fire Island	1962	62-73	40	744	70%	223.2	4 vessels, 13 barges, 2 boat hulls, 6 pontoons, surplus armored vehicles, 2 drydocks, Tappan Zee bridge materials, 2 steel miter gates, 1 steel tainter gate, steel bridge girders, steel lift bridge sections, steel pipe, steel lifting towers, rock, concrete cesspool rings, slabs, and rubble.
Rockaway	1967	32-40	23	413	80%	82.6	1 barge, Tappan Zee bridge materials, 60 steel buoys, rock, concrete slabs, pipes, culvert, decking, and rubble.
Atlantic Beach	1967	55-64	40	413	87%	53.69	2 vessels, 10 barges, 8 pontoons, 4 pieces of a 100' scow, surplus armored vehicles, 404 auto bodies, 10 Good Humor trucks, steel crane and boom, 27 steel buoys, 1 steel turbine rotor, steel turbine shells, steel pipe, rock, concrete and steel bridge sections, concrete barriers, concrete slabs, pipes, culvert, decking, and rubble.
Hempstead	1967	50-72	50	744	60%	297.6	13 vessels, 2 barges, 2 steel power plant turbines, surplus armored vehicles, 1 drydock, Tappan Zee bridge materials, City Island bridge materials, Mill Basin bridge materials, steel bridge trusses, and concrete rubble.
Kismet	1967	16-25	16	10	85%	1.5	2 barges, concrete barriers, concrete blocks, concrete slabs, culvert, and rubble.
Moriches	1968	70-75	50	14	90%	1.4	12 vessels, 5 barges, surplus armored vehicles, Tappan Zee bridge materials, steel floorbeams, and concrete pipes.

Reef Name	Year Developed	Reef Site Depth (ft)	Controlling Depth (ft)[1]	Total Acreage	Development Status (%)	Remaining Acreage to be Developed	Materials Currently At Site
Shinnecock	1969	79-84	50	35	85%	5.25	8 vessels, 4 barges, surplus armored vehicles, 1 drydock, rock, Tappan Zee bridge materials, a steel and concrete tower, steel and concrete bridge rubble, steel pipes, steel beams, and steel bridge trusses.
Yellowbar	1969	25-40	16	7	60%	2.8	3 vessels, 1 barge, 4 pontoons, 100 concrete Reef Ball units, and concrete pipes.
Matinecock	1969	30-40	25	41	10%	36.9	1 barge and 7 pontoons.
Smithtown	1976	38-40	23	3	80%	0.6	2 vessels, 5 barges, steel pipes, and concrete-filled steel cylinders.
Twelve Mile	2019	123-143	60	850	5%	807.5	2 vessels.
Sixteen Fathoms	Undeveloped	100	60	850	Undeveloped		Undeveloped- New Site
Huntington/ Oyster Bay	New Site	30-50	TBD	50	Undeveloped		Undeveloped-New Site
Port Jefferson/ Mount Sinai	New Site	70-100	TBD	50	Undeveloped		Undeveloped-New Site
Mattituck	New Site	60-100	TBD	50	Undeveloped		Undeveloped-New Site

Source: NYSDEC Artificial Reef Locations https://www.dec.ny.gov/outdoor/71702.html
[1] Controlling depth refers to the depth at which reef materials must be deployed below the surface.
TBD: To be determined during the permitting process for these locations.

1.2 Proposed Project Description

1.2.1 Administration and Management

The NYSDEC manages and administers the artificial reef program. Development of artificial reef sites reefs would be consistent with the updated GEIS and applicable permit conditions.

1.2.2 Artificial Reef Construction Materials

The criteria suitable for reef materials include clean concrete, rock, or clean steel (NYSDEC 2004). All artificial reef materials are properly cleaned and free of contaminants.

1.2.3 Siting, Deployment, and Maintenance

Placement of materials at the artificial reef sites would take place within the boundaries of the reef sites identified in Table 1. These reefs are located within the Atlantic Ocean, Great South Bay, and Long Island Sound.

Materials are deployed on the reef in areas devoid of existing structure or other artificial reef materials. Materials are replenished over time as they subside, break down, and no longer meet Program objectives. Placement of materials within the reef areas will be based on hydrographic surveys.

Further, each reef is subject to a control depth that reef materials must remain below. Materials are transported to the reef site either by barge or towed out by vessel under Program supervision. The materials are deployed on pre-designated site targets to produce a patch reef configuration. The NYSDEC Reef Program staff oversee the deployment of materials. All reef construction would be completed in accordance with NYSDEC guidelines and a deployment plan for each reef.

Post-material deployment monitoring is done in order to comply with permit conditions and existing artificial reef program guidelines. A post-deployment survey is conducted to verify placement of materials and that controlling depth guidelines are adhered to. The NYSDEC monitoring program for existing artificial reef sites includes recreational and commercial usage, through an aerial survey of vessels on site. Biological monitoring includes scuba, underwater video, and multi-beam sonar surveys (NYSDEC, 2004).

The reef sites are assessed periodically to ensure compliance with permits and that deployed materials are meeting program objectives of providing hard bottom reef habitat. Over time and due to coastal storms, artificial reefs can become buried with sediment or fall apart and no longer function as complex hard bottom reef habitat. Deployment of additional reef materials in these areas can refresh older, degraded reef sites.

1.2.4 Design

Materials are placed to support the objectives of the NYSDEC's artificial reef program, including creating structured bottom habitat and increasing fishing and diving opportunities. Artificial reefs would be developed using a patch reef system. Patch reef development includes the placement of material in discrete locations or "targets" separated by undisturbed benthic habitat. This construction method results in a smaller hardbottom benthic footprint thereby reducing impacts to the benthic community. The undisturbed benthic habitat between the patch reefs will be maintained and are typically avoided by commercial fisherman due to gear conflicts. Further, this configuration increases the enhancement of the local natural habitat by introducing profiled hard structure for colonization and reef development. The structures attract a variety of marine life including recreationally and commercially important finfish species sought by anglers and divers.

The materials would be deployed in a manner that avoids interference with navigation. Table 1 provides the controlling depths of each reef and the approximate water depths within the boundary of each site.

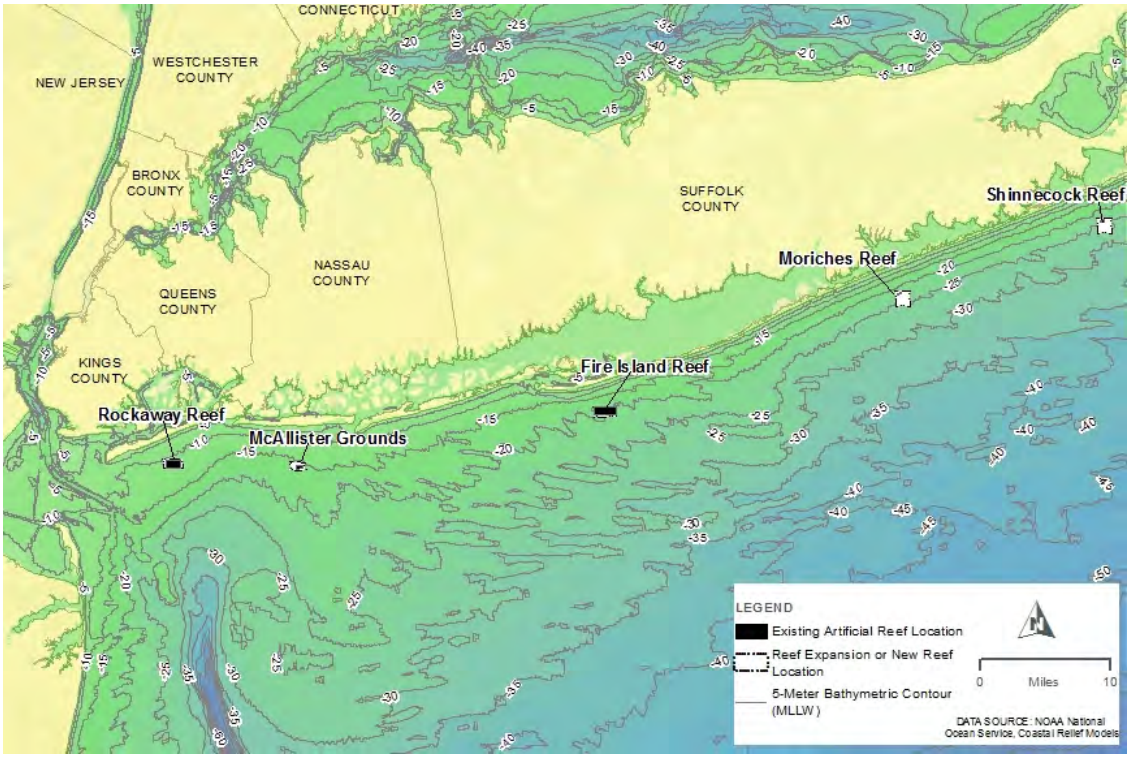
2 Existing Conditions

For the purposes of this Project, reefs have been categorized based on the water body that they exist within. These categories include Atlantic Ocean reef sites, Great South Bay reefs, and the Long Island Sound reefs. Atlantic Ocean reefs have been further sub-divided based on their location relative to the State Seaward Boundary (i.e. relative to three nautical miles (nm) of the New York State Mean Low Water (MLW) line). Atlantic Ocean reefs within the three nm line are referred to as "inshore" whereas the reefs beyond the three nm line are referred to as "offshore". Existing conditions have been summarized below. Additional information can be found as part of this permit application in Appendix I.

2.1 Atlantic Ocean

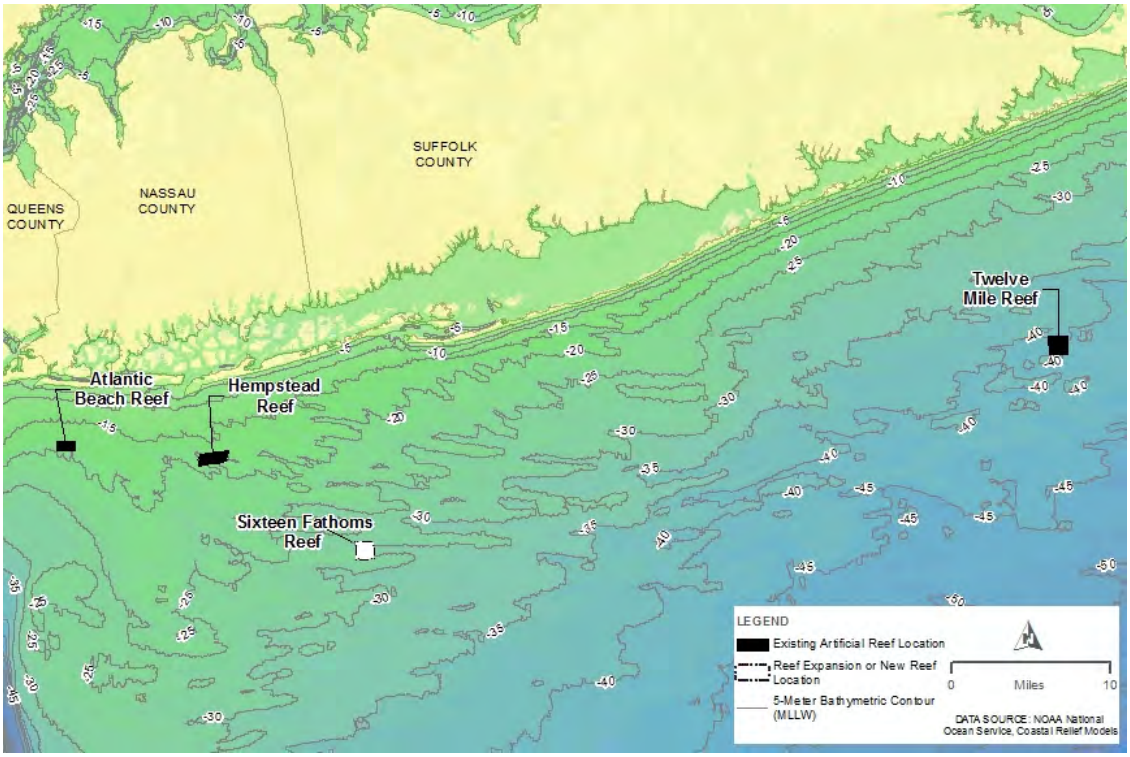
The Atlantic Ocean inshore reefs include McAllister, Moriches, Rockaway, Shinnecock, and Fire Island reefs. The Atlantic Ocean offshore reefs include Sixteen Fathom (proposed), Twelve Mile, Atlantic Beach, and Hempstead reefs. As these reefs are in close proximity, water quality, sediment type and quality, and biological communities are similar.

The Atlantic continental shelf bathymetry consists of a gentle slope from the MLW mark of the southern shore of Long Island to the edge of the Atlantic outer continental shelf. In the reef locations, water depths vary from 12 meters (m) to 46 m and predominantly consists of feature-less, sandy bottom and is devoid of complex vertical habitat (Menza, Kinlan, Dorfman, Poti, & Caldow, 2012) (Figure 2, 3, 4, and 5).



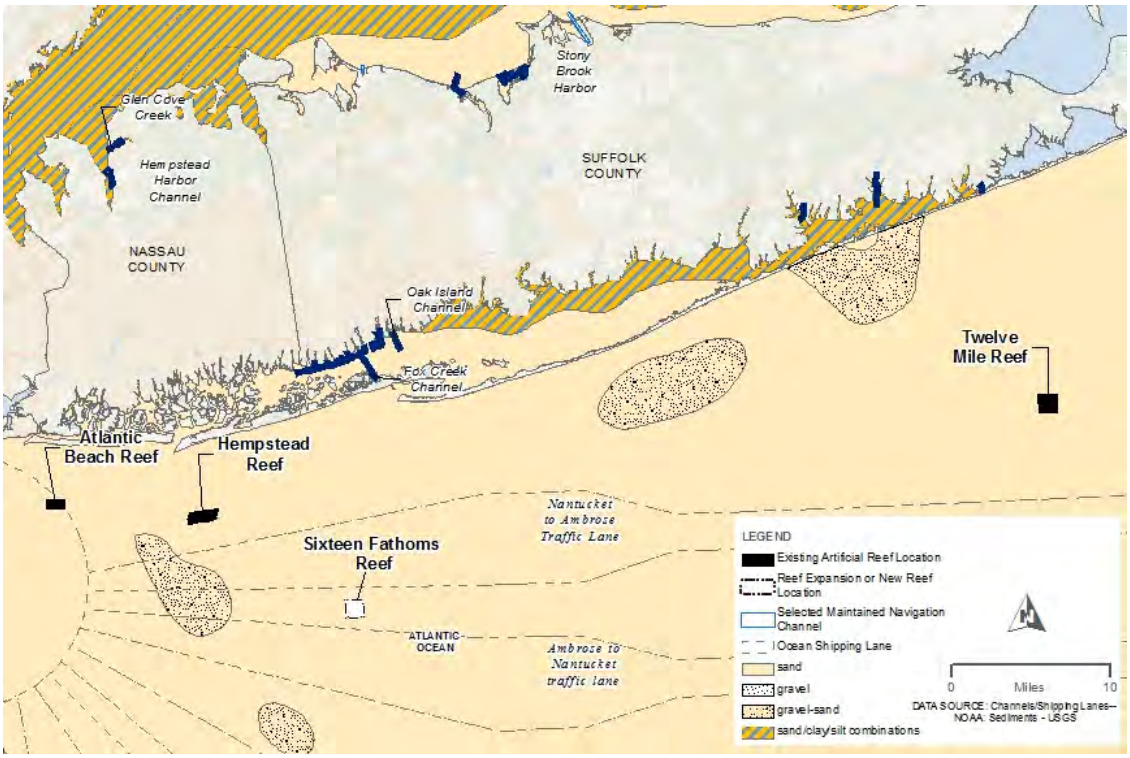
Source: (National Ocean Service Office of Coast Survey, 2017)

Figure 2: Bathymetry at Atlantic Inshore reef locations



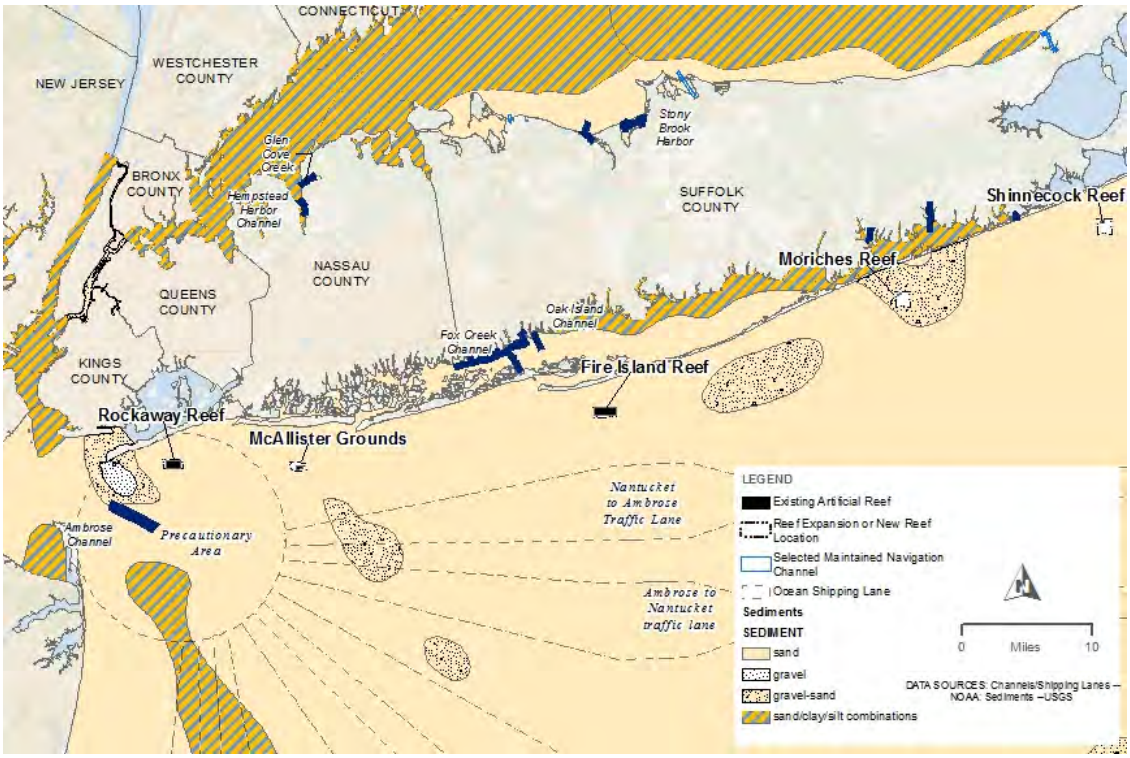
Source: (National Ocean Service Office of Coast Survey, 2017)

Figure 3: Bathymetry at Atlantic Offshore reef locations



Source: (National Oceanagraphic and Atmospheric Administration Office of Coast Survey, 2015), (National Oceanagrpahic and Atmospheric Administration, Office of Coast Survey, 2015), (United States Geologic Survey, 2005-06)

Figure 4: Existing surficial sediment at Atlantic Offshore reef locations



Source: (National Oceanagraphic and Atmospheric Administration Office of Coast Survey, 2015), (National Oceanagrpahic and Atmospheric Administration, Office of Coast Survey, 2015), (United States Geologic Survey, 2005-06)

Figure 5: Existing surficial sediment at Atlantic Inshore reef locations

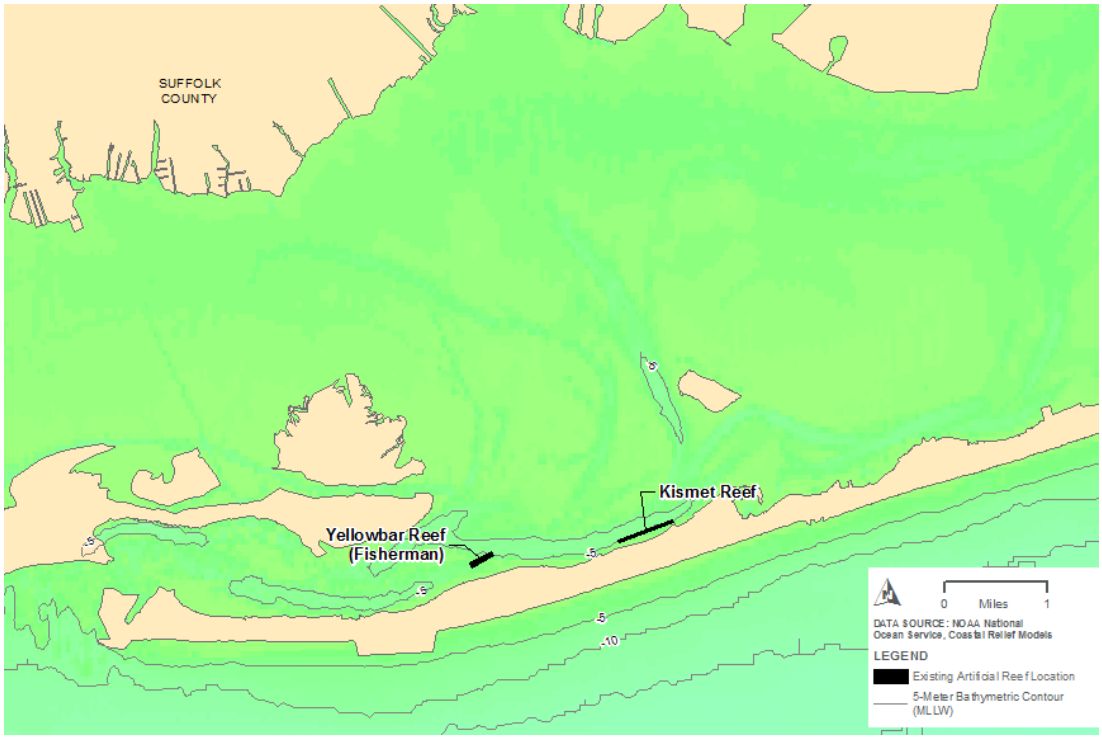
The benthic communities at the reef sites are common to sandy coastal areas and include polychaete worms (Annelida), amphipods (Arthropoda), sand dollars and sea stars (Echinodermata), horseshoe crabs (*Limulus polyphemus*), and *Yoldia* species of mollusk (Mollusca). Commercially important bivalve clams and scallops, including Atlantic surf clam and ocean quahog are present as well as American lobster, jellyfish (Cnidaria), longfin squid, shortfin squid, and various crab species (United States Army Corps of Engineers, 2016). In addition, as both of these locations have established reefs, epifaunal species such as barnacles, mussels, bryzoans as well as amphipods and isopods are present. These benthic communities provide important sources of prey for commercially and recreationally important fish species.

2.2 Great South Bay

The Great South Bay reefs include Kismet reef and Yellowbar reef near Fire Island Inlet. The Bay is characterized by shallow open water habitat, including submerged aquatic vegetation. Reefs are located within 10 to 15 m water depths (Figure 6). Water quality at the reef sites is influenced by the Atlantic Ocean through daily tidal flushing through Fire Island Inlet. Sediments at the reef locations are coarse grain sands and a mix of coarse and fine grains to silty sand (Figure 7).

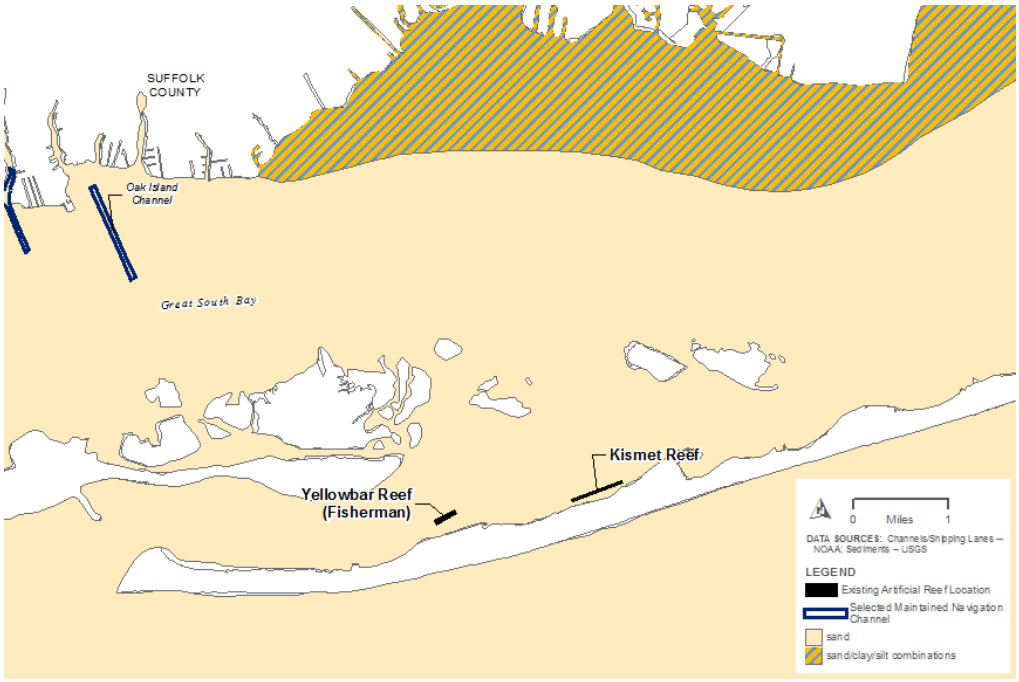
Dominant benthic species include polychaetes such as yellow-jawed clam worm (*Nereis succinea*), orbiniid worm (*Haploscoloplos fragilis*), opal worm (*Lumbrineris brevipes*), and thread worm (*L. tenuis*), and the bivalves northern dwarf-tellin (*Tellina agilis*) and Atlantic awningclam (*Solemya velum*), amphipods *Lysianopsis alba* and *Paraphoxus spinosus*, and the isopod *Idotea balthica*. Sandy bottom benthic species assemblages characteristically contain populations of polychaetes (*Platynereis dumerillii*), feather-duster worm (*Sabella microphthalma*), opal worm (*Arabella iricolor*), and common

bamboo worm (*Clymenella torquata*), bivalves such as northern quahog (*Mercenaria mercenaria*), Morton egg cockle (*Laevicardium mortuni*), blue mussel (*Mytilus edulis*),; and the crustaceans slipper shell (*Crepidula fornicata*), and mud crab (*Dyspanapeus sayi*). Muddy sandflats are dominated by polychaetes of the genus *Harmothoe* and the bivalve amethyst gemclam (*Gemma gemma*) (United States Army Corps of Engineers, 2016), (New York Sea Grant, 2001).



Source: (National Ocean Service Office of Coast Survey, 2017)

Figure 6: Bathymetry at Great South Bay Reef Locations



Source: (National Oceanagraphic and Atmospheric Administration Office of Coast Survey, 2015), (National Oceanagrpahic and Atmospheric Administration, Office of Coast Survey, 2015), (United States Geologic Survey, 2005-06)

Figure 7: Existing surficial sediment at Great South Bay reef locations

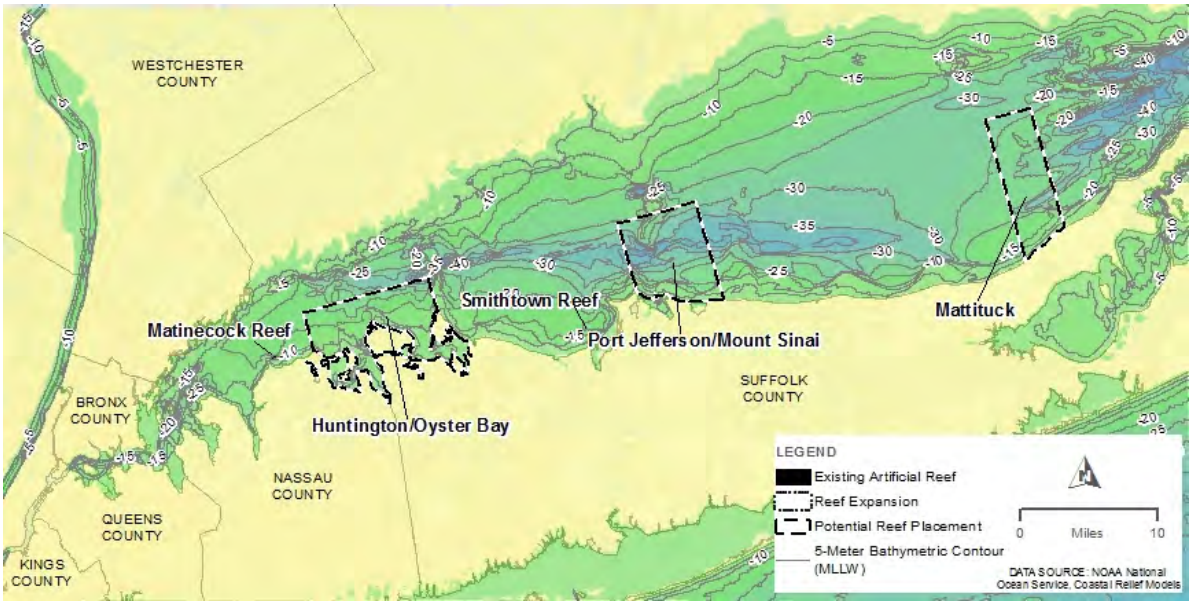
2.3 Long Island Sound

The Long Island Sound reefs include Smithtown, Matinecock, and the proposed Huntington/Oyster Bay, Port Jefferson/Mount Sinai, and Mattituck reefs. The majority of these reefs are located in the western basin of Long Island Sound near the north shore of Long Island. The portion of Long Island Sound characterized as the western basin has water depths ranging from 10 m to 20 m (Figure 8). Surficial sediment in this location is a combination of fine grain and coarse grain sediments including sand, silt, and clay (Figure 9). Water quality in this area seasonally fluctuates and experiences episodes of low dissolved oxygen (DO) concentrations in warm summer months.

The most recent data were derived from the Long Island Sound Mapping and Research Collaborative in 2012 and 2013 that collected targeted samples within the Port Jefferson/Mount Sinai area. Three areas consisting of sand, mud, and sandy mud bottom types were identified and 10 randomly selected samples within each were collected. A total of 5,640 animals representing 95 taxa were collected in the 30 samples (Long Island Sound Cable Fund Steering Committee, 2015). Dominant species included the polychaetes *Amphitrite artica*, *Paranois gracilies*, and *Polygordius spp.*, as well as the amphipods *Ampelisca vadorum* and *Leptocheirus pinguis* (Long Island Sound Cable Fund Steering Committee, 2015). Average faunal abundances in each area were 442 individuals per sample for sand, 85 individuals per sample for mud, and 37 individuals per sample for sandy mud (Long Island Sound Cable Fund Steering Committee, 2015). However, sediment characteristics and water quality are similar for the mid-and western-basins and are likely to contain similar assemblages of infaunal invertebrates.

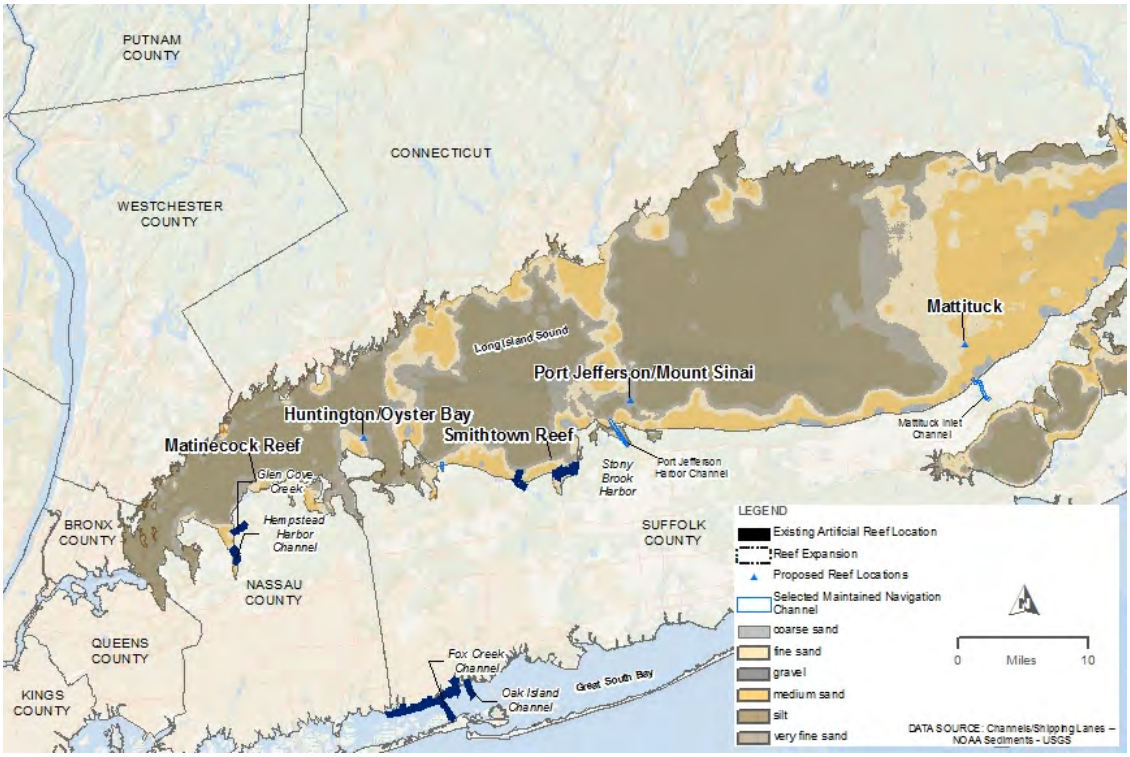
An extensive historic review of benthic communities was summarized in 2004 for the Environmental Impact Statement for the Designation of Dredged Material Disposal Sites in Central and Western Long Island Sound (USEPA and USACE 2004). The EIS summarized historic benthic studies throughout

the sound including offshore and nearshore coastal waters of Connecticut and New York. While there are spatial and temporal trends in species composition and diversity, as is typical of benthic communities, the three main faunal assemblages were consistent: a shallow water, sandy-sediment species based group characterized by polychaetes, *Nephtys picta* and clams, *Spisula solidissima*, and amphipods; a muddy assemblage comprised of *Nephtys incisa, Mediomastus ambiseta* and *Polydora cornuta*, clams and Ampelisca amphipods; and a transitional shallow-water benthic community which occupied mixed zones of coarse and fine grain sediments and included polychaetes *Streblospio sp.* and *Polydora sp*., clams *Tellina agilis* and *Ensis directus* and amphipods *Ampelisca abdita* and *A. vadorum.* The existing and potential reef locations are in mixed sediment zones comprised mostly of coarse grain sediments and therefore will have similar benthic assemblages. In addition, the benthic community may be comprised of additional opportunistic species such as *Mulina lateralis* and Capitellidae worms due to short periods of poor water quality, as discussed above.



Source: (National Ocean Service Office of Coast Survey, 2017)

Figure 8: Bathymetry at Long Island Sound reef locations



Source: (National Oceanagraphic and Atmospheric Administration Office of Coast Survey, 2015), (National Oceanagrpahic and Atmospheric Administration, Office of Coast Survey, 2015),

Figure 9: Existing sediment at Long Island Sound reef locations

3 Essential Fish Habitat Assessment

The National Marine Fisheries Service (NMFS), New England Fishery Management Council, Mid-Atlantic Fishery Management Council, and South Atlantic Management Council have defined EFH for key species in the Northeastern United States coastal waters. The NOAA EFH mapper was consulted to determine the presence of EFH within the Project area.

Table 2: EFH-Designated Species within Project area.

Common name	Scientific name	EFH Habitat within Project Area				Habitat Association
		Egg	Larvae	Juvenile	Adult	
Atlantic cod	*Gadus morhua*	A,G	A,G	A	A,G	Eggs/Larvae: Pelagic Juvenile/Adults: Demersal/Structure Oriented
Atlantic herring	*Clupea harengus*		A	A,G,L	A,G,L	Pelagic
monkfish	*Lophius americanus*	A,G	A,G	A	A	Eggs/Larvae: Pelagic Juvenile/Adult: Demersal
ocean pout	*Macrozoarces amercanus*	A,G,L		A	A,G,L	Demersal
pollock	*Pollachius pollachius*		A,G	A,G,L	L	Pelagic

Common name	Scientific name	EFH Habitat within Project Area				Habitat Association
		Egg	Larvae	Juvenile	Adult	
red hake	*Urophycis chuss*	A,G,L	A,G,L	A,G,L	A,G,L	Eggs/Larvae: Pelagic Juveniles and Adults: Demersal
silver hake	*Merluccius bilnearis*	A,G,L	A,G,L	A	L	Demersal/Pelagic
windowpane flounder	*Scophthalmus aquosus*	A,G,L	A,G,L	A,G,L	A,G,L	Eggs: Pelagic Larvae/Juveniles/Adult: Demersal
witch flounder	*Glyptocephalus cynoglossus*	A, G, L	A, G, L	A, G, L	A, G, L	Demersal
winter flounder	*Pseudopleuronectes americanus*	A, G,L	A,G,L	A,G,L	A,G,L	Demersal
yellowtail flounder	*Limanda ferruginea*	A,G	A	A,L	A,G	Eggs/Larvae: Pelagic Juveniles/Adults: Demersal
Mid-Atlantic Finfish Species						
Atlantic butterfish	*Peprilus triacanthus*	A,G,L	A,G,L	A,G,L	A,L	Pelagic
Atlantic mackerel	*Scomber scombrus*	A,G,L	A,G,L	A,G,L	A,G,L	Pelagic
black sea bass	*Centropristis striata*		A,G	A,G,L	A,G	Larvae: Pelagic/Structure Oriented Juveniles/Adults: Demersal/Structure Oriented
bluefish	*Pomatomus saltatrix*	A	A	A,G,L	A,G,L	Pelagic
scup	*Stenotomus chrysops*	L	L	A,G,L	A,G,L	Demersal
summer flounder	*Paralichthys dentatus*		A	A,G,L	A,G,L	Demersal
Invertebrate Species						
longfin inshore squid	*Loligo pealeii*	A,G,L		A,G,L	L	Eggs: Demersal/Somewhat Structure Oriented Larvae/Juvenile/Adult: Pelagic
ocean quahog	*Artica islandica*			A,G	A,G	Demersal
surf clam	*Spisula solidissima*			A,G	A,G	Demersal
Highly Migratory Pelagic Species						
bluefin tuna	*Thunnus thynnus*			A,G	A	Pelagic
skipjack tuna	*Katsuwonus pelamis*			A	A,G	Pelagic
Coastal Migratory Pelagic Species						
king mackerel	*Scomberomorus cavalla*	A,G,L	A,G,L	A,G,L	A,G,L	Pelagic
Spanish mackerel	*Scomberomorus maculatus*	A,G,L	A,G,L	A,G,L	A,G,L	Pelagic
cobia	*Rachycentron canadum*	A,G,L	A,G,L	A,G,L	A,G,L	Pelagic
Skate Species						
little skate	*Leucoraja erinacea*			A,G,L	A,G,L	Demersal
winter skate	*Leucoraja ocellata*			A,G,L	A,G,L	Demersal

Common name	Scientific name	EFH Habitat within Project Area				Habitat Association
		Egg	Larvae	Juvenile	Adult	
Shark Species						
shortfin mako shark	*Isurus oxyrinchus*	A	A	A		Pelagic
blue shark	*Prionace glauca*		A, G	A, G		Pelagic
common thresher shark	*Alopias vulpinus*		A, G	A, G		Pelagic
dusky shark	*Carcharhinus obscurus*	A	A	A		Pelagic
sand tiger shark	*Carcharias taurus*	A,G,L	A,G,L	A,G,L		Pelagic
tiger shark	*Galeocerdo cuvieri*		A	A		Pelagic
sandbar shark	*Carcharhinus plumbeus*	A,G	A,G	A,G		Demersal
spiny dogfish	*Squalus acanthias*		A	A		Pelagic/Epibenthic
white shark	*Carcharodon carcharias*	A,G	A, G	A, G		Pelagic
smooth dogfish	*Mustelis canis*	A,G,L	A,G,L	A,G,L		Demersal

Notes:
The letter in each cell corresponds to reef sites and bodies of water where EFH for each life stage is found where: A= Atlantic Ocean Reef (McAllister Grounds, Moriches, Shinnecock, Rockaway, Fire Island, Sixteen Fathom, Twelve Mile, Atlantic Beach and Hempstead), G= Great South Bay Reef Sites (Kismet and Yellowbar), and L= Long Island Sound Reef site (Matinecock, Smithtown, Huntington/Oyster Bay, Port Jefferson/Mount Sinai and Mattituck).

3.1 EFH Managed Species

Life history and EFH characteristics for those species most likely to occur at the reef sites are summarized below. Those species that were not discussed are generally pelagic, highly migratory, and only have a transient presence in the Project area (i.e. Spanish mackerel or tiger shark).

3.1.1 New England Finfish Species

3.1.1.1 Atlantic cod *(Gadus morhua)*

General: Atlantic cod is a benthopelagic, commercially important groundfish ranging from the coasts of Greenland to north of Cape Hatteras, North Carolina, in North America. The Project area is designated EFH for all life-stages (Table).

Eggs: Atlantic cod eggs are pelagic, buoyant, spherical, and transparent with a diameter that ranges from 1.2-1.7 mm (Lough 2004). Hatching occurs after 8 to 60 days in varying temperatures, with temperature exerting the most influence on egg and hatchling size (Lough 2004). EFH for Atlantic cod includes pelagic habitats in the Gulf of Maine, on Georges Bank, and in the Mid-Atlantic region, as well as the high salinity zones of bays and estuaries (NEFMC 2017).

Larvae: Larvae hatch at sizes between 3.3 and 5.7 mm and occur from near-surface to depths of 75 m, with movement to deeper waters with growth (Lough 2004). Yolk sac larvae are vulnerable to zooplankton predators and planktivorous fish species, such as Atlantic herring and Atlantic mackerel

(Lough 2004). EFH for Atlantic cod larvae includes pelagic habitats in the Gulf of Maine, on Georges Bank, and in the Mid-Atlantic region, as well as the high salinity zones of bays and estuaries (NEFMC 2017).

Juvenile: EFH for Atlantic cod includes intertidal and subtidal benthic habitats in the Gulf of Maine, southern New England, and on Georges Bank to a maximum depth of 120 m, as well as high salinity zones of bays and estuaries (NEFMC 2017). Structurally complex habitat that contain eelgrass, mixed sand and gravel, gravel pavements, cobbles, and boulders are essential habitats for juvenile cod (NEFMC 2017).

Adult: Adult Atlantic cod are found at depths of 40-150 m with water temperatures <10°C, and salinities between 29-34 ppt (Lough 2004). Atlantic cod spawn near the ocean floor from winter to early spring. Larger females can produce 3 to 9 million transparent, buoyant, pelagic eggs when they spawn (Lough 2004). Smaller Atlantic cod feed primarily on crustaceans, while larger cod feed primarily on fish, which include silver hake , shad (*Alosa* sp.), mackerel (*Scombridae* sp.), Atlantic silverside (*Menidia menidia*), and herring (*Clupea* sp.). Adult cod predators include large sharks and spiny dogfish (Lough 2004). Adult Atlantic cod essential habitat includes structurally complex hard bottom composed of gravel, cobble, and boulder substrates with and without emergent epifauna and macroalgae (NEFMC 2017).

3.1.1.2 Atlantic Herring *(Clupea harengus)*

General: Atlantic herring is a schooling, pelagic, commercially important coastal species that ranges from northern Labrador to North Carolina in the western Atlantic and, depending on feeding, spawning, and wintering, migrates extensively north-south (Collette and Klein-MacPhee 2002). Atlantic herring have been documented in coastal waster of New York. The Project area contains designated EFH for Atlantic herring larvae, juvenile and adult life-stages (Table 2).

Larvae: A very long larval stage (4-8 months) allows Atlantic herring to be transported long distances to inshore and estuarine waters where, in the spring, they become early stage juveniles through metamorphosis (NEFMC 2017). Atlantic herring larvae are observed between August and April, with peak abundances generally occurring from September through November (NEFMC 2017).

Juvenile: Atlantic herring juveniles are found in pelagic and bottom waters that range in depth from 15-135 m, at temperatures less than 10°C, and in salinities ranging from 26-32 ppt (Reid et al. 1999). At approximately 40-50 mm, Atlantic herring larvae metamorphose into juveniles and begin schooling. Juvenile Atlantic herring do not migrate seasonally, but instead move to overwintering habitats in southern New England and throughout the Middle Atlantic Bight during summer and fall where they stay in deep bays or near the bottom in offshore areas (Reid et al. 1999). The primary prey of juvenile Atlantic herring include zooplankton, consisting predominantly of copepods, decapod larvae, barnacle larvae, cladocerans, and pelecypod larvae, are the primary prey of juvenile Atlantic herring (Sherman and Perkins 1971). Atlantic herring reach maturity at approximately three years of age and approximately 23 cm (O'Brien et al. 1993).

Adult: Adult Atlantic herring can be found in pelagic and bottom waters ranging in depth from 20-130 m, with temperatures less than 10°C, and salinities that are greater than 28 ppt (Reid et al. 1999). Adult Atlantic herring feed on copepods, euphausiids, decapods, and bivalve larvae and are preyed on by short-finned squid, numerous piscivorous fish (cod [*Gadus* spp.], monkfish [*Lophius* spp.], bluefish, silver hake, striped bass [*Morone saxatilis]*, mackerel, and tuna), elasmobranchs (sharks and rays), marine mammals, and seabirds (Sherman and Perkin 1971, Stevenson and Scott 2005, Bigelow and Schroeder 1953, Bowman et al. 2000).

3.1.1.3 Monkfish *(Lophius americanus)*

General: Monkfish can be found from Newfoundland to North Carolina, in the Gulf of Mexico, and along the coast of Brazil (Collette and Klein-MacPhee 2002). The Project area contains designated EFH for all life stages (Table 2).

Egg: The spawning season for monkfish begins in early spring in the Carolinas and continues through early fall, with peak spawning occurring May through June, including in the Gulf of Maine (Steimle et al. 1999a). Eggs (1.6-1.8 mm in diameter), which are buoyant and float close to the surface, occur in surface waters at depths ranging from 15 m to 1,000 m, in temperatures less than 18°C (Martin and Dewry 1978). Egg incubation time depends on the temperature and can range from 7 to 100 days at 15°C to 5°C, respectively (Steimle et al. 1999a). At approximately 2.5 to 4.5 mm total length (TL[1]), larvae hatch from eggs and spend 2-3 days in the egg veil (Steimle et al. 1999a).

Larvae: After release from the egg veil, larval monkfish are pelagic occurring at depths of 5 to 1,000 m, in water temperatures ranging from 6°C to 20°C (Steimle et al. 1999a). At approximately 5-10 cm TL, larval monkfish metamorphose into juveniles and bottom dwellers. However, the habitat(s) in which metamorphosis occurs is not well known (Bigelow and Schroeder 1953, Steimle et al. 1999a). Larval monkfish have been collected in NEFSC MARMAP ichthyoplankton surveys, and appear in the New York Bight area in April and June through September (Steimle et al. 1999a). Zooplankton (i.e. copepods, crustacean larvae, and chaetognaths) are the primary prey item for larval monkfish (Steimle et al. 1999a).

Juvenile: Juvenile monkfish can be found in sub-tidal benthic habitats with depths between 50-400 m in the Mid-Atlantic, 20-400 m in the Gulf of Maine, and a maximum depth of 1,000 m on the continental slope (NEFMC 2017). Diverse habitats, including hard sand, pebbles, gravel, broken shells, and soft mud, are critical for juvenile monkfish, as well as algae covered rocks that provide shelter (Steimle et al. 1999a). In the Mid-Atlantic, juvenile monkfish have been predominantly collected at the center of the continental shelf, but have also been collected in the shallow, nearshore waters east of Long Island, in the shelf valley of the Hudson Canyon, and the perimeter of Georges Bank (NEFMC 2017).

Adult: Adult monkfish can be found at depths of 1 to 800 m and are associated with varying bottom habitats (i.e. hard sand, sand and shell mix, pebbly gravel, and rocks covered in algae), in temperatures that range from 0°C to 24°C, with salinities between 29.9 and 36.7 ppt (Steimle et al. 1999a). Opportunistic ambush feeders, adult monkfish feed on a variety of benthic and pelagic fish, such as skates, eels, dogfish, sand lance, herring, mackerel, cod, flounders, and hake, as well as invertebrates, such as crabs and squid, and sometimes sea birds (Steimle et al. 1999a, Bigelow and Schroeder 1953). In response to seasonal changes in water temperature, adult monkfish exhibit onshore-offshore migration habitats and are found seasonally distributed in the southern Middle Atlantic Bight (Steimle et al. 1999a).

3.1.1.4 Ocean Pout *(Macrozoarces americanus)*

General: The ocean pout is a bottom-dwelling, cool-temperate species of fish that utilizes both open and rough habitats, feeding on benthic organisms (Steimle et al. 1999d). The distribution of ocean pout is from the Atlantic continental shelf of North America between Labrador and the southern Grand Banks and Virginia. Ocean pout also occur south of Cape Hatteras in deeper, cooler waters. The Project area is designated EFH for egg, juvenile, and adult life-stages (Table 2).

[1]Total Length is defined as the measurement taken from the anterior-most part of the fish to the end of the caudal fin rays

Egg: Ocean pout eggs are laid in gelatinous masses in sheltered nests, holes, or rocky crevices. Prior to spawning, ocean pout congregate in rocky areas and occupy nesting holds under rocks or in crevices in depths less than 100 m (NEFMC 2017). Ocean pout EFH for eggs includes hard bottom habitats on Georges Bank, in the Gulf of Maine, and in the Mid-Atlantic Bight, as well as high salinity zones of bays and estuaries. Eggs occur at depths less than 100 m on rocky bottom habitats (NEFMC 2017).

Juvenile: Ocean pout juvenile EFH includes intertidal and subtidal benthic habitats in the Gulf of Maine and on the continental shelf north of Cape May, New Jersey, on the southern portion of Georges Bank, and in the high salinity zones of a number of bays and estuaries north of Cape Cod. EFH extends to a depth of 120 m and occurs on a variety of substrates. Including shells, rocks, algae, soft sediments, sand, and gravel (NEFMC 2017).

Adult: Ocean pout EFH includes subtidal benthic habitats between 20 and 140 m in the Gulf of Maine, on Georges Bank, in coastal and continental shelf waters north of Cape May, New Jersey, and in the high salinity zones of bays and estuaries north of Cape Cod. EFH for adult ocean pout includes mud and sand, as well as structure forming habitat such as shells, gravel, or boulders (NEFMC 2017).

3.1.1.5 Pollock *(Pollachius pollachius)*

General: Pollock is a bony fish found in the northwest Atlantic, being most common on the Scotian Shelf, Georges Bank, in the Great South Channel, and in the Gulf of Maine (Cargnelli et al. 1999c). The Project area is designated EFH for the larval, juvenile, and adult life-stages (Table 2).

Larvae: The larval pollock stage lasts approximately 3 to 4 months and are commonly found at temperatures of 3 to 9ºC (Bigelow and Schroeder 1953). Pollock larvae normally occur from the shore out to the 200 m depth contour (Cargnelli et al. 1999c). Primary prey of small larvae (4 to 18 mm) are larval copepods (Cargnelli et al. 1999c). EFH for pollock larvae includes pelagic inshore and offshore habitats in the Gulf of Maine, on Georges Bank, and in the Mid-Atlantic region, including Great South Bay (NEFMC 2017).

Juvenile: Inshore and offshore pelagic and benthic habitats from the intertidal zone to 180 m in the Gulf of Maine, in Long Island Sound, and Narragansett Bay, between 40 and 180 m on western Georges Bank and the Great South Channel, and in mixed and full salinity waters in a number of bays and estuaries north of Cape Cod. Essential fish habitat for juvenile pollock consists of rocky bottom habitats with attached macroalgae (rockweed and kelp) that provide refuge from predators. Shallow water eelgrass beds are also essential habitats for young-of-the-year pollock in the Gulf of Maine. Older juveniles move into deeper water into habitats also occupied by adults.

Adult: Offshore pelagic and benthic habitats in the Gulf of Maine and, to a lesser extent, on the southern portion of Georges Bank between 80 and 300 m, and in shallower sub-tidal habitats in Long Island Sound, Massachusetts Bay, and Cape Cod Bay. Essential habitats for adult pollock are the tops and edges of offshore banks and shoals with mixed rocky substrates (including artificial reefs), often with attached macro algae.

3.1.1.6 Red hake *(Urophycis chuss)*

General: Red hake can be found from southern Nova Scotia to North Carolina, and historically, the heaviest concentrations of red hake were documented from the southwestern area of Georges Bank to the shelf valley of the Hudson Canyon (Bigelow and Schroeder 1953, Grosslein and Azarovitz 1982). The Project area contains designated EFH for all life-stages (Table 2).

Egg: Red hake eggs (0.6-1.0 mm in diameter) can be found on the inner continental shelf near the surface due to buoyancy, in temperatures less than 10°C, with salinities less than 25 ppt (Steimle et al. 1999b). Red hake eggs and larvae EFH are pelagic habitats in the Gulf of Maine, on Georges Bank, and in the Mid-Atlantic, and includes the Long Island Sound.

Larvae: Larval stages of red hake can be found in surface waters at depths of 200 m or less, in temperatures less than 19°C, with salinities 0.5 ppt or greater (Steimle et al. 1999b). At approximately 2 mm in length, red hake larvae hatch and spend the next two months free floating at the surface, generally with debris, sargassum, and jellyfish (Steimle et al. 1999c). Red hake larvae distribution is not known to be associated with a substrate type (Stone et al. 1994).

Juvenile: Once red hake larvae reach 35 to 40 mm in length, they sink to the bottom on fine, silty sand at depths approximately 100 m or less, where they take shelter in depressions in the substrate (Bigelow and Schroeder 1953, Steimle et al. 1999b). In inshore areas, small red hake juveniles (5-15 cm) are highly correlated with eelgrass (*Zostera marina*) and in deep offshore areas, they can be found frequently hiding in sea scallops (*Pecten magellanicus*) (Steimle et al. 1999b). Structures, shell fragments, and sea scallops provide shelter for older juveniles (until red hake are approximately 14 cm in length) found in bottom habitats at less than 100 m depth, in water temperatures below 16°C, with salinities between 31-33 ppt (Steimle et al. 1999b. Juvenile red hake prey on euphausiids, amphipods, decapods, and mysids (Bowman et al. 2000).

Adult: Preferring bottom habitats of sand and mud with depressions, adult red hake can be found in depths that range from 30 to 130 m, in water temperatures 12°C or lower, with salinities between 33-34 ppt (Steimle et al. 1999b). At two years of age, red hake reach sexual maturity and peak spawning occurs during June and July off Long Island, Georges Bank, and the New York Bight (Grosslein and Azarovitz 1982). Red hake primarily feed on shrimp, small crustaceans, and small fish and red hake predators include striped bass, spiny dogfish, goosefish, white hake, silver hake, sea raven, and harbor porpoise (*Phocoena phocoena*) (Bowman et al. 2000, Steimle et al. 1999b, Bigelow and Schroeder 1953).

3.1.1.7 Silver Hake *(Merluccius bilinearis)*

General: Silver Hake (a.k.a. Whiting) are found from the Gulf of St. Lawrence to Cape Hatteras, North Carolina (Lock and Packer 2004). The areas of highest abundance in the U.S. are the Gulf Of Maine, Georges Bank, and the Middle Atlantic Bight off Long Island (Lock and Packer 2004). The Project area contains designated EFH for whiting egg and larval life-stages (Table 2).

Egg and Larvae: Whiting eggs and larvae are found in surface waters of the Gulf of Maine, Georges Bank, the continental shelf off southern New England, and the Mid-Atlantic south to Cape Hatteras (NEFMC 2017). EFH for whiting eggs includes sea surface temperatures that are below 20°C (NEFMC 2017). Eggs can be observed all year, but have peak counts from June through October and larvae are observed year round with peaks from July through September (NEFMC 2017).

Juvenile: Juvenile whiting EFH includes bottom habitats of all substrate types in the Mid-Atlantic south to Cape Hatteras. Whiting juveniles are found at depths between 20 and 270 m; salinities greater than 20%; and sea surface temperatures below 20°C (NEFMC 2017).

Adult: Adult whiting EFH includes bottom habitats of all substrate types in the Gulf of Maine, on Georges Bank, the continental shelf off southern New England, and the middle Atlantic south to Cape Hatteras (NEFMC 2017). Adult whiting are generally found at water temperatures below 22°C and at depths between 20 and 270 m (NEFMC 2017). Auster et al. (1997) found silver hake were more abundant on silt-sand bottoms containing amphipod tubes in the Middle Atlantic Bight. Silver hake

were also found on flat sand, sand-wave crests, shell, and biogenic depressions within the Mid-Atlantic Bight (Auster et al. 1991).

3.1.1.8 Windowpane Flounder (*Scophthalmus aquosus*)

General: The range of windowpane flounder is from the Gulf of Saint Lawrence to Florida (Gutherz 1967). The Project area contains designated EFH for windowpane flounder for all life-stages (Table 2).

Egg: Windowpane flounder produce buoyant, pelagic eggs that are 1-1.4 mm in diameter (Colton and Marak 1969). Eggs are found on the continental shelf from Georges Bank to Cape Hatteras and in mixed and high salinity zones of coastal bays and estuaries throughout the region.

Larvae: Larvae are found on the continental shelf from Georges Bank, southern New England, and the middle Atlantic down to Cape Hatteras. They are found at depths less than 70 m (Stone et al. 1994).

Juvenile: Juvenile windowpane flounder are found in intertidal and sub-tidal benthic habitats in estuarine, coastal marine, and continental shelf waters from the Gulf of Maine to northern Florida (NEFMC 2017). EFH for juvenile windowpane flounder is identified as extending from the intertidal zone to a maximum depth of 60 m on muds and sandy substrates (NEFMC 2017).

Adult: Adult windowpane flounder are found in the same marine and coastal habitats as juveniles. EFH for adult windowpane flounder extends from the intertidal zone to a maximum depth of 60 m on mud and sand substrates (NEFMC 2017).

3.1.1.9 Witch Flounder *(Glyptocephalus cynoglossus)*

General: EFH for witch flounder larvae comprises the surface waters to 250 m depths along the continental shelf from the Gulf of Maine south to Cape Hatteras, North Carolina. The Project area contains designated EFH for windowpane flounder for all life-stages (Table 2).

Egg: Pelagic habitats on the continental shelf throughout the Northeast region. Witch flounder eggs are most often observed during the months from March through October.

Larvae: The larvae are most often observed between March and November, with peaks between May and July. NOAA Fisheries has designated waters within the New York Bight apex as EFH for this life stage (Cargnelli et al. 1999a, NOAA Fisheries 2013).

Juvenile: Bottom habitats with a fine-grained substrate in the Gulf of Maine and along the outer continental shelf from Georges Bank south to Cape Hatteras. Generally, the following conditions exist where witch flounder juveniles are found: water temperatures below 13° C, depths from 50 - 450 m, although they have been observed as deep as 1500 m, and a salinity range from 34 – 36%.

Adult: Adult windowpane flounder are found in the same marine and coastal habitats as juveniles. EFH for adult windowpane flounder extends from the intertidal zone to a maximum depth of 60 m on mud and sand substrates (NEFMC 2017).

3.1.1.10 Winter Flounder *(Pseudopleuronectes americanus)*

General: The range for winter flounder is from the coastal waters in the Strait of Belle Isle, Newfoundland, south to Georgia (Collette and Klein-MacPhee 2002). These economically important flatfish are also found in inshore areas from Massachusetts and occur regularly in New York waters (Stone et al. 1994). The Project area contains designated EFH for winter flounder egg, larval, juvenile, and adult life-stages (Table 2).

Egg: Winter flounder eggs are approximately 0.7 to 0.9 mm in diameter and deposited in adhesive clusters on sand, muddy sand, mud, macroalgae, and gravel bottom substrates (Pereira et al. 1999). Bottom habitats are unsuitable if exposed to excessive sedimentation which can reduce hatching success. The preferred designation for winter flounder eggs defines EFH as sub-tidal coastal waters from the shoreline to a maximum depth of 5 m from Cape Cod to Absecon Inlet, New Jersey.

Larvae: Winter flounder larvae are found within estuarine, coastal, and continental shelf benthic habitats from the Gulf of Maine to Absecon Inlet, as well as in the mixed and high salinity zones of bays and estuaries (NEFMC 2017). Larvae hatch in nearshore waters and estuaries or are transported shoreward from offshore spawning sites, where they later settle to the bottom as juveniles (NEFMC 2017). As larvae age, they become increasingly less buoyant and occupy the lower water column.

Juvenile: Juvenile winter flounder are found within estuarine, coastal, and continental shelf water column habitats, as well as the mixed and high salinity zones in bays and estuaries (NEFMC 2017). EFH for juvenile winter flounder extends from the intertidal zone to a maximum depth of 60 m, and includes a variety of bottom types, including mud, sand, rocky substrates with attached macroalgae, tidal wetlands, and eelgrass (NEFMC 2017). Young-of-the-year (YOY[2]) juveniles are found inshore on muddy and sandy sediments within eelgrass and macroalgae, in bottom debris, and marsh creek habitat (NEFMC 2017). Juvenile winter flounder generally settle to the bottom in soft-sediments and disperse to coarser-grained substrates as they age.

Adult: Adult winter flounder are found in estuarine, coastal, and continental shelf benthic habitats from the intertidal zone to a maximum depth of 70 m, as well as the mixed and high salinity zones in bays and estuaries (NEFMC 2017). EFH for adult winter flounder occurs on muddy and sandy substrates and hard bottom.

3.1.1.11 Yellowtail Flounder *(Limanda ferruginea)*

General: Yellowtail flounder have a range along the Atlantic coast of North America from Newfoundland to the Chesapeake Bay, with the majority located on the western half of Georges Bank, the western Gulf of Maine, east of Cape Cod, and southern New England (Collette and Klein-MacPhee 2002). The Project area contains designated EFH for yellowtail flounder for all life-stages (Table 2).

Egg: In the northwest Atlantic, spawning occurs from March through August at temperatures of 5-12°C (Fahay 1983). Yellowtail spawn buoyant, round, pelagic eggs with an average diameter of 0.88 mm and ranges in size from 0.79 to 1.01 mm (Johnson et al. 1999). Eggs hatch approximately 5 days after fertilization at temperatures of 10-11°C (Bigelow and Schroeder 1953; Hildebrand and Schroeder 1928). The Northeast Fisheries Science Center (NEFSC) Marine Monitoring Assessment and Prediction (MARMAP) ichthyoplankton surveys occurred within the Project area. The survey collected yellowtail flounder eggs from 1977-1987 and found that most eggs were collected in water from 10 to 170 m deep and most frequently caught between 30 and 90 m. Densities near the Project area in March and April were 1 to < 10 eggs per 10 m^2. EFH for yellowtail flounder includes coastal and continental shelf habitats in the Gulf of Maine, on Georges Bank, and in the Mid-Atlantic region.

Larvae: Hatching times for yellowtail flounder larvae range from 14.5 days at 4°C to 4.5 days at 14°C (Yevseyenko and Nevinsky 1981). Larvae hatch at lengths of 2.0-3.5 TL and do not become benthic until reaching approximately 14 mm standard length (Johnson et al. 1999). NEFSC MARMAP ichthyoplankton surveys from 1978-1987 collected in April to June near the Project area identified

[2]Young-of-the-year are fish produced in one reproductive year. Small fish, hatched from eggs spawning in the current year, are considered young-of-year or age 0.

densities from 1 to < 10 to 10 to < 100 larvae per 10 m^2. EFH for yellowtail flounder includes coastal marine and continental shelf habitats in the Gulf of Maine, and from Georges Bank to Cape Hatteras.

Juvenile: Juveniles are found in waters 5 to 75 m at temperatures ranging from 9°C to 13°C (Johnson et al. 1999). Yellowtail flounder larvae occur in the water column briefly before entering the juvenile stage at approximately 11.6-16 mm SL[3] (Johnson et al. 1999). EFH for juveniles includes sub-tidal benthic habitats in coastal waters in the Gulf of Maine and on the continental shelf on Georges Bank and in the Mid-Atlantic. In the Mid-Atlantic, juveniles settle to the bottom of the continental shelf consisting of sandy substrates at depths of 40-70 m.

Adult: Yellowtail flounder adults reach a maximum size of 50 cm and are generally found at depths between 37 and 73 m (Johnson et al. 1999). The EFH for adult yellowtail flounder has been identified as sub-tidal benthic habitats in coastal waters in the Gulf of Maine and on the continental shelf on Georges Bank and in the Mid-Atlantic, including high salinity zones of bays and estuaries. EFH consists of substrate made of sand and sand with mud, shell hash, gravel, and rocks at depths between 25 and 90 m.

3.1.2 Mid-Atlantic Finfish Species

3.1.2.1 Atlantic Butterfish *(Peprilus triacanthus)*

General: Atlantic butterfish is a demersal/pelagic species ranging from the Gulf of St. Lawrence south to Florida, but is most abundant from the Gulf of Maine to Cape Hatteras (Bigelow and Schroeder 1953, Overholtz 2006). Butterfish are found in the Mid-Atlantic shelf in the summer and autumn, but migrate to the edge of the continental shelf where they aggregate in response to seasonal cooling of water temperatures (Grosslein and Azarovitz 1982). The Project area contains designated EFH for all life-stages (Table 2).

Eggs: Atlantic butterfish are broadcast spawners that spawn primarily in the evening or at night (Cross et al. 1999). Butterfish eggs are buoyant, transparent and have a diameter of 0.68-0.82 mm, with an incubation period of about 48 hours at 18ºC (Cross et al. 1999). Spawning may occur in the upper part of the water column and eggs were found between 0 to 4 m at night in the Mid-Atlantic Bight than during the day (Kendall and Naplin (1981). EFH for butterfish eggs is pelagic habitats in inshore estuaries and embayments from Massachusetts Bay to the south shore of Long Island, New York, in Chesapeake Bay, and on the continental shelf and slope, primarily from Georges Bank to Cape Hatteras, North Carolina. EFH for Atlantic butterfish eggs is generally over bottom depths of 1,500 m or less (MAFMC 2011).

Larvae: Atlantic butterfish larvae is generally found over bottom depths between 41 and 350 m where average temperatures are 8.5°C to 21.5°C in the upper water column (<200 m) (Cross et al. 1999). The size of Atlantic butterfish larvae ranges from 2.6 to 16 mm standard length (SL) with metamorphosis occurring gradually (Able and Fahay 1998). Butterfish larvae begin taking on the characteristics of adults (i.e. thin, deep body) at approximately 6 mm SL and at 15-16 mm SL they have a forked tail (Martin and Drewry 1978, Horn 1970, Ditty and Truesdale 1983). Between 10-15 mm, Atlantic butterfish are free swimming and generally move independent of currents (Martin and Drewry 1978). Larval Atlantic butterfish are believed to participate in diurnal vertical migrations; however more larvae have been collected in the water column between 0-4 m at night than during the day (Kendall and Naplin 1981).

[3] Standard length is defined as the measurement take from the tip of the lower jaw to the posterior end of the hypural bone

Juvenile: Small juvenile butterfish (less than 30 mm) are surface-dwelling, forming loose schools in association with flotsam and large jellyfish to avoid predation from larger fish (Cross et al. 1999, Mansueti 1963, Bigelow and Schroeder 1953). Larger juvenile butterfish (>30 mm) are found over sand and muddy substrate at depths between 10-365 m in water temperatures that range between 3-28°C (Stone at el. 1994, Cross et al. 1999).

Adult: Adult Atlantic butterfish are primarily found at bottom depths between 10 m and 250 m where water temperatures are between 4.5°C and 27.5 °C and salinities are above 5 parts per thousand (ppt) (Cross et al. 1999). Spawning generally occurs at water temperatures over 15°C (Cross et al. 1999).

3.1.2.2 Atlantic mackerel *(Scomber scombrus)*

General: Atlantic mackerel is a pelagic, schooling species that can be found from the Gulf of St. Lawrence to Cape Lookout, North Carolina (MAFMC 2011, Studholme et al. 1999). The Project area contains designated EFH for Atlantic mackerel for all life-stages (Table 2).

Egg: Atlantic mackerel eggs are pelagic and spherical and can generally be found over bottom depths of less than 100 m when temperatures in the upper 15 m of the water column average 6.5 to 12.5°C (Berrien 1975, Studholme et al. 1999). Atlantic mackerel eggs have one oil globule and range in size from 1.01-1.28 mm, with an average size of 1.3 mm, in diameter. However, sampling in the Gulf of St. Lawrence indicates that egg size has decreased in response to ambient temperatures over time (Berrien 1975, Ware 1977)

Larvae: Atlantic mackerel larvae can generally be found over bottom depths ranging between 10-130 m, in temperatures ranging from 6°C to 22°C, with the largest portion observed in temperatures between 8-13°C (Studholme et al. 1999). Mackerel larvae measure approximately 3.1-3.3 mm SL at hatching, which occurs between 90 and 120 hours post-fertilization in average water temperature of 13.8°C (Sette 1943, Bigelow and Schroeder 1953, Colton and Marak 1969, Berrien 1975, Ware and Lambert 1985, Scott and Scott 1988). Metamorphosis occurs rapidly for Atlantic mackerel larvae, likely increasing successful capture of prey and avoidance of predation (Sette 1943, Ware and Lambert 1985). Mackerel larvae (<13 mm) were collected in NEFSC MARMAP ichthyoplankton surveys from waters off Chesapeake Bay to the Gulf of Maine, with peak abundances offshore of Delaware Bay to Massachusetts Bay in inshore waters to the seaward limits (Studholme et al. 1999).

Juveniles and Adults: Atlantic mackerel juveniles can generally be found over bottom depths that range from the surface to 340 m, in temperatures between 4°C and 22°C (Studholme et al. 1999). Juveniles collected in Hudson-Raritan estuary of New York and New Jersey were found at depths between 4.9-9.8 m, in temperatures that ranged from 17.6 to 21.7, with salinities of 26.1-28.9 ppt (Studholme et al. 1999). At approximately, 30-50 mm, post-larvae begin to exhibit swimming and schooling behavior, and within approximately two months juveniles reach a length of 50 mm at which time they resemble adults (Sette 1943, Bigelow and Schroeder 1953, Anderson and Paciorkowski 1980, Berrien 1982). Juvenile Atlantic mackerel tend to have similar distribution patterns as adult Atlantic mackerel. However, juveniles have been collected in near coastal waters in the Mid-Atlantic Bight and southern New England, particularly in the fall (Studholme et al. 1999).

3.1.2.3 Black Sea Bass *(Centropristis striata)*

General: Black sea bass is a pelagic, warm temperate species that can be found in the western Atlantic, ranging from southern Nova Scotia and the Bay of Fundy to southern Florida (Drohan et al. 2007). Black sea bass are found in an array of complex, structured habitats, including reefs, shipwrecks, and lobster pots along the continental shelf (Steimle et al. 1999c). Young-of-year are

generally found in estuarine habitats with structural complexity (Drohan et al. 2007). The Project area contains designated EFH for the larval, juvenile, and adult life-stages (Table 2).

Larvae: North of Cape Hatteras, EFH is the pelagic waters found over the continental shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all ranked ten-minute squares of the area where black sea bass larvae are collected in the MARMAP survey. EFH also includes estuaries where black sea bass were identified as common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater salinity zones. Generally, the habitats for the transforming (to juveniles) larvae are near the coastal areas and into marine parts of estuaries between Virginia and New York. When larvae become demersal, they are generally found on structured inshore habitat such as sponge beds.

Juvenile: Black sea bass juveniles can be found in demersal waters over the continental shelf and in estuaries, in temperatures greater than 6°C with salinities greater than 18 ppt (Steimle et al. 1999c). Juvenile black sea bass are associated with structured habitats. In the summer, juvenile sea bass are found in estuarine nursery areas following settlement in coastal areas. However, due to declining water temperature, older juveniles will migrate seasonally to nearshore habitats in the spring through fall, and outer coastal areas at depths of 30 to 128 m in winter (Nichols and Breder 1927, Hales and Abe 2001). Benthic and epibenthic invertebrates (i.e. amphipods, isopods, and small crabs) and small fish dominate the diets for juvenile black sea bass (Drohan et al. 2007, Bowman et al. 2000).

Adult: Black sea bass adults can be found in demersal waters over the continental shelf and in estuaries, in temperatures greater than 6°C and salinities greater than 18 ppt (Steimle et al. 1999c). Black sea bass become more piscivorous as they mature (between one and four years of age) and in the Mid-Atlantic, feed primarily on crustaceans (*Cancer irroratus* and *Meganyctiphanes norvegica*) and small fish (Grosslein and Azarovitch 1982, Steimle et al. 1999c, Bowman et al. 2000). Northern populations of adult sea bass, located primarily between Chesapeake Bay and Montauk, New York, spawn during summer months in water 18 to 44 m (Musick and Mercer 1977).

3.1.2.4 Bluefish *(Pomatomus saltatrix)*

General: Bluefish are a coastal migratory pelagic species that can be found in inshore and offshore temperate and warm temperate waters of the continental shelf, ranging from Nova Scotia to Florida, as well as the Gulf of Mexico from Florida to Texas (Bigelow and Schroeder 1953, Briggs 1960). In mid-to-late May, bluefish, traveling in large schools of like-size fish, migrate into Mid-Atlantic waters, returning to deeper offshore waters of southeastern Florida in November (Grosslein and Azarovitz 1982, Stone et al. 1994). The Project area contains designated EFH for all life-stages (Table 2).

Egg: Bluefish eggs (0.8-1.2 mm) are found in mid-shelf waters ranging from 30 to 70 m in southern New England to Cape Hatteras, in temperatures ranging from 18°C to 22°C, with salinities greater than 31 ppt (Hardy 1978, Fahay et al. 1999). The incubation times for bluefish eggs varies with temperature with egg hatching generally occurring within 46 to 48 hours at temperatures ranging between 18°C to 22.2°C (Deuel et al. 1966, Hardy 1978). EFH for bluefish eggs include pelagic waters found over the continental shelf at mid-shelf depths, from Montauk Point, New York, to Cape Hatteras (MAFMC 1998). Bluefish eggs are generally not collected in estuarine waters and there are no EFH designations for inshore waters. Bluefish eggs have been found from April through August in temperatures greater than 18°C, and shelf salinities greater than 31 ppt (MAFMC 1998).

Larvae: Bluefish larvae are found in oceanic waters in temperatures of 18°C, with salinities of greater than 30 ppt (Able and Fahay 1998, Shepherd and Packer 2006). Larval bluefish are 2-2.4 mm when they hatch (Shepherd and Packer 2006). Bluefish spend their larval stage at no deeper than 15 m in

the water column, are most concentrated at 4 m during the day, and are equally distributed between 4 m and the surface at night (Kendall and Naplin 1981).

Juvenile: Juvenile bluefish are found in pelagic, nearshore areas and estuaries in temperatures between 19°C and 24°C, with salinities that range from 23 to 36 ppt (Shepherd and Packer 2006). In North Atlantic estuaries, bluefish juveniles are typically found March through December and associated with sand, mud, clay, submerged aquatic vegetation (*Ulva* and *Zostera*) beds and bottom habitats (*Fucus* spp*;* Nelson et al. 1991, Jury et al. 1994, Stone et al. 1994, Fahay et al. 1999).

Adult: Bluefish adults can be found in oceanic, nearshore, and continental shelf waters and prefer temperatures above 14-16°C and salinities above 25 ppt (Fahay et al. 1999). The species migrate extensively and are distributed based on season and size of the individuals within the schools (Shepherd and Packer 2006). There are two predominate spawning areas on the east coast for bluefish adults: one during the spring that is located offshore from southern Florida to North Carolina and the other during summer in the Middle Atlantic Bight (Wilk 1982).

3.1.2.5 Scup *(Stenotomus chrysops)*

General: Scup is a demersal species that can be found from the Gulf of Maine to North Carolina, with a winter distribution that ranges from approximately New Jersey to Cape Hatteras in waters 36-146 m deep and a summer distribution that ranges from southern New England to Mid-Atlantic coasts (Bigelow and Schroeder 1953, Collette and Klein-MacPhee 2002, Grosslein and Azarovitz 1982). The Project area contains designated EFH for all life-stages (Table 2).

Eggs: EFH is estuaries where scup eggs were identified as common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. In general, scup eggs are found from May through August in southern New England to coastal Virginia, in waters between 55 and 73 °F and in salinities greater than 15 ppt.

Larvae: EFH is estuaries where scup were identified as common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. In general, scup larvae are most abundant nearshore from May through September, in waters between 55 and 73 °F and in salinities greater than 15 ppt.

Juvenile: Scup juveniles (18-19 mm TL or greater) school in demersal waters over the continental shelf and inshore estuaries with salinities of 15 ppt or greater and prefer diverse habitats, including mud, sand, mussel beds, and eelgrass (Steimle et al. 1999d).

Adult: Adult scup prefer nearshore habitats within close proximity to large bays during the summer that are deeper than 1.8 to 3.7 m, with salinities greater than 15 ppt (Bigelow and Schroeder 1953, Steimle et al. 1999d). Scup are bottom feeders, preying on crustaceans, polychaetes, hydroids, sand dollars, squid and small fish, and can be found in a variety of habitats, including smooth to rocky bottoms and mixed sand and mud sediments that allow scup to forage on small benthic invertebrates (Bigelow and Schroeder 1953, Bowman et al. 2000). Spawning takes place for Mid-Bight scup from May to August along the inner continental shelf of southern New England, with peak spawning occurring from June through July.

3.1.2.6 Summer Flounder *(Paralichthys dentatus)*

General: Summer flounder is a demersal, left-sided flatfish that is distributed from Georges Bank to South Carolina and Florida, and is concentrated in the Middle Atlantic Bight from Cape Cod to Cape Hatteras (Bigelow and Schroeder 1953, Collette and Klein-MacPhee 2002). The Project area contains designated EFH for larval, juvenile, and adult life-stages (Table 2).

Larvae: After hatching, at approximately 3 mm in length, summer flounder larvae remain in the water column at depths of 10-70 m, in temperatures ranging between 0°C and 23°C, with salinities 35 ppt or less before settling to the bottom (Martin and Drewry 1978, Colton and Marak 1969). Larval and post-larval summer flounder migrate to shallower areas in inshore coastal and estuarine habitats where they metamorphose (at approximately 8-18 mm SL) into juveniles that will bury into sandy bottom substrate (Packer al. 1999, Keefe and Able 1994).

Juvenile: Summer flounder juveniles can be found in a variety of estuarine, soft-bottom habitats (i.e. mud flats, seagrass beds, marsh creeks, and open bays) with water temperatures 11°C or greater and salinities ranging from 10 to 30 ppt (Packer et al. 1999, Deubler and White 1962). Juvenile summer flounder are generalist when it comes to diet, feeding primarily on benthic invertebrates and then, fish, as individuals grow in size (Bowman et al. 2000).

Adult: In the summer, adult summer flounder can be found in demersal waters over the continental shelf and on sandy or muddy bottoms of inshore estuaries at depths of 0 to 25 m in an extensive range of salinities, whereas, in winter, adult summer flounder are found offshore at depths between 75-150 m (Grosslein and Azarovitz 1982). NMFS has designated habitat area of particular concern (HAPC) for juvenile and adult summer founder, which includes all native species of maroalgae, seagrasses, and freshwater and tidal macrophytes in any size bed within EFH. The diet of adult summer flounder includes a variety of smaller fish (i.e. windowpane [*Scophthalmus aquosus*], winter flounder [*Pseudopleuronectes americanus*], northern pipefish [*Syngnathus fuscus*], Atlantic menhaden [*Brevoortia tyrannus*], bay anchovy, red hake, silver hake, scup, Atlantic silverside, American sand lance [*Ammodytes americanus*], bluefish, weakfish, and mummichog [*Fundulus heteroclitus*]), squids, crabs, shrimp, small mollusks, worms, and sand dollars (Bowman et al. 2000). Adult summer flounder predators include large sharks, rays, and goosefish (Bigelow and Schroeder 1953).

3.1.3 Invertebrate Species

3.1.3.1 Longfin Inshore Squid *(Loligo pealeii)*

General: The longfin inshore squid is a pelagic, schooling species that can be found from Newfoundland to the Gulf of Venezuela and is considered a commercially important species from Georges Bank to Cape Hatteras (Cargnelli et al. 1999b). Longfin inshore squid are known to migrate seasonally, moving south and offshore in the late fall and wintering on the continental shelf edge; as temperatures increase seasonally, this species moves inshore and north (Cargnelli et al. 1999b). The Project area contains designated EFH for all life-stages (Table 2).

Egg: Like most squids, longfin inshore squid produce egg masses that are demersal and anchored to the substrates they are laid on. Females deposit the gelatinous capsules of eggs typically in depths less than 50 m to different substrate types, including shells, fish traps, boulders, submerged aquatic vegetation (e.g. *Fucus* sp.), sand, and mud (MAFMC 2011). EFH for longfin inshore squid eggs occurs in inshore and offshore bottom habitats from Georges Bank southward to Cape Hatteras, where bottom temperatures are between 10ºC to 23ºC, salinities between 30 and 32 ppt, and depths less than 50 m (MAFMC 2011).

Juvenile: Juvenile longfin inshore squid are found at bottom depths that range between 6 and 160 m, in temperatures of 8.5°C to 24.5°C, with salinities of 28.5 to 36.5 ppt (Cargnelli et al. 1999b, MAFMC 2011). In the fall, juveniles in the pre-recruitment stage migrate offshore to winter in deeper waters along the continental shelf edge (Cargnelli et al. 1999b). Longfin inshore squid juveniles participate in diurnal vertical migration. EFH is considered pelagic habitats in inshore and offshore continental shelf waters from Georges Bank to South Carolina, in the southwestern Gulf of Maine, and in embayments such as Narragansett Bay, Long Island Sound, and Raritan Bay (MAFMC 2011).

Adult: In open waters, longfin inshore squid utilize varying depths of the water column. However, in inshore habitats, longfin inshore squid adults are typically found at bottom depths ranging from 6 to 200 m, in bottom water temperatures of 8.5°C to 14°C, with salinities of 24 to 36.5 ppt (Cargnelli et al. 1999b). EFH is pelagic habitats in inshore and offshore continental shelf waters and within the same embayments as juvenile longfin inshore squid.

3.1.3.2 Ocean Quahog *(Arctica islandica)*

General: The ocean quahog is a commercially important bivalve mollusk distributed along the continental shelf that can be found from Newfoundland to Cape Hatteras, with peak offshore densities occurring south of Nantucket to the Delmarva Peninsula (Cargnelli et al. 1999e). The ocean quahog is managed by the Mid-Atlantic Fishery Management Council under the Atlantic surfclam and ocean quahog fishery management plan. The Project area contains designated EFH for juvenile and adult life-stages (Table 2).

Juvenile: Ocean quahog juveniles are typically found offshore in sandy substrates, although they are known to survive in muddy intertidal habitats when protected from predators, and in the Middle Atlantic Bight exist at depths of 45-75 m with salinities ranging between 32-34 ppt (Kraus et al. 1991).

Adult: Adult ocean quahogs generally exist in dense beds on level bottoms, just below the surface of medium to fine grain sediments, at depths of 14-82 m, with most being found at 25 to 61 m and some individuals as deep as 256 m (Medcof and Caddy 1971, Beal and Kraus 1989, Brey et al. 1990, Fogarty 1981, MAFMC 1997, Merrill and Ropes 1969). The optimal temperature for adult ocean quahogs ranges from approximately 6°C to 16°C, with lethal temperatures reportedly being 20°C or greater (Golikov and Scarlato 1973, Merrill et al. 1969).

3.1.3.3 Surf Clam *(Spisula solidissima)*

General: The surf clam is a commercially important bivalve that can be found in sandy habitats along the continental shelf and ranges from the southern Gulf of St. Lawrence to Cape Hatteras, North Carolina, with concentrations located on Georges Bank, south of Cape Cod, off Long Island, southern New Jersey and the Delmarva Peninsula (Merrill and Ropes 1969, Ropes 1980). The surf clam is managed by the Mid-Atlantic Fishery Management Council under the Atlantic surf clam and ocean quahog fishery management plan. The Project area contains designated EFH for juvenile and adult life-stages (Table 2).

Juvenile: High concentrations of surf clams are found at depths ranging from 8 to 66 m in areas of turbidity deeper than the break zone, and can tolerate salinities ranging from 14-52 ppt (Fahay et al. 1983, Ropes 1980). Surf clam juveniles are distributed in well-sorted, medium sand and may also be found in fine and silty-fine sand (Cargnelli et al. 1999b).

Adult: Adult surf clams are distributed similar to juveniles, with high concentrations found in well-sorted, medium sand or fine and silty-fine sand (Cargnelli et al. 1999b). Surf clams reach sexual maturity at varying sizes and ages, including as early as 3 months and 5 mm length after settlement off the coast of New Jersey to as long as 4 years and 80-95 mm length off Prince Edward Island, Canada (Chintala and Grassle 1995, Sephton and Bryan 1990).

3.1.4 Skate Species

3.1.4.1 Little Skate *(Leucoraja erinacea)*

General: The little skate is a demersal fish species that occurs from Nova Scotia to Cape Hatteras (Packer et al. 2003a). Little skate are most abundant and found year-round in the northern section of the Mid-Atlantic Bight and Georges Bank (Packer et al. 2003a). The little skate prefers sandy or pebbly

bottom, but can also be found on mud and ledges (Collette and Klein-MacPhee 2002) where temperature ranges from 1 to 21ºC. The Project area contains EFH for little skate juvenile and adult life-stages (Table 2).

Juvenile: Little skate are able to mate any time throughout the year, and mating occurs frequently (Packer et al. 2003a). A single fertilized egg is encapsulated and deposited on the seafloor bottom until hatching. Juvenile little skate are fully developed at hatching, with an approximate size of 93-102 mm TL (Packer et al. 2003a). EFH for juvenile little skate includes intertidal and subtidal benthic habitats in coastal waters extending from the Gulf of Maine to Delaware Bay, and on Georges Bank. EFH consist of sand and gravel substrates, but juvenile little skate are also found on mud to a maximum depth of 80 m (NEFMC 2017).

Adult: Adult little skate have an average size of 41-51 cm TL and a maximum of 53 cm TL (Bigelow and Schroeder 1953). EFH for adult little skate includes intertidal and subtidal benthic habitats in coastal waters extending from the Gulf of Main to Delaware Bay, and on Georges Bank. EFH consist of sand and gravel substrates, but juvenile little skate are also found on mud to a maximum depth of 100 m (NEFMC 2017).

3.1.4.2 Winter Skate *(Leucoraja ocellata)*

General: Winter skate occurs from the south coast of Newfoundland and the southern Gulf of St. Lawrence to Cape Hatteras (Packer et al. 2003b). Like the little skate, winter skate are highly abundant on Georges Bank and in the northern section of the Mid-Atlantic Bight. The Project area contains EFH for the winter skate juvenile and adult life-stages (Table 2).

Juvenile: Like the little skate, winter skate is fully developed at hatching, with a TL between 11.2 cm to 12.7 cm. Winter skate predominately feeds on infaunal organisms, such as burrowing polychaetes, amphipods, and bivalves (Packer et al. 2003b). Winter skate is preyed upon by sharks, other skates, gray seals, and gulls (Packer et al. 2003b). EFH for juvenile winter skate includes subtidal benthic habitats in coastal waters extending from eastern Maine to Delaware Bay, as well as on the continental shelf in southern New England and the Mid-Atlantic region. EFH for juvenile winter skate occurs on sand and gravel substrates, but are also found on mud from the shoreline to a maximum depth of 90 m (NEFMC 2017).

Adult: The average size of adult winter skate is 76.2 to 86.4 cm TL (Bigelow and Schroeder 1953). EFH for adult winter skate includes subtidal habitats in coastal waters in the southwestern Gulf of Maine, in coastal and continental shelf waters in southern New England and the Mid-Atlantic region, and on Georges Banks. EFH includes depths of 80 m, including the high salinity zones of bays and estuaries, which includes Great South Bay and Barnegat Bay, and occurs on sand and gravel substrates, as well as mud substrates (NEFMC 2017).

3.1.5 Shark Species

3.1.5.1 Blue Shark *(Carcharhinus plumbeus)*

General: Blue shark have a wide range of occurrence and may be found in oceanic or nearshore Atlantic waters from Newfoundland to the Falkland Islands. They often occur in aggregations typically offshore, though they may move inshore at night. Blue sharks often remain near the surface they may occur to depths of 152 m (Compagno 1984). They prefer cool water between 7°C and 16°C, but can tolerate temperatures above 21°C. The Project area contains designated EFH for neonate/YOY, juvenile, and adult life-stages (Table 2).

Neonate/YOY: Blue sharks become reproductively mature at 6 or 7 years of age (Cailliet et al. 1983). In the Atlantic, gestation lasts for approximately 12 months and blue shark produce litters of 28 to 54 pups (Bigelow and Schroeder 1948). The length of the reproductive cycle is believed to be annual and nursery areas appear to be in open oceanic waters of higher latitudes. Neonate/YOY sizes for blue shark are less than or equal to 76 cm FL (NMFS 2017). EFH for blue shark neonate/YOY life stages in the Atlantic include areas offshore of Cape Cod through New Jersey, seaward of the 30 m bathymetric line, excluding inshore waters such as Long Island Sound (NMFS 2017). EFH follows the continental shelf south of Georges Bank to the outer extent of the U.S. EEZ in the Gulf of Maine.

Juveniles/ Adults: Male blue shark become mature once they reach 183 cm FL and females mature at 213 to 243 cm TL (Bigelow and Schroeder 1948). Nursery areas are typically closed bays or sheltered coastal areas that provide protection from predators. Blue sharks are opportunistic predators that feed on squids, octopi, lobsters, crabs, small sharks, and various fishes such as haddock (*Melanogrammus aeglefinus*), pollock (*Pollachius* sp.), flounder (*Pleuronectoidei* sp.), mackerel, herring, sea raven (*Hemitripteridae* sp.), silver hake, white hake (*Urophycis tenuis*), red hake (*Urophycis chuss*), butterfish (*Stromateidae* sp.), and cod. The younger sharks are frequently eaten by larger shark species, such as great white (*Carcharodon carcharias*) and tiger sharks (*Galeocerdo cuvier*)(Vandeperre et al. 2014).The EFH designations are the same for juvenile and adult blue shark life-stages. EFH for blue shark juvenile/adult life stages includes localized areas in the Atlantic Ocean in the Gulf of Maine, from Georges Bank to North and South Carolina, Georgia, and Florida (NMFS 2017).

3.1.5.2 Sandbar Shark *(Carcharhinus plumbeus)*

General: The sandbar shark is a common species found in coastal habitats and subtropical and warm temperature waters (NMFS 2009). The North Atlantic population ranges from Cape Cod to the western Gulf of Mexico (NMFS 2009). This bottom-dwelling species is common in 20 to 55 m of water and only found occasionally at depths of approximately 200 m (NMFS 2009). The Project area contains designated EFH for all life-stages (Table 2).

Neonate: The neonate and YOY for sandbar shark are less than 78 cm in TL (NMFS 2009). Designated EFH is identified in localized coastal areas on the Florida panhandle, as well as localized areas along the Georgia and South Carolina coastlines and from Cape Lookout to Long Island, New York (NMFS 2009). Sandbar shark nursery areas are typically in shallow coastal waters for neonates and young-of-the-year life-stages. (Merson and Pratt, 2001, 2007). The juvenile diet consists of blue crabs, mantis shrimp and other crustaceans, and a variety of fish, such as menhaden, black sea bass, and flatfish (Medved and Marshal 1981).

Juvenile: Juvenile sandbar shark sizes are 79 to 190 cm TL and have designated EFH along localized areas of the Atlantic coast of Florida, South Carolina, and southern North Carolina, and from Cape Lookout to southern New England (NMFS 2009). Juveniles will remain in or near the nursery grounds until late fall, later forming schools and migrating to deeper waters (NMFS 2009). Juvenile sandbar sharks return to nursery grounds during warmer months and repeat this migratory pattern until they are approximately 7 to 10 years of age and begin a wider migration into the adult life-stage (HMSMD 2006). The diet of juvenile sandbar sharks consists of hakes, mackerels, monkfish, flatfish, squids, and crabs (Stillwell and Kohler 1993).

Adult: Adult sandbar shark sizes are greater than or equal to 191 cm TL (NFMS 2009 Adult sandbar sharks are found along the Atlantic coast from the shore to a depth of 280 m in southern Nantucket, Massachusetts, to the Florida Keys (NMFS 2009). EFH in the Atlantic Ocean includes coastal areas from southern New England to the Florida Keys, ranging from inland waters of Delaware Bay and the

mouth of Chesapeake Bay to the continental shelf break. Sandbar sharks migrate seasonally along the western Atlantic coast, moving north with warming water temperatures during the summer and south as temperatures begin to decrease during the fall (Collette and Klein-MacPhee 2002). Sandbar sharks are opportunistic bottom feeders that prey on bony fishes, smaller sharks, rays, cephalopods, gastropods, crabs and shrimps (Collette and Klein-MacPhee 2002, Bowman et al. 2000, Stillwell and Kohler 1993).

3.1.5.3 Shortfin mako *(surus oxyrinchus)*

General: Shortfin mako is a coastal and oceanic species with circumglobal distribution throughout all temperate and tropical seas. They occur along the North American coast from the Gulf of Maine south past Florida. The Project area contains designated EFH for all life-stages (Table 2).

Neonate: Cailliet and Mollet (1997) estimated that female mako sharks mature at 4 to 6 years, have a two-year reproductive cycle, and a gestation period lasting 12 months. Litter sizes range from 4 to 25 pups, with a size at birth of approximately 70 cm TL (Calliet and Mollet 1997). There is no information about where shortfin mako mating occurs.

Juvenile: Early juveniles are most likely to occur in the New York Bight during the spring, while later juveniles may be present year-round (Compagno 2002). NOAA Fisheries has designated EFH for early juvenile shortfin makos between the 25 m and 50 m isobaths between the Chesapeake Bay and Georges Bank, and between the 50 m and 2,000 m isobaths between Cape Lookout, North Carolina, and Georges Bank. EFH for late juveniles/subadults has been designated between the 25 m and 2,000 m isobaths between Onslow Bay, North Carolina and Cape Cod, Massachusetts, and offshore to the EEZ boundary (NOAA Fisheries 2013).

Adult: This species gives live-birth to litters of young, typically between winter and mid-summer (Compagno 2002). Adult shortfin mako are greater than 275 cm FL and feed on fast-moving fishes such as swordfish, tuna, and other sharks, as well as clupeids, needlefishes, crustaceans, and cephalopods (NMFS 2017, Castro 1983). EFH for adult shortfin mako is the same for neonate/juvenile life-stages.

3.1.5.4 Spiny Dogfish *(Squalus acanthias)*

General: The spiny dogfish is widely distributed throughout the world, with populations existing on the continental shelf of the northern and southern temperate zones, which includes the North Atlantic from Greenland to northeastern Florida, with concentrations from Nova Scotia to Cape Hatteras (Compagno 1984). The Project area contains designated EFH for juvenile and adult life-stages (Table 2).

Juvenile: Spiny dogfish are born offshore in fall or winter, ranging from approximately 20-33 cm TL (Soldat 1979, Nammack et al. 1985, Burgess 2002). Sexual maturity is reached at approximately 6 years of age for males and 12 years of age for females (Collette and Klein-MacPhee 2002, Nammack et al. 1985, Bigelow and Schroeder 1953). From 1963-2003, NEFSC bottom trawl surveys collected spiny dogfish juveniles at depths ranging from 11 to 500 m, in water approximately 3-17°C, with salinities ranging from 24 to 36 ppt (Stehlik 2007).

Adult: Adult spiny dogfish are found in deeper waters inshore (more commonly males and mature females) and offshore from the shallows to approximately 900 m deep, in water temperatures that range from 6°C to 8°C, and seldom over 15°C (Collette and Klein-MacPhee 2002, Jensen 1965). Spawning occurs offshore during the winter and pups are born via live birth after approximately 18-22 months of gestation (Bigelow and Schroeder 1953, Jensen 1965). Based on seasonal temperatures, spiny dogfish migrate up to 1,600 km along the east coast (Compagno 1984a, Jensen 1965).

3.1.5.5 Smooth Dogfish *(Mustelis canis)*

General: Smooth dogfish is a common coastal shark species found in the Atlantic Ocean from Massachusetts to northern Argentina. They are primarily demersal sharks that inhabit continental shelves and are typically found in inshore waters down to 200m depth (Compagno, 1984). Smooth dogfish is a migratory species that responds to changes in water temperature. They primarily congregate between southern North Carolina and the Chesapeake Bay in the winter. In the spring, smooth dogfish move along the coast when bottom water warms up to at least 6 to 7 °C. As temperatures get colder, smooth dogfish move offshore to their wintering areas (Compagno, 1984). Smooth dogfish can tolerate a range of temperatures from 6 to 27 °C. Their diet primarily consists of invertebrates and large crustaceans. The Project area contains designated EFH for all life-stages (Table 2).

Neonate, Juvenile, Adult: EFH for all life stages in Atlantic coastal areas ranges from Cape Cod Bay, Massachusetts to South Carolina, inclusive of inshore bays and estuaries (e.g., Pamlico Sound, Core Sound, Delaware Bay, Long Island Sound, Narragansett Bay, etc.). EFH also includes continental shelf habitats between southern New Jersey and Cape Hatteras, North Carolina.

4 Assessment of Impacts to EFH in the Project Area

Table 3 provides a summary of the impact assessment for this Project. In general, species with benthic life stages will experience direct impacts, while pelagic species with designated EFH will likely experience minor to no impacts as a result of the placement of artificial reef materials and maintenance of the artificial reef sites. However, artificial reefs provide benefits to both benthic and pelagic life stages as reefs add complex vertical habitat which species use for foraging and protection.

The types of potential impacts include turbidity plumes, noise, vessel traffic, conversion of habitat type, and local changes in bathymetry and hydrodynamics. Indirect impacts include the direct burial of benthic infaunal prey organisms for bottom feeding EFH species. As the Project area represents a very small percentage of foraging grounds within the Atlantic Ocean, Great South Bay and Long Island Sound and bottom-feeding fish and crustaceans will consume epifaunal organisms living on the reef the overall indirect impact of the placement of reef materials to EFH species will be minimal.

With the exception of the sandy substrate habitats being converted to hard-bottom habitat with vertical relief, the remaining substrates within the surrounding areas in the Atlantic Ocean, Great South Bay, and Long Island sound are anticipated to function the same as pre-existing conditions, and allow the continued use by designated EFH species.

Table 3: Summary of Potential Impacts on EFH

Project Activity	Potential Impacts	Benthic EFH Species Impacts				Pelagic EFH Species Impacts				Impact Analysis
		Eggs	Larvae	Juveniles	Adults	Eggs	Larvae	Juveniles	Adults	
Placement of Material at Reef Location	**Turbidity**	Short Term Direct localized Impact	Short Term Direct localized Impact	No impacts as species would move to adjacent areas	No impacts as species would move to adjacent areas	No Impact				**Direct Impacts:** The deployment of reef materials has the potential to cause short term direct impacts to benthic fish species due to the temporary increase in turbidity. Placement of material will last a couple of hours per deployment. In addition, artificial reef locations were sited in sand which quickly settles and does not stay suspended in the water column. Potential impacts due to suspended sediments for Matinecock is greater than at other reef locations due to the silty sands present at the site. However, this impact will be temporary and localized. **Indirect Impacts:** The deployment of reef materials has the potential to cause short term impacts to benthic community which are a food source to EFH species. Due to the increase in turbidity, non-mobile benthic species may temporarily be buried by settling sand.
	Noise	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	**Direct and Indirect Impacts:** During placement of reef materials, vessels or barges will be at the reef location which will result in temporary increase in noise. However, the level of noise will be similar to the recreational and commercial traffic that is currently present in these water bodies and at these sites; therefore, impacts from noise associated with placement of material and use of the reef are not anticipated.
	Vessel Traffic	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	**Direct and Indirect Impacts:** During placement of reef materials, vessels or barges will be at the reef location which will result in temporary increase in vessel traffic. Placement vessels/barges will be on site for a short period (i.e. hours) for each placement. In addition, it is anticipated that the number of recreational fishing vessels may also increase due to the maintenance of these reefs. However, the number of vessels will be similar to the recreational and commercial traffic that is currently present in these water bodies and at these sites; therefore, impacts from vessel traffic associated with placement of material and use of the reef are not anticipated.
	Conversion of Habitat Type	Long Term Direct Impact	Long Term Direct Impact	Long Term Direct Impact	Long Term Direct Impact	Minor Long Term Direct Impact	Minor Long Term Direct Impact	Minor Long Term Direct Impact	Minor Long Term Direct Impact	**Direct Impacts:** The placement of reef materials represents a long term direct impact to benthic species and life stages that use benthic sand habitats as well as pelagic species that utilize water column habitats. Those species and life stages that utilize sandy uniform substrates will experience a long term loss of habitat in the areas where reef materials are placed. The reef areas represent a small percentage of the available sandy habitat on the coastal shelf, barrier island bays and Long Island Sound. Those species and life stages that are structure oriented or utilize coarse habitats such as boulders or cobbles will experience a long term gain of habitat and benefit of the addition of complex vertical habitat. In addition to providing physical shelter for benthic species the reef materials will provide substrate for encrusting organisms that would otherwise be unable to colonize the sandy habitats. These encrusting organisms will in turn provide shelter and forage for life stages of benthic and structurally oriented species. The deployed materials will bury benthic non-mobile life stages that are present at the site during placement. Mortality to immobile species and life stages would be limited to the footprint of the deployed materials and represent a onetime occurrence. **Indirect Impacts:** Mortality to existing benthic species which are food sources to EFH species is expected within the footprint of the reef. However, the benthic community and habitats in the undeveloped areas of reef sites are similar to the surrounding area and represent an extremely small portion of the available

Project Activity	Potential Impacts	Benthic EFH Species Impacts				Pelagic EFH Species Impacts				Impact Analysis
		Eggs	Larvae	Juveniles	Adults	Eggs	Larvae	Juveniles	Adults	
										benthic habitat in the area. Therefore, any potential impacts associated with the deployment of materials are not expected to have an adverse impact.
Placement of Material at Reef Location	**Changes in Local Bathymetry and Hydrody-namics**	Minor Long Term Direct Impact	Minor Long Term Direct Impact	Minor Long Term Direct Impact	Minor Long Term Direct Impact	No Impact	No Impact	No Impact	No Impact	**Direct Impacts:** The reef materials will provide vertical relief in areas that previously consisted of generally uniform benthic sand habitat. This vertical relief may cause localized changes in current, scour, and sediment deposition. The vertical relief of the reef material will provide current breaks and shelter for structure oriented life-stages as well as localized areas of increased current or "rips" as the water flows around the reef structure. These current edges can provide foraging opportunities for pelagic predators. The reef materials are not of sufficient size to significantly alter or restrict currents in the area of reef sites. There will also be a modest decrease in depth in areas where materials are deployed. Each reef site is subject to a control depth that limits how high above the bottom reef materials can be placed (see Table 1). The control depths at the reef sites range from 0 to 60 ft above the existing bottom. The water column below the control depths have the potential to be occupied by reef materials. While there will be a modest change in depth in areas where materials are deployed, post deployment depths will still be in the same general range and unlikely to cause a reduction in EFH due to depth changes. This material will occupy portions of the water column that were previously vacant and lead to minor localized reduction in pelagic, water column habitat. The pelagic habitat above the reef sites is similar to surrounding areas and represents an extremely small portion of the available pelagic habitat.

5 Assessment Summary

This assessment concludes that the overall potential adverse impacts to EFH designated species and EFH in the Project area will be minimal. Long term impacts are associated with the permanent conversion of a limited area of sand habitat to complex hard substrate with vertical relief. The development of the artificial reef sites will provide a long term benefit to benthic and pelagic species, structure oriented species that are commercially and recreationally valuable, and establish an epibenthic community, providing a more diverse and complex community.

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Attachment F

NMFS and USFWS Threatened and Endangered Species Assessment and Consultation

NOAA'S National Marine Fisheries Service
Protected Resources Division
55 Great Republic Drive
Gloucester, MA 01930

Attn: Mrs. Kimberly Damon-Randall

Re: Request for Informal Consultation for the NYSDEC's Artificial Reef Program Effects Determination for Federally Listed Species or Species Proposed for Listing

Dear Mrs. Damon-Randall,

We are carrying out the proposed project as described below. This letter is to request Endangered Species Act (ESA) concurrence from your office for the New York State Department of Environmental Conservation's (NYSDEC) Artificial Reef Program for artificial reef expansion and the addition and creation of new sites. We have made the determination that the proposed activity may affect, but is not likely to adversely affect, any species listed as threatened or endangered by NMFS under the ESA of 1973, as amended. Our supporting analysis is provided below.

Proposed Project

In 1993, the NYSDEC completed a Generic Environmental Impact Statement (GEIS)/Reef Plan which allowed for the issuance of a permit for the development of artificial reefs at specific locations within the study area. As the NYSDEC Artificial Reef Program developed, additional NYSDEC and United States Army Corps of Engineers (USACE) permits were obtained to provide authority to place material to meet specific goals of the Program outlined in the GEIS/Reef Plan. These reefs are located off the south shore of Long Island, Great Bay, and Long Island Sound (Figure 1).

The proposed action includes the assessment of previously permitted sites, the expansion of seven existing sites (Fire Island, Hempstead, McAllister Grounds/Fishing Line, Moriches, Rockaway, Shinnecock, and Smithtown Reefs) and the addition and creation of four new sites (Sixteen Fathoms, Huntington/Oyster Bay, Port Jefferson/Mount Sinai and Mattituck Reefs; see Table 1 and Figure 1). Artificial reefs are developed using the patch reef system. Patch reef development includes the placement of material in discrete locations or "targets" separated by undisturbed benthic habitat. This method results in a smaller disruption of the site's benthic footprint thereby reducing impacts to the benthic community. NYSDEC will acquire the required State and Federal permits prior to placing material on reef locations (Table 2). This action is required for future reef permit acquisition to maintain, expand and develop existing site footprints and create new sites. Reef site locations are, and may be, in the Atlantic Ocean, Great South Bay, and Long Island Sound. All reef sites are strategically located near or accessible to Long Island harbors and embayments through local inlets. The Program will seek future permits of ten-year duration which would continue the Program into the late 2020s.

Table 1. Reef Locations, Status, and Modifications

Reef	Location-Category	Previously Analyzed or Permitted Acreage	Development Status (%)	Proposed Modification	Location Latitude/ Longitude
Atlantic Ocean-Inshore					
Rockaway	Atlantic Ocean - Inshore	413	80%	Expand to 635 Acres	40°32.453'N / 073°50.558'W
McAllister Grounds	Atlantic Ocean - Inshore	115	75%	Expand to 425 Acres	40°32.207'N/ 073°39.441'W
Fire Island	Atlantic Ocean - Inshore	744	70%	Expand to 850 Acres	40°35.863'N / 073°12.423'W
Moriches	Atlantic Ocean - Inshore	14	90%	Expand to 850 Acres	40°43.476'N / 072°46.479'W
Shinnecock	Atlantic Ocean - Inshore	35	85%	Expand to 850 Acres	40°48.135'N / 072°28.483'W
Atlantic Ocean-Offshore					
Atlantic Beach	Atlantic Ocean - Offshore	413	87%	None	40°31.792'N / 073°43.018'W
Hempstead	Atlantic Ocean - Offshore	744	60%	Expand to 850 Acres	40°31.107'N / 073°32.393'W
Sixteen Fathom	Atlantic Ocean - Offshore	850	Undeveloped	New Site	40°25.927'N/ 073°21.603'W
Twelve Mile	Atlantic Ocean - Offshore	850	5%	None	40°36.778'N / 072°31.538'W
Great South Bay					
Yellowbar	Great South Bay	7	60%	None	40°37.974'N / 073°14.503'W
Kismet	Great South Bay	10	85%	None	40°38.198'N / 073°12.702'W
Long Island Sound					
Matinecock	Long Island Sound	41	10%	None	40°54.586'N / 073°37.469'W

Huntington / Oyster Bay	Long Island Sound	50	Undeveloped	New Site	TBD
Smithtown	Long Island Sound	3	80%	Expand to 31 Acres	40°55.967'N / 073°11.100'W
Port Jefferson / Mount Sinai	Long Island Sound	50	Undeveloped	New Site	TBD
Mattituck	Long Island Sound	50	Undeveloped	New Site	TBD

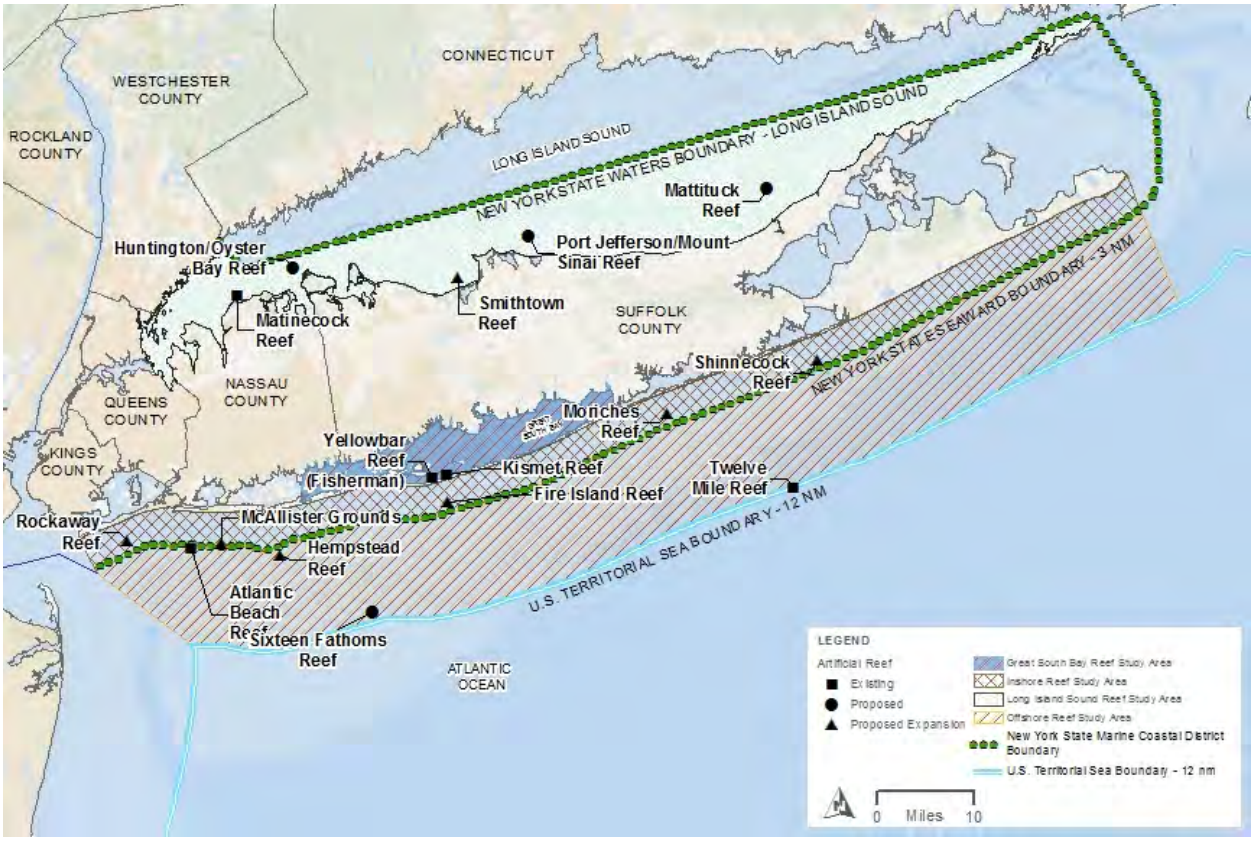

Figure 1. Reef Locations, Modifications, and Study Area

Project Purpose and Need

The needs for the artificial reef program are to provide complex hard bottom habitat to enhance fisheries and benthic communities, provide enhanced recreational fishing and diving opportunities; and offer an associated socio-economic benefit to local coastal communities. The purpose of the artificial reef program in New York is to fulfil its obligation under the National Fishing Enhancement Act in accordance with the standards of the National Artificial Reef Plan. The proposed action seeks to continue the use of, expand, and enhance the existing network of artificial reefs in the Atlantic Ocean, Great South Bay, and Long Island Sound coastal areas by providing a hard substrate that benefit fish, shellfish and crustaceans; and provide additional fishing grounds for anglers, and underwater structures attractive to scuba divers. Specifically, the purpose of the project is to:

- enhance or restore fishery resources and associated habitat, to the maximum extent practicable, utilizing artificial habitat;
- administer and manage artificial habitat to ensure its prudent use as part of an overall fisheries management program; and
- provide fishing and diving opportunities for reef-associated fishery resources by selective placement of artificial habitat in State and adjacent Federal waters.

All of these uses ultimately share the common purpose of enhancing or increasing the marine habitat available for associated fishes and other organisms. Planned manmade reefs can provide local economic benefits because fish and benthic organisms utilize the structure provided at known locations and are often popular attractions for commercial and recreational fishermen, and divers.

Description of the Action Area

The action area is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50CFR§402.02). For this project, the action area includes the existing artificial reef sites, expansion of sites, and development of new sites within the Atlantic Ocean, Great South Bay, and Long Island Sound, as well as vessel transit route to and from each of the artificial reef sites (Figure 1). Approximately 1,620 acres of artificial reefs have been developed of the 3,389 acres permitted as per the 1993 GEIS and subsequent state and federal permits. The proposed Project would add an additional 3,423 acres to the total area permitted through the expansion and addition of reef sites, bringing the total Project area to 6,812 acres. This area is expected to encompass all of the effects of the proposed project.

Table 2. Federally Threatened and Endangered Species Potentially Present within the Project Reef Sites

Common Name	Species Name	Federal Protection Status	State Protection Status
Blue whale	*Balaenoptera musculus*	Endangered	Endangered
Fin whale	*Balaenoptera physalus*	Endangered	Endangered
Humpback whale	*Megaptera novaeangliae*	Endangered	Endangered
North Atlantic right whale	*Eubalaena glacialis*	Endangered	Endangered
Sei whale	*Balaenoptera borealis*	Endangered	Endangered
Sperm whale	*Physeter macrocephalus*	Endangered	Endangered
Green sea turtle	*Chelonia mydas*	Threatened	Threatened
Hawksbill sea turtle	*Eretmochelys imbricata*	Endangered	Endangered

Kemp's or Atlantic Ridley	*Lepidochelys kempii*	Endangered	Endangered
Leatherback	*Dermochelys coriacea*	Endangered	Endangered
Loggerhead	*Caretta caretta*	Threatened	Threatened
Atlantic sturgeon	*Acipenser oxyrhynchus oxyrhynchus*	Endangered	Endangered

Effects Determination

Marine Mammals
Of the six listed marine mammals, only three would likely occur in the waters offshore of Long Island and within Long Island Sound. These include the North Atlantic right whale (*Eubalaena glacialis*), the humpback whale (*Megaptera novaeangliae*), and the fin whale (*Balaenoptera physalus*). Blue whale (*Balaenoptera musculus*), sei whale (*Balaenoptera borealis*), and sperm whale (*Physeter macrocephalus*) are found in deeper waters offshore over the outer continental shelf and shelf break (Greene et al. 2010 Waring et al. 1999, 2011, 2013). The three species that are likely to occur in the Project area are seasonally present, using the nearshore, coastal waters of the Atlantic Ocean as they migrate to and from calving and foraging grounds. Humpback and fin whales occur in the waters of New York during the spring, summer, and fall months, while the North Atlantic right whale occurs primarily from November 1 through April 30.

Sea Turtles
The Hawksbill sea turtle has only historically been confirmed in the waters surrounding Long Island and is not expected to occur within the artificial reef sites. Green sea turtle (*Chelonia mydas*), Kemp's ridley sea turtle (*Lepidochelys kempii*), leatherback (*Dermochelys coriacea*), and loggerhead sea turtle (*Caretta caretta*) are highly migratory and typically use the New York Bight as a migratory path between feeding grounds and nesting sites (NYSDOS 2013). As temperatures rise in the spring, these turtles begin to migrate northward. As temperatures decline rapidly in the fall, turtles in northern waters begin their southward migration. Sea turtles are expected to be found in New York waters when temperatures reach approximately 15ºC, typically during the months of May through November. The highest concentration of sea turtles is June through October (Morreale and Standora 1990; Morreale and Standora 2005; Shoop and Kenney 1992; Ruben and Morreale 1999).

Several studies have identified the seasonal distribution of sea turtles in New York waters. Sea turtles begin to arrive in New York waters in June (Morreale and Standora 1993; Morreale and Burke 1997). Juvenile Kemp's ridley sea turtles that were tagged and tracked made their way south from New York coastal waters by the first week in November (Standora *et al.* 1992). Loggerhead and Kemp's ridley sea turtles begin leaving New York waters in October and generally by the first week of November, heading southward past the Virginia border (Morreale and Standora 2005). These sea turtle species also have the potential to occur within the Long Island Sound. Sea turtles typically utilize the eastern portion of Long Island Sound as a foraging ground during annual migrations between feeding grounds and nesting sites (NYSDOS 2013).

Only mature egg-laying female will crawl onto land, once hatched sea turtles spend their entire life in the ocean (NYSDEC 2005). There are no known nesting locations along Long Island Sound or Long Island shorelines (NYSDEC 2005).

Atlantic Sturgeon
There are five distinct population segments (DPS) of Atlantic sturgeon listed as threatened or endangered. Atlantic sturgeon from the New York Bight, Chesapeake Bay, South Atlantic and Carolina DPSs are listed as endangered and the Gulf of Main DPS is listed as threatened. All five DPSs have a marine range extending along the Atlantic coast from Canada to Cape Canaveral, Florida. Atlantic sturgeon generally spawn in April through May in the Mid-Atlantic and at around three years of age, subadults exceeding 70 centimeters in total length begin to migrate to marine waters (Bain et al. 2000). After moving from their natal river/estuary, subadults and adults travel in marine waters typically less than 50 meters in depth, using coastal bays, sounds, and ocean waters (ASSRT 2007).

Dunton et al. (2015) completed a study of Atlantic sturgeon aggregations and migrations routes along the coast of Long Island to determine the temporal and spatial use of marine habitat. Aggregation periods and areas were documented in this study. Catches were an order of magnitude higher in May, June, September, and October in known aggregation areas, as opposed to other areas and times of the year. The highest average weighted catch per unit effort (CPUE) was during the month of May, followed by October, November, September, and June (Dunton et al. 2015). The CPUE was highest along western Long Island (Dunton et al. 2015). No Atlantic sturgeon were captured at depths of 20-30 m. If Atlantic sturgeon were present, it would likely be in the spring months of April to June and the fall months of September to November.

The Atlantic sturgeon is a federally-endangered fish that has the potential to occur within the waters offshore of Long Island and within Long Island Sound. Atlantic sturgeon of all sizes are seen and captured in Long Island Sound and the Sound may be an important feeding or resting area on the way to and from spawning grounds (CTDEEP 1999). However, the Atlantic sturgeon stock in the Connecticut River is thought to be extirpated and any sturgeon found in the deep-water areas in the estuarine portion of the Connecticut River are likely Hudson River progeny (Savoy and Pacileo 2003).

Effects of the Action
Potential effects of the proposed action fall into two categories:

- effects from installation of artificial reef materials; and
- effects of increases in vessel traffic.

The effects of artificial reef material placement has the following associated potential impacts: direct contact, habitat modification, and water quality. Potential impacts as a result of the proposed action are discussed further below.

Effects from Deployment of Artificial Reef Material During Deployment
Direct Impact from Artificial Reef Material During Deployment
The deployment of artificial reef materials has the potential to directly affect listed species by making direct impact. However, the risk of artificial reef material making direct contact with a listed species is highly unlikely due to the species' mobility and ability to sense activity in the

water column and the limited duration of actual reef material deployment events. Further, their presence would likely be transient in nature. Therefore, no impacts to listed species are anticipated as a result of direct impact from artificial reef material deployment.

Habitat Modifications
The artificial reef sites are not a prime foraging or migratory area for listed species. If listed species were present, they may be temporarily disturbed while directly utilizing the reefs for foraging or shelter. However, artificial reef material deployments may occur year-round, with the time of deployment short in duration and only occurring during daylight hours. Further, the presence of listed species would likely be transient in nature and expected to return to the area after cessation of activities. Therefore, no impacts to marine mammals, turtles, or Atlantic sturgeon are anticipated as a result of habitat modifications.

Benthic organisms may be affected by the placement of artificial reef materials on the seafloor through burial. Listed species may opportunistically forage in the area, however, the artificial reef sites are not a prime area for foraging, and constitute a small fraction (6,812 acres) of the available habitat off the New York coast. Additionally, maintenance of the artificial reef sites would create enhanced habitat and foraging prey items for some species, such as colonizing mollusks and crustaceans for loggerhead sea turtles to feed on. Therefore, impacts on foraging behavior of marine mammals, sturgeon, and sea turtles is not significant.

Water Quality
During placement of artificial reef materials, water quality could be affected by causing a temporary increase in the amount of turbidity in the action area. However, any suspended sediments are anticipated to settle quickly out of the water column due to the predominately sandy sediments within the action area. Any increases in turbidity would be short in duration. There have been no studies on the effects of temporary suspended solids on Atlantic sturgeon, however, Atlantic sturgeon juveniles and adults are often documented in turbid waters (Dadswell 1984). There is limited information on the effects of increased turbidity on sea turtles and marine mammals. Further, sea turtles and marine mammals breathe air and do not experience the same potential respiratory effects of high turbidity as fish. Atlantic sturgeon, sea turtles, and whales are highly mobile and would avoid any sediment plumes. Therefore, no significant impacts on listed species due to changes in water quality would occur.

Vessel Traffic
Atlantic sturgeon, sea turtles, and whales experience direct mortality as a result of being struck by boat hulls or propellers. The risk factors involved with direct impacts to listed species may depend on the size and speed of the vessels, depth of the water and draft of the vessel in the area where the vessel is operating, and the behavior of the individuals in the area, such as foraging or migrating.

The proposed action involves vessels transporting materials for deployment at the artificial reef sites. Most vessel strikes are thought to occur from fast-moving vessels. The proposed action will only involve the addition of slow moving vessels within the action area for a relatively brief period of time needed to transit to the site (farthest artificial reef site is 12.0 nautical miles from

Moriches and Shinnecock inlets). Based on the above, the effects of vessel traffic on sturgeon, sea turtles, and marine mammals will not be significant.

Artificial Reef Maintenance

The effects of the future maintenance of the reef sites will be the same as those of the initial placement of reef building materials. Therefore, any effects from reef maintenance would not be significant.

Conclusions

Based on the analysis that all effects of the proposed action will not be significant, we have determined that the proposed action is not likely to adversely affect any listed species or critical habitat under NMFS' jurisdiction. We certify that we have used the best scientific and commercial data available to complete this analysis. We request your concurrence with this determination.

Sincerely,

Christopher LaPorta
NYSDEC Artificial Reef Program Coordinator

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Long Island Field Office
340 Smith Road
Shirley, NY 11967

SUBJECT: Request for Informal Consultation with United States Fish and Wildlife Service and Effects Determination for Federally Listed Species or Species Proposed for Listing

To Whom It May Concern,

On behalf of the New York State Department of Environmental Conservation (NYSDEC), HDR Inc., requests an informal consultation with the United States Fish and Wildlife Service (USFWS) Long Island Field Office regarding the potential for the NYSDEC's Artificial Reef Program activities to affect the federally threatened or endangered species listed in Table 1 below. In 1993, the NYSDEC completed a Generic Environmental Impact Statement (GEIS)/Reef Plan which allowed for the issuance of a permit for the development of artificial reefs at specific locations within the study area. As the NYSDEC Artificial Reef Program developed, additional NYSDEC and United States Army Corps of Engineers (USACE) permits were obtained to provide authority to place material to meet specific goals of the Program outlined in the GEIS/Reef Plan. In April 2018, Governor Andrew Cuomo announced the largest expansion of the artificial reef program in state history. The development of the artificial reef program bolstered the 12 existing artificial reefs off the shore of Long Island. Materials for the reef enhancement were strategically placed to improve New York's diverse marine life and boost Long Island's recreational sport fishing and diving industries.

In addition to the enhancement of reef sites under the Governor's Artificial Reef Initiative, seven of the existing artificial reefs are proposed to be expanded and four new reefs sites are put forward for consideration including one in the Atlantic Ocean and three in Long Island Sound. New artificial reef locations were sited based on criteria developed for the NYSDEC Artificial Reef Program and lessons learned in artificial reef development since the GEIS was developed. Criteria were developed to meet the Artificial Reef Program Purpose and Need and to provide benefit to local users. As a Type I Action under New York State Environmental Quality Review Act (SEQRA), a full Environmental Assessment Form (FEAF) was prepared for the proposed action. It was determined based on the information developed to prepare the FEAF that there may be significant adverse impacts associated with the proposed action, and that a Supplemental Generic Environmental Impact Statement (SGEIS) is needed to assess potential impacts.

Under Section 7 of the Endangered Species Act (ESA), the NYSDEC as the State Sponsor is required to consult with the USFWS to determine whether any federally listed species or species proposed for listing as endangered or threatened, or their designated critical habitats, occur in the vicinity of the proposed project. Table 1 presents the federally and threatened species with the potential to occur within the proposed project reef sites using data from the U.S. Fish and Wildlife's Information, Planning, and Consultation System on March 19, 2019 and review of the NYSDEC's New York Nature Explorer mapper for the Atlantic Ocean and Long Island Sound on March 21, 2019. A discussion of the potential impacts is presented below for flowering plants and birds.

Table 1. Federally Threatened and Endangered Species Potentially Present within the Project Reef Sites

Common Name	Species Name	Federal Protection Status	Year Last Documented (where applicable)	Distribution Status
Flowering Plants				
Sandplain Gerardia	*Agalinis acuta*	Endangered	1899	Historically confirmed[a]
Seabeach Amaranth	*Amaranthus pumilus*	Threatened	2004	Recently confirmed[a]
Birds				
Piping plover	*Charadrius melodus*	Endangered/ Threatened	2013	Recently confirmed
Red knot	*Calidris canutus rufa*	Threatened	N/A	N/A
Roseate tern	*Sterna dougallii dougallii*	Endangered	2015	Recently confirmed

[a] Historically/recently confirmed within the terrestrial areas in Nassau and Suffolk county

Flowering Plants

Project construction activities will take place within waters of the Atlantic Ocean, Great South Bay, and Long Island Sound. No impacts to threatened and endangered flowering plant species would occur as a result of the project.

Birds

Project construction activities will take place within waters of the Atlantic Ocean, Great South Bay, and Long Island Sound. Bird species are anticipated to avoid the area during construction due to distance from onshore areas, noise, and presence of construction equipment. Materials are often deployed from barges based on the reef design, material type for artificial reef enhancement, and available equipment. Construction equipment includes, and is not limited to, bulldozers, hopper barges, or cranes.

We appreciate your quick response to this request. Please do not hesitate to contact me at should you have any questions or require additional information.

Sincerely,

Jaclyn Chapman
Environmental Scientist

Attachment G

NYSDEC Aerial Boat Surveys

Atlantic Ocean Inshore Reefs 2016 through 2019 Vessel Counts

Atlantic Ocean Inshore Reef	19-May-16	4-Jun-16	19-Jun-16	15-Jul-16	22-Jul-16	4-Aug-16	16-Sep-16	17-Sep-16	1-Jun-17
Rockaway	6	1	15	16	7	4	12	5	2
McAllister Grounds	3	2	37	17	27	15	5	5	1
Fire Island	4	3	28	6	12	11	10	6	4
Moriches	0	0	1	4	0	2	2	5	0
Shinnecock	1	0	2	15	8	19	14	15	3

Atlantic Ocean Inshore Reef	15-Jun-17	19-Jul-17	17-Aug-17	20-Aug-17	3-Oct-17	21-Oct-17	29-Jun-18	24-Aug-18	25-Aug-18
Rockaway	0	5	6	25	5	49	8	47	58
McAllister Grounds	5	2	3	19	1	27	5	22	31
Fire Island	5	6	2	45	0	12	8	31	57
Moriches	0	2	0	11	0	12	0	12	11
Shinnecock	1	0	5	29	0	27	39	62	16

Atlantic Ocean Inshore Reef	20-Aug-19	24-Aug-19	27-Sep-19	25-Oct-19	3-Nov-19	Total
Rockaway	7	17	X	31	8	334
McAllister Grounds	2	1	8	12	9	259
Fire Island	13	20	8	63	2	356
Moriches	1	18	2	9	7	99
Shinnecock	37	7	5	4	4	313

Atlantic Ocean Offshore Reefs 2016 through 2019 Vessel Counts

Atlantic Ocean Offshore Reef	19-May-16	4-Jun-16	19-Jun-16	15-Jul-16	22-Jul-16	4-Aug-16	16-Sep-16	17-Sep-16	1-Jun-17
Atlantic Beach	4	4	9	15	47	14	5	5	1
Hempstead	1	2	8	20	6	12	4	8	3

Atlantic Ocean Offshore Reef	15-Jun-17	19-Jul-17	17-Aug-17	20-Aug-17	3-Oct-17	21-Oct-17	29-Jun-18	24-Aug-18	25-Aug-18
Atlantic Beach	0	2	4	46	0	39	7	40	65
Hempstead	4	2	5	36	2	17	3	75	71

Atlantic Ocean Offshore Reef	20-Aug-19	24-Aug-19	27-Sep-19	25-Oct-19	3-Nov-19	Total
Atlantic Beach	6	18	X	42	18	391
Hempstead	20	10	8	14	8	339

Great South Bay Reefs 2016 through 2019 Vessel Counts

Great South Bay Reefs	19-May-16	4-Jun-16	19-Jun-16	15-Jul-16	22-Jul-16	4-Aug-16	16-Sep-16	17-Sep-16	1-Jun-17
Yellowbar	2	1	4	4	4	13	5	10	4
Kismet	5	5	4	2	5	7	5	2	2

Great South Bay Reefs	15-Jun-17	19-Jul-17	17-Aug-17	20-Aug-17	3-Oct-17	21-Oct-17	29-Jun-18	24-Aug-18	25-Aug-18
Yellowbar	1	1	0	3	2	2	8	1	1
Kismet	2	1	0	0	2	16	16	1	1

Great South Bay Reefs	20-Aug-19	24-Aug-19	27-Sep-19	25-Oct-19	3-Nov-19	Total
Yellowbar	0	2	2	3	1	74
Kismet	1	3	4	4	8	96

Long Island Sound Reefs 2016 through 2019 Vessel Counts

Long Island Sound Reefs	19-May-16	4-Jun-16	19-Jun-16	15-Jul-16	22-Jul-16	4-Aug-16	16-Sep-16	17-Sep-16	1-Jun-17
Matinecock	0	3	7	3	3	1	3	3	1
Smithtown	3	1	0	1	2	2	2	2	1

Long Island Sound Reefs	15-Jun-17	19-Jul-17	17-Aug-17	20-Aug-17	3-Oct-17	21-Oct-17	29-Jun-18	24-Aug-18	25-Aug-18
Matinecock	2	2	0	4	3	5	5	5	8
Smithtown	2	2	2	3	1	7	1	3	4

Long Island Sound Reefs	20-Aug-19	24-Aug-19	27-Sep-19	25-Oct-19	3-Nov-19	Total
Matinecock	1	2	3	5	5	74
Smithtown	1	1	0	7	1	49

Aerial Reef Survey Vessel Count Summaries by Year and Site Location.

Year	Number of Surveys	Inshore Sites	Offshore Sites	Long Island Sound Sites	Great South Bay Sites	Totals
2016	8	345	164	36	78	623
2017	7	314	161	35	36	546
2018	3	407	261	26	28	722
2019	5	295	144	26	28	493
Totals	23	1,361	730	123	170	2,384

Attachment H

Agency Consultation

New York State Division of Historic Preservation
New York State Office of Parks, Recreation & Historic Preservation
Peebles Island State Park
P.O. Box 189
Waterford, New York 12188-0189

Re: New York State Department of Environmental Conservation
Historic Resources and Archaeological Request
Artificial Reef Program

To Whom This May Concern,

The New York State Department of Environmental Conservation (NYSDEC) is preparing a Supplemental Generic Environmental Impact Statement (SGEIS) to identify any significant issues associated with the Proposed Action under the NYSDEC's Artificial Reef Management Program. In April 2018, Governor Andrew Cuomo announced the largest expansion of the artificial reef program in state history. The enhancement of the artificial reef program bolstered the 12 existing artificial reefs off the shore of Long Island. Materials for the reef enhancement were strategically placed to improve New York's diverse marine life and boost Long Island's recreational sport fishing and diving industries.

In addition to the enhancement of reef sites under the Governor's Artificial Reef Initiative, seven of the existing artificial reefs are proposed to be expanded and four new reefs sites are put forward for consideration including one in the Atlantic Ocean and three in Long Island Sound. New artificial reef locations were sited based on criteria developed for the NYSDEC Artificial Reef Program and lessons learned in artificial reef development since the GEIS was developed.

NYSDEC is requesting New York State Office of Parks, Recreation & Historic Resources (OPRHP) review of the NYSDEC's Artificial Reef Program for the reef sites pursuant to SEQR and Section 106 of the National Historic Preservation Act (Table 1, Figure 1). According to the 1993 GEIS/Reef Plan, an unknown number of shipwrecks exist in the area covered by the Plan. The historical or cultural value of most these wrecks is undetermined. More information about the project, a review of available historic and cultural data sources, and potential shipwrecks within the vicinity of these reef sites is provided below.

Project Description

The NYSDEC's Artificial Reef Program (Program) maintains a series of reef sites in the waters of New York's Marine and Coastal District (MCD). Program goals are to administer and manage artificial reef habitat as part of a fisheries management program, provide fishing and diving opportunities, and enhance or restore fishery resources and associated habitat through the selective placement of artificial reef habitat (i.e. natural rock, concrete and steel) in the MCD under Programmatic guidelines.

Materials (i.e. natural stone and concrete) are transported to the reef site either by barge or towed out by vessel (i.e. steel barges or vessels) under Program supervision. The materials are deployed on pre-designated site targets to produce a patch reef configuration. This

configuration increases the enhancement of the local natural habitat by introducing profiled hard structure for colonization and reef development while maintaining areas of natural bottom habitat between patch reef structures. The different structures attract a variety of marine life including recreationally important finfish and crustaceans (i.e. lobster) species sought by anglers and divers.

Table 1. Reef Sites and Development under the NYSDEC Artificial Reef Program

Reef	Category	Acreage	Development Status (%)	Proposed Modification
McAllister Grounds	Atlantic Ocean - Inshore	115	75%	Expand to 425 Acres
Moriches	Atlantic Ocean - Inshore	14	90%	Expand to 850 Acres
Shinnecock	Atlantic Ocean - Inshore	35	85%	Expand to 850 Acres
Rockaway	Atlantic Ocean - Inshore	413	80%	Expand to 635 Acres
Fire Island	Atlantic Ocean - Inshore	744	70%	Expand to 850 Acres
Sixteen Fathom	Atlantic Ocean - Offshore	850	Undeveloped	New Site
Twelve Mile	Atlantic Ocean - Offshore	850	5%	None
Atlantic Beach	Atlantic Ocean - Offshore	413	87%	None
Hempstead	Atlantic Ocean - Offshore	744	60%	Expand to 850 Acres
Kismet	Great South Bay	10	85%	None
Yellowbar	Great South Bay	7	60%	None
Matinecock	Long Island Sound	41	10%	None
Smithtown	Long Island Sound	3	80%	Expand to 31 Acres
Huntington / Oyster Bay	Long Island Sound	50	Undeveloped	New Site
Port Jefferson / Mount Sinai	Long Island Sound	50	Undeveloped	New Site
Mattituck	Long Island Sound	50	Undeveloped	New Site

Atlantic Offshore Reefs

The Bureau of Ocean Energy Management conducted a study within the Atlantic Outer Continental Shelf (OCS) to better manage known and potential cultural resources. Information was gathered from historic shipwrecks, past landscapes, human settlement patterns, and site formation and preservation conditions. This information was then used to determine the sensitivity category (no, low, or high sensitivity) for the various Atlantic OCS regions. The report indicates that the Atlantic Beach reef area has a high archaeological sensitivity potential, representing areas exposed during the Paleoindian and later periods, from -70 meters to more

shallow areas (BOEM 2012). Specific landforms will have potential for intact sites in these areas of high sensitivity. Despite the high sensitivity, the seafloor has not been studied and mapped in sufficient detail to locate all specific landforms and it is not possible to precisely delineate potential site settings within the area of high preservation potential.

Data for potential shipwrecks were gathered from the NOAA Office of Coast Survey Wrecks and Obstruction Database. The tugboat Fran S sank in the Jones Inlet in the 1970, was salvaged and towed to the Atlantic Beach Reef and purposefully re-sunk two years later (NYSDEC 1993). There are two unknown obstructions in the vicinity of this reef (NOAA 2019). The Andy Pierce shipwreck is located close to Hempstead Reef, as well as several other unknown obstructions (NOAA 2019).

Atlantic Inshore Reefs

BOEM conducted a study within the Atlantic Outer Continental Shelf (OCS) to better manage known and potential cultural resources. Information was gathered from historic shipwrecks, past landscapes, human settlement patterns, and site formation and preservation conditions. This information was then used to determine the sensitivity category (no, low, or high sensitivity) for the various Atlantic OCS regions. The report indicates that the inshore reef study area has a high archaeological sensitivity potential, representing areas exposed during the Paleoindian and later periods, from -70 meters to more shallow areas (BOEM 2012). Specific landforms will have potential for intact sites in these areas of high sensitivity. Despite the high sensitivity, the seafloor has not been studied and mapped in sufficient detail to locate all specific landforms and it is not possible to precisely delineate potential site settings within the area of high preservation potential.

Data for potential shipwrecks were gathered from the NOAA Office of Coast Survey Wrecks and Obstruction Database. One wreck, from the vessel Mistletoe, is close in proximity to the Rockaway Reef, as well as several undefined obstructions. An undefined obstruction is located in proximity to McAllister Grounds (NOAA 2019). There are two shipwrecks near Moriches, and the Zeeliner shipwreck is near Fire Island reef. There is one undefined obstruction near Shinnecock Reef.

Great South Bay Reefs

According to the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) Cultural Resources Information System (CRIS), no historic or archeological sites are present within the Kismet and Yellowbar reef sites (New York State Office of Parks, Recreation, and Historic Preservation, 2019).

Long Island Sound Reefs

According to the New York State OPRHP CRIS, no historic or archeological sites are present within the Long Island Sound reef sites (New York State Office of Parks, Recreation, and Historic Preservation, 2019). Shipwreck data were readily available through NOAA's Office of Coast Survey Wrecks and Obstructions Database (NOAA 2019). In the U.S. Army Corps of Engineers Dredged Material Management Plan (2010), a likely paleoshoreline of Long Island

Sound at 11000 Before Present (B.P.) and 9000 B.P. is depicted. The waters of Huntington and Oyster Bay are assessed as having high archaeological sensitivity (U.S. Army Corps of Engineers, 2010). Additional data on historic shipwrecks and Paleoindian cultural resources located in or near the Matinecock reef site is not readily available.

Request for Information

NYSDEC is specifically requesting OPRHP concurrence that there would be no impact on historic or cultural resources. In order to maintain our project schedule, we kindly request a response in no more than 30 days.

Feel free to contact me at (631) 444-0438 or via email at christopher.laporta@dec.ny.gov should you have any questions regarding this request. Thank you for your time in providing us with the requested information.

Sincerely,

Christopher LaPorta
NYSDEC Artificial Reef Coordinator

Literature Cited

National Oceanic and Atmospheric Administration (NOAA). (2019). Office of Coast Survey. Retrieved March 13, 2019, from https://www.nauticalcharts.noaa.gov/data/wrecks_and_obstructions.html

New York State Department of Environmental Conservation. (1993, March). Final Generic Environmental Impact Statement and Plan for the Development and Management of Artificial Reefs in New York's Marine and Coastal District. Albany, New York: New York State Department of Environmental Conservation.

New York State Office of Parks, Recreation, and Historic Preservation. (2019). Cultural Resource Information System. Retrieved March 13, 2019, from http://cris.parks.ny.gov/

U.S. Army Corps of Engineers. (2010). Cultural Resources Inventory Long Island Sound - Dredged Material Management Plan. Long Island Sound, Connecticut, New York, and Rhode Island. VOLUME I: 1-313.

U.S. Bureau of Ocean Energy Management (BOEM). (2012). Inventory and Analysis of Archaeological Site Occurrence on the Atlantic Outer Continental Shelf. Prepared by TRC Environmental Corporation. 324 pp.

January 8, 2020

Daniel Rosenblatt
New York State Department of Environmental Conservation
NY Natural Heritage Program
50 Circle Road
SUNY @ Stony Brook
Stony Brook, NY 11790-3409
NaturalHeritage@dec.ny.gov

Dear Daniel Rosenblatt:

On behalf of the New York State Department of Environmental Conservation (NYSDEC), HDR, Inc. is requesting a search of the Natural Heritage Database records for rare or endangered species and natural communities on or near the proposed project located off the south shore of Long Island, Great Bay, and Long Island Sound in Nassau, Suffolk, Kings, and Queens Counties, New York. Further, any information regarding potential impacts to listed species or any other permit considerations for this project is requested. A map depicting the project location is attached.

In April 2018, Governor Andrew Cuomo announced the largest expansion of the artificial reef program in state history. The enhancement of the artificial reef program bolstered the 12 existing artificial reefs off the shores of Long Island. Materials for the reef enhancement were strategically placed to improve New York's diverse marine life and boost Long Island's recreational sport fishing and diving industries.

In addition to the enhancement of reef sites under the Governor's Artificial Reef Initiative, seven of the existing artificial reefs are proposed to be expanded and four new reefs sites are put forward for consideration including one in the Atlantic Ocean and three in Long Island Sound. New artificial reef locations were sited based on criteria developed for the NYSDEC Artificial Reef Program and lessons learned in artificial reef development since the GEIS was developed. Criteria were developed to meet the Artificial Reef Program Purpose and Need and to provide benefit to local users. As a Type I Action under New York State Environmental Quality Review Act (SEQRA), a full Environmental Assessment Form (FEAF) was prepared for the proposed action. It was determined based on the information developed to prepare the FEAF that there may be significant adverse impacts associated with the proposed action, and that a Supplemental Generic Environmental Impact Statement (SGEIS) is in development to assess potential impacts.

In an effort to determine known environmental characteristics of the site, we request any records you may have on special status plant/animal species and habitat found within the site indicated on the attached map. If you have any questions about this request, please contact me at (201) 335-9333 or at Jaclyn.Chapman@hdrinc.com. Thank you.

Sincerely,

Jaclyn Chapman
Environmental Scientist

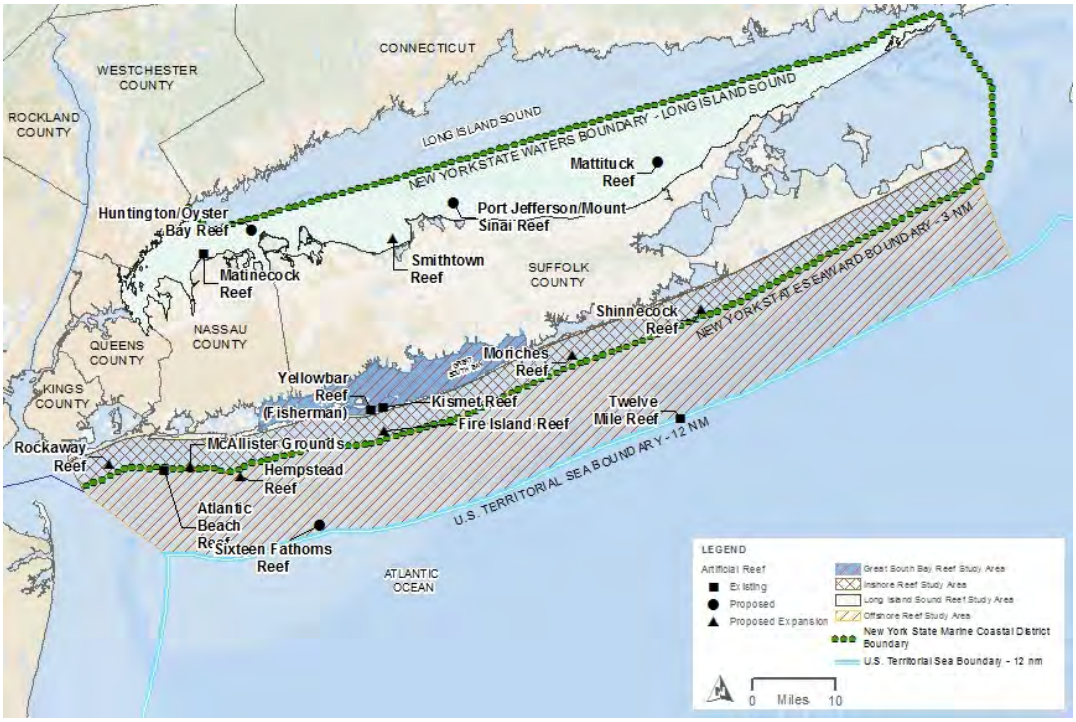

Figure 1. Reef Locations, Modifications, and Study Area

Table 2. Reef Locations

Reef	Category	Location Latitude / Longitude
McAllister Grounds	Atlantic Ocean - Inshore	40°32.207'N / 073°39.441'W
Moriches	Atlantic Ocean - Inshore	40°43.476'N / 072°46.479'W
Shinnecock	Atlantic Ocean - Inshore	40°48.135'N / 072°28.483'W
Rockaway	Atlantic Ocean - Inshore	40°32.453'N / 073°50.558'W
Fire Island	Atlantic Ocean - Inshore	40°35.863'N / 073°12.423'W
Sixteen Fathom	Atlantic Ocean - Offshore	40°25.927'N / 073°21.603'W
Twelve Mile	Atlantic Ocean - Offshore	40°36.778'N / 072°31.538'W
Atlantic Beach	Atlantic Ocean - Offshore	40°31.792'N / 073°43.018'W

Hempstead	Atlantic Ocean - Offshore	40°31.107'N / 073°32.393'W
Kismet	Great South Bay	40°38.198'N / 073°12.702'W
Yellowbar	Great South Bay	40°37.974'N / 073°14.503'W
Matinecock	Long Island Sound	40°54.586'N / 073°37.469'W
Smithtown	Long Island Sound	40°55.967'N / 073°11.100'W
Huntington / Oyster Bay	Long Island Sound	TBD
Port Jefferson / Mount Sinai	Long Island Sound	TBD
Mattituck	Long Island Sound	TBD

Attachment I

Public Notice

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

ENB - Statewide Notices 1/22/2020

Public Notice

Pursuant to Title 9, Article 54 of the Environmental Conservation Law, the New York State Office of Parks, Recreation and Historic Preservation (NS OPRHP) hereby gives public notice of the following:

Notice is hereby given, pursuant to Section 49-0305 (9) of the Environmental Conservation Law, that the State of New York acting by and through the NYS OPRHP intends to acquire a Conservation Easement from the following: Mohawk Hudson Land Conservancy, Inc. in Delmar, Albany County, New York; Baltimore Woods Nature Center, Inc. in Marcellus, Onondaga County, New York; Finger Lakes Land Trust, Inc. in Ithaca, Tompkins County New York; and Western New York Land Conservancy, Inc., East Aurora, Chautauqua County, New York.

For further information, contact: Beatrice L. Gamache, NYS OPRHP, 625 Broadway, Albany, NY 12238, Phone:
(518) 473-3321, Fax: (518) 486-7377.

Notice of Acceptance of Draft SEIS and Public Hearing

Statewide - The New York State Department of Environmental Conservation (NYS DEC), as lead agency, has accepted a Draft Environmental Impact Statement on the proposed NYS DEC Artificial Reef Program . **Public hearings on the Draft SEIS will be held on February 6, 2020 at 6:00 p.m. at the Freeport Public Library, 144 West Merrick Road, Freeport, NY 11520 and on February 10, 2020 at 6:00 p.m. at the NYS DEC Marine Resources Office, 205 North Belle Mead Road, East Setauket, NY 11733.** Public comments on the Draft SEIS will be accepted through February 21, 2020 by either direct mailing to the contact listed below or by e-mail at: artificialreefs@dec.ny.gov (enter "Draft Reef SEIS" in the subject line). The Draft EIS is available from the contact listed below and on line at: http://www.dec.ny.gov/outdoor/7896.html.

The action involves an update to the existing NYS DEC Generic Environmental Impact Statement (GEIS) and Reef Plan through the completion of a Supplemental Environmental Impact Statement (SEIS) to address proposed programmatic questions in the GEIS. This action is required for future reef permit acquisitions to renew existing reef sites, increase existing reef site dimensions and create new sites located in the Coastal Marine District of New York.

The proposed action involves the continuation and expansion of twelve existing NYS DEC Artificial Reef Program sites, located in the Atlantic Ocean, Great South Bay and Long Island Sound. Additionally, the action proposes the creation of four new artificial reef sites, including three in the Long Island Sound and one in the Atlantic Ocean. This action has the potential to affect the local associated environments and wildlife through introduction of reef building materials used to enhance the local habitat for marine life.

The project is located in the New York State Coastal Marine District and adjacent Federal Waters.

Contact: Christopher LaPorta, NYS DEC Marine Resources Office, 205 North Belle Mead Road, East Setauket, NY 11733, Phone: (631) 444-0438, Fax: (631) 444-0484, E-mail: artificialreefs@dec.ny.gov

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Attachment J

Summary of Public Comments

- **Summary of Public Comments Submitted Electronically or in Writing**
- **Public Meeting Transcript - Freeport Public Library, February 6, 2020**
- **Public Meeting Transcript – NYSDEC Division of Marine Resources, February 10, 2020**

Comment Number	Commenter Name	Contact Email	Comment	Response
1	Mike Toomey	mftoomey@optonline.net	Greetings, I want to thank you and add my support for the ongoing enhancements to the Long Island Reefs project. The positive impact to recreational diving and fishing can be enormous. The associated financial boost to small business supporting these activities will also be sizable. Give local divers some exceptional dive sites in their own backyard. Let us expand our skill sets while supporting local small businesses of dive shops and dive boats. Keep local money local. Let's invigorate the threatened charter boat industry in Captree and other areas where we can enjoy wreck sites to fish. There was a time when Captree was lit up with the activity of many boats sailing throughout the year. Expanding and creating reef/wreck sites will help remedy this failing industry. Long Island has such a beautiful history and has the potential to be the envy of the northeast diving/fishing community. Please continue your important work in this area and allow Long Islanders to hand off some beautiful activities to future generations. Thank You, Mike Toomey North Bellmore, NY	Comment noted. No text changes required.
2	Reed Riemer	reedriemer1@aol.com	Hi Chris Very happy to hear about this reef creation and expansion. The reefs to the West those are the only ones I fish all very overcrowded and the need for new ones and expansion of the existing weeks is very welcomed. It is also good to know that you were trying to create reefs in deep water. I believe that this will give more opportunities for went to fish such as blackfish cod and ling. Unfortunately I am not in town days that the hearings are being held. But if you need more input from me tell things just let me know. Regards Reed Riemer reedriemer1@aol.com	Comment noted. No text changes required.

Comment Number	Commenter Name	Contact Email	Comment	Response
3	Rick Smith	rick@smithgraphicsinc.com	Dept. Of Environmental Conservation February 7, 2020 205 Belle Meade Road E. Setauket, NY 11733 Mr. Christopher LaPorta – Artificial Reef Program Coordinator Hello Chris, As a local charter boat Captain here in Long Beach, NY, I am super excited and happy about the upcoming additions to our artificial reef sites and particularly, the creation of the new 16 fathom reef. I cannot explain how much this means to finally have some support given to the local fisherman who ply the waters of Long Island. Much of the structure on the existing reefs has drastically eroded away over time and the fishing is not nearly what it once was. I often look enviously at what the State of NJ has accomplished with their artificial reef system. They have been pro- reef for decades while NY was doing little. I have travelled to fish NJ reefs on other charter boats and was quite impressed with the fishing and the vast areas/spots to fish. There are those that would argue that reef building is akin to dumping garbage offshore, that life under the sand may be disturbed. Nothing is farther than the truth. In a short period of time after deployment of clean materials such as rock, concrete, steel, barges and vessels, all kinds of new growth springs to life and begins to take hold on the new structure creating a stunningly beautiful underwater oasis and a protective habitat for marine life where only sand existed previously. Before long, as soon as one year, a food chain is created within. I would suggest to those who are not familiar to view some of the may videos out there which show the beautiful life that results. In my opinion, artificial reefs should be reserved for recreational rod and reel fishing. Fish pots do not belong on the reefs as they kill indiscriminately 24-7. I personally think fish potting should be banned altogether along with the destructive practice of roller gear fishing. I have seen on the Axel Carlson reef in NJ that they have sectioned off a small portion of that reef where fish pots were present – perhaps something similar might work here. However, pots should not be allowed on all reef sites, only certain reefs and a section of those. I am certain that many groups of anglers/fishing clubs/ groups would be willing to come together to donate funds to assist with the costs of old vessel clean ups. towing etc. especially if the reefs were deemed to be recreational fishing only. It would be helpful to know what the protocol would be for making the donations, amount of monies needed to attain certain goals and how the site may be named for the group making the donations. Regards, and Thank You for your efforts, Capt. Rick 99 Farrell Street Long Beach, NY 11561	Comment noted. Per 6 CCR-NY 40.6(g) it is unlawful to use fish pots, fish traps, or to retain any fish caught by lobster pots on or within 500 feet of the following artificial reef sites: Rockaway, McAllister Grounds, Fire Island, Moriches, Shinnecock, Yellowbar, Kismet, Smithtown, and Matinecock. Lobster pots may be fished for lobsters on artificial reefs in state waters, and reefs located within federal waters are under the jurisdiction of federal fishing regulations. Development of Special Management Zones (SMZ) to regulate gear types on artificial reefs was evaluated in Alternative 4 of the SGEIS. Per the alternative analysis, the NYSDEC would be required to request ~~to~~ the Mid Atlantic Fishery Management Council, National Marine Fishery Service (NMFS) Northeast Region, and NMFS Northeast Fisheries Service Center to evaluate the request for an SMZ. As discussed in the Draft SGEIS this alternative met the Project Purpose and Need and remains an option but is not the preferred alternative due to additional development of the artificial reef program that would be required to implement SMZ rules. The artificial reef program does not have a mechanism in place for donations or contributions of funds. If a member of the public is interested in providing materials for the program or to sponsor reef projects they are encouraged to contact the artificial reef program through the NYSDEC website at https://www.dec.ny.gov/outdoor/7896.html.

Comment Number	Commenter Name	Contact Email	Comment	Response
4	Captain Mark Cusumano	markcusumano@gmail.com	NYS DEC, I support the proposed action. Building / expanding artificial reefs at the identified eleven (11) reef sites will have a positive effect on our local fisheries while providing greater access to New York fishermen and driving our local economy. I would like to ask that the DEC consider placing a portion of the re-purposed materials in shallower water, specifically outside of Moriches and Shinnecock Inlets. These areas have little to no structure in 30' to 40' depths. Material deployed in shallower depths would open access to various fisheries at different times throughout the fishing season. Regards. Captain Mark Cusumano	Comment noted Material placements will be guided by site specific surveys prior to placements and under permit conditions which include minimum depth requirements. As noted in Section 1.7 – regulatory Framework and Permitting Requirements of the Draft SGEIS materials will be placed in compliance with US Army Corps of Engineers (USACE) permits within permitted depth clearance depths to minimize conflicts with navigation. Reefs are sited and constructed in locations where sufficient depth allows for construction of vertical profile of patch reefs to provide adequate complex habitat for reef species.
5	Mike Hunt	Tilia1@optonline.net	Dear DEC, After seeing the posting about Gov. Cuomo, Artificial Reef Program, I have a few question I hope you can answer. With the all American being very concern about our water and air, most American and government offices believe dumping of any man construction material into or water ways is of great concern. We have seen many government actions against firms that have illegal dumped construction debris into our coastal areas. We have seen legal actions against construction debris being used to expand shoreline areas and the health and environmental effects it causes. 1. Please explain how New York State (Gov. Cuomo) can think construction debris from Contractors, Road Construction firms etc. is so wrong to dump in our coastal areas but, debris created by removing NYS DOT Bridge and Roadway is excellent for a natural reef. 2. Please explain why New York State should not recycle all the material (steel, concrete, etc.) from their DOT projects like most contractors and American households do, 3. Compare to recycling all of the construction debris from the Cuomo project, how much would NYS and Gov. Cuomo be saving in cost by dumping debris in our ocean compared to required recycling of debris. In other words, is the reason NYS would like to create an Article Reef to save money on this and other projects. Would New York State have paid for new steel and new concrete structures to then create a new artificial reef. 4. Was all paints, oils, toxins removed from ever piece of debris and if debris is later found with toxins, will NYS remove debris from our oceans. The paint used on NYS bridges is not your household paint you can buy at home depot. Thank you and looking forwarder to some answers. Regards, Mike Hunt	Comment noted. The NYSDEC Artificial Reef Program is issued NYSDEC Section 401 Water Quality Certification and US Army Corps of Engineers (USACE) Section 10 of the Rivers and Harbors Act of 1988 (33 U.S. Code 1344) Permits to authorize the activity of reef development. These permits outline specific permit conditions regarding where reefs can and cannot be constructed, what types of materials can and cannot be used for artificial reef construction, what types of monitoring of environmental impacts must be conducted during reef construction, and processes to document that the conditions are followed. This permitting and reporting process is intended to prevent the use of unauthorized materials that may be harmful to the marine environment. A description of the full permitting process is provided in Section 1.7 - Regulatory Framework and Permitting Requirements. As noted in the SGEIS, materials of opportunity are utilized for artificial reef construction. Performing specific cost benefit analysis of disposing of concrete, steel, and rock via other methods are beyond the scope of the SGEIS and not part of the Project Purpose and Needs which focuses on the development of beneficial marine habitat. Prior to materials being deployed as part of an Artificial Reef, they must be documented to be free of contaminants and other materials that may be detrimental to the marine environment as per the Atlantic States Marine Fisheries Commission guidelines provided here: http://www.asmfc.org/habitat/artificial-reefs. The NYSDEC and USACE have jurisdiction under the Clean Water Act (CWA) to enforce these rules on materials prior to placement on Artificial Reefs.

Comment Number	Commenter Name	Contact Email	Comment	Response
6	Dr. Al Musella	musella@virtualtrials.com	Dear Sirs: I would like to comment on your draft SGEIS document. I would like to say that I am a recreational fisherman, fishing the south shore of Long Island for over 50 years. My favorite areas to fish are the artificial reefs within range of East Rockaway Inlet. I usually fish at the reefs at least 30-40 times a season and find that the fish concentrations and varieties are much higher at and around the reefs than any other locations. You did an excellent job with the reefs so far, and I trust you will only make the experience better! I love the plans for expansion of the reefs and the new additional reef in our area. I wanted to let you know that the reef surveys you published are very much undercounted as they are a single point in time. On a typical day most of my friends and I would fish the reef only for a few hours. Sometimes early in the morning, sometimes mid-afternoon and sometimes right before dusk. Boats come and go constantly.so a typical day where you counted 40 boats on the reef at one instant in time, might really have had 120 boats that day use the reef for part of the day. I would suggest a few days of research hanging out at the reef, count all vessels that come and go, and calculate what one reading at one point in time might translate to - for example, if 120 boats use the reef in a day, but you do a survey at 10am and there are only 40 boats at the reef at that time, use a correction factor of 3x to determine how many boats use the reef that day. Another correction might be needed for weather conditions. You have a day when only 1 boat was at the reef. (That was probably ME:) When it is cold and windy some people don't make it out to the reef. If you use those days in the equations, our usage will be undercounted. My point is the reefs are much more used than your survey indicates and they are very important to us. Thanks Dr Al Musella 1100 Peninsula Blvd Hewlett, NY 11557 516-270-5182 Bigfoot III - a 27' Worldcat!	Comment noted. Aerial boat counts use only boats observed to asses reef use. The NYSDEC Aerial Reef Survey Protocol requires that surveys are conducted ~~on~~ one week day and one weekend day per month on each reef site from May through November under weather conditions suitable for recreational fishing and diving.

Comment Number	Commenter Name	Contact Email	Comment	Response
7	Mike Salvarezza	sallvarezza@optonline.net	I am writing to comment on the Supplemental Environmental Impact Statement relating to the expansion of the Artificial Reef program along the coastline of Long Island in New York State. As a long time avid local SCUBA Diver, I have seen firsthand the benefits of artificial reefs in our waters. Whether these reefs are purposely sunk vessels and material or reefs created through maritime accidents and ship sinking, the structures underwater always become a haven for marine life. As is well known, the ocean floor which extends many miles in this area is largely a flat, sandy environment devoid of shelter and areas for marine life to live and grow. There is very little substrate available for sedentary creatures like anemones and shellfish to attach themselves to, and limited areas for mobile organisms like crustaceans and fish to find shelter from predators. When an artificial reef is created, marine life flocks to these areas and a burgeoning ecosystem quickly develops. As diver, I have seen this happen first hand. For example, after the USS Algol was purposely sunk off the coast of New Jersey in 1991, my dive buddy and I dove this wreck repeatedly. In the early days after the sinking there was very little marine life to be found on the wreck. But within one year, the wreck was covered from bow to stern with blue mussels and a thriving eco-system had established itself in the recently sunk vessel. Fish life abounded, along with crustaceans, shellfish and pelagic animals. It does not take long for marine life to inhabit these reef areas. Every one of the artificial reefs in our area tell the same story. Once established on the bottom, marine life quickly colonizes the site and the site becomes a haven for the marine eco system. As a SCUBA Diver, and as Executive Vice-President of the Long Island Divers Association (LIDA), I know firsthand the thirst that local divers have for exploring these areas. Divers enjoy seeing marine life and new dive sites will help the local dive charter boat industry as more divers will seek more opportunities to dive on these newly established sites. This is an industry that needs new sites to retain diver interest. I would imagine similar economic benefits would be created for the local recreational fishing industry. I agree with the SEIS assessment that negative impacts of the construction of these reefs (increases in turbidity, noise, etc.) are of a very short and transient duration. Indeed, I would think that the disturbance to the area would be no greater than that during a storm. Please accept this email as my full support of this program. Thank you. Mike Salvarezza Executive Vice-President Long Island Divers Association	Comment noted. No text changes required.
8	Courtney Bozic	chinchinb@yahoo.com	Dear DEC Staff, I believe the current public information posting of the SGEIS as found on your website is substantially incomplete as the Appendices A, B, C, D, E, F, G and H are not included in the document, though they are listed as part of the report on the document's table of contents. Thank you. Likely any member of the public would find that information of importance in understanding the whole report. Courtney Bozic 19 W. Garfield Street Bay Shore, NY 11706	Comment noted. Appendices were provided to the commenter and, in addition, uploaded to the NYSDEC Artificial Reef Program website at https://www.dec.ny.gov/outdoor/7896.html on February 11, 2020.

Comment Number	Commenter Name	Contact Email	Comment	Response
9	Janice Raber	seashe1@aol.com	Dear Chris, I have attached my letter supporting the Artificial Reef Expansion. If you cannot accept it through an attachment, I will put it in the body of the e-mail. Please let me know. Thank you, Janice Raber FROM: Janice L Raber 274 Seneca Street Ronkonkoma, NY 11779 February 9, 2020 TO: NYSDEC Marine Resources Headquarters 205 N Belle Mead Rd., East Setauket, NY 11733 Please accept my comments and whole hearted support to advocate for the continuation of expanding the Artificial Reef program along the coastline of Long Island and New York State. Thirty-five years of scuba diving in the water off the shores of Long Island have shown me that we desperately need to do something to preserve the ocean and bays that surrounds us. Many marine life forms have declined since I first started diving and there are fish that I used to see that no longer appear. There is much we need to do to stop this and one of the ways is to continue to create artificial reefs off of our shores. I learned to dive on our Long Island beaches and the many shipwrecks that lie in the surrounding waters, including ships and artificial reef materials that were sunk through the earlier efforts of LIDA and the DEC and the Moriches Off-Shore Reef Fund as long as 20 years ago. This has allowed me to observe the abundant life that has developed over the year around these sites. What would otherwise be an underwater desert has become abundant with life. Not just varied species of fish, but squid, lobster, scallops, crabs, and mussels, skates, eels, squid, anemones, hydroids, urchins, assorted algae, jelly fish, squid and creatures barely seen by the eye. The variety of marine life goes on and on. And it is seasonal. Some areas draw bait fish, some draw bluefish, some draw ling cod, some draw fluke. Some draw large pelagic fish. Wherever there is structure in the water, living organisms are drawn to it, will feed on it and life will multiply. An eco-system will be established. There is no down side to this. Deeper artificial reefs will draw larger fish. All of these things will draw scuba divers, fisherman, scientists, photographers, and boaters. This will, in turn increase our recreational opportunities for Long Island visitors, which, it follows, will help our Long Island economy. A brief environmental disruption will produce long term gain above and below the water's surface. Do it sensibly, do it right, use non-polluting materials, but PLEASE, do it. Sincerely yours, Janice Raber Trustee, Long Island Divers Association Trustee Emerita, Women Divers Hall of Fame Director Emerita, Historical Diving Society	Comment noted. No text changes required.

Comment Number	Commenter Name	Contact Email	Comment	Response
10	Captain Joe DeVito	Captaindevito@gmail.com	Hello, My name is Captain Joe DeVito. I am 28 years old and have been a recreational fishermen on the South Shore of Long Island since I was 5 years old. I currently am the Captain of one of the busiest fishing fleets on Long Island, The Laura Lee Fleet. We specialize in reef and wreck fishing. For most of what I can remember reef fishing out of Fire Island Inlet had always been mediocre at best, until 2019. The new structures that the DEC dropped in Fall 2018 and early 2019 were teeming with life by the time Sea Bass season opened in 2019. It seemed like there were just so many more fish (Sea Bass, Porgies, Fluke, Ling) around the reef during the 2019 season. It was great to see these reef programs really work. All of the materials the DEC deployed during 2019 was Southeast of all of these materials, which is terrific. Keep going Southeast! The structures on the southeast part of the reef have always been some of the most productive for us. The 2018 deployments were no different: -The two least productive 2018 deployed materials that we fished in 2019 were the Northwestern most ones at 40°36.040 73°12.631 and 40°36.040 73°12.495. -In order of productivity, the most productive 2018 deployed materials that we fished in 2019 were the Southeastern most ones at 40°35.854 73°11.870, 40°35.838 73°12.015, 40°35.872 73°12.022, and 40°35.914 73°11.986. In my opinion, the most productive direction to continue to expand the Fire Island Reef would be to the Southeast. It would be great to see more deployments Southeast of the 1995 Armored Personnel Carriers at 40°35.545 73°11.508. In conclusion, I think the draft SGEIS is a great plan and I am a strong supporter of reef expansion. I am particularly fond of the Sixteen Fathom Reef. I am anxiously awaiting the deployment of materials at the Sixteen Fathom Reef and expanding the Fire Island Reef. Myself and the rest of my fleet would be happy to assist in anyway possible to expedite the process in our area. Feel free to contact myself or Captain Neil Delanoy (CC'd). Capt. Joe DeVito Laura Lee Fleet, 90 Cedar Point Dr., West Islip, NY, 11795 Cell: 631-944-2920 | Captaindevito@gmail.com | Captree.com	Comment noted. Reefs will be designed and constructed based on bathymetry surveys and permitting requirements. The NYSDEC will endeavor to place materials in site locations that are currently undeveloped or have become degraded or buried due to storm damage and/or other natural processes.
11	Randy F. Randazzo	scuba@hamptondive.com	I am writing to comment on the Supplemental Environmental Impact Statement relating to the expansion of the Artificial Reef program along the coastline of Long Island. As a veteran dive instructor, teaching diving locally since 1983, I have seen the positive impact these scuttled structures have on the marine population. The ocean bottom is a vast desert of sand, holding little or no life. These structures bolster fish populations and create homes for many species of marine life. Please keep this program going and possibly even expand on the sites. Sincerely, Randy F. Randazzo PADI Master Instructor TDI/SDI Technical Dive Instructor	Comment noted. No text changes required.

Comment Number	Commenter Name	Contact Email	Comment	Response
12	Bob Wilson		Hello My name is Bob Wilson. I am a teacher in the Three Village School District, over at Ward Melville High School. I also run the Ward Melville High School Fishing club, a club in its 12th year of running. I would like to start by saying that I am very happy to see the Artificial Reef proposal, the reason we are here, and hope that this proposal could be further expanded upon, especially here on the North Shore of LI. Artificial Reef programs are essential and necessary for the development of a thriving ecosystem in our waters. It is easy to see the benefits to marine life that artificial reefs bring. They strengthen the base of the food chain, create habitat in what were either barren or "run down" locations and they lesson the strain due to pressure that some areas have due to limited habitat availability. I am glad to see that NY is prioritizing its reef program and hope that one day we could be used as the model for our fisheries, much in the same way that Florida is seen with their artificial reef programs. Being an invested recreational fisherman and fishing club organizer, I could go on about the benefits to the fishing community. Instead, I would like to go in a somewhat different direction. I think the proposed artificial reef program is good but I think it can be better. Specifically here on the north shore, I think some additions need to be made. I think that the artificial reef program should be expanded in stretches such as the Mt Sinai to Mattituck zone. This would not only alleviate congestion and pressure on the "closer" reefs but will invite others to partake in using all the artificial reefs around Long Island. In utilizing this stretch, you now begin to appeal to kayakers and those in smaller boats who would rather not get mixed up in the traffic of a popular location such as the proposed Mt Sinai reef. Areas that have been underutilized or not utilized at all can be turned into launch sites only accessible for the small boats and kayakers. In addition to this I feel that there are 2 other groups that may benefit by an expanded artificial reef system. This would be the diving community and the educational system. More reefs, equals more availability of locations which in turn means everyone gets a piece of the actions. With freediving, spearfishing and diving in general being as popular as they are, it screams the need for easy access in a somewhat secluded location. Additional reefs can be the answer here. Educational institutions such as our local high schools and colleges would have the opportunity to now study these reef environments. At the high school level this does not mean that it has to be specific to a marine biology or ecology class that not every district offers but living environment classes or biology classes would be able to incorporate learning about the local artificial reef locations. With the technology that is available today, it would be very easy for schools to utilize the for hire industry to create "floating classrooms", send a camera down, record the life and growth of the area and then who knows, maybe even drop a line or two and enjoy this newly created resource. If say some new reefs were created in a location that could pan in as little as 20' of water all the way into the 80 or 100' depths or if several of these AR are in reasonable proximity, a comparisons of sites could be made and now you could have large amounts of kids learning about their local ecosystem. Currently there are elementary and secondary classes that go out aboard a Port Jeff or Captree based boat to dredge and create a critter tank. In 2020, students should be able to go to an artificial reef from its onset, video, record and chart its growth and development and then be able to become critical thinkers as they virtually study other eco systems and other reef systems. Textbook learning in a real world environment for real local issues. More artificial reefs will help to get us	Comment noted. The SGEIS includes a new reef located in the Mattituck area. Section 2.1 – Screening Assessment of the Draft SGEIS includes the criteria that was used to assess potential siting of reefs. These criteria were applied to the entire New York State Waters included within the Long Island Sound. One of the criteria noted in Table 2-1 includes water depth. The criteria text states "sites are in areas deep enough to allow for creation of significant vertical structure and habitat and be within navigability clearance depths." This criteria led to a siting criteria for the Long Island Sound that "Reefs be located in waters between 40 feet (12 m) and 132 feet (40 m) deep." Inclusion of reefs close to shore in shallow, shoreline areas would not meet this siting criteria and cannot be included under the SGEIS due to conflicts with navigation. There is an existing NYSDEC reef monitoring program where the public can record their experiences including observed species on the artificial reefs as a volunteer reef angler or diver and provide the information to NYSDEC. If members of the public would like to learn more about the Artificial Reef program and, the volunteer reef angler or diver program, they can contact the NYSDEC Artificial Reef Staff through our website at https://www.dec.ny.gov/outdoor/9211.html to schedule a presentation or an outreach discussion.

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			there. For many of these reasons I would also like to get our club as well as other fishing clubs on Long Island involved in some way with this artificial reef program. We hear all the time about how kids spend too much time inside, on the computer, in front of video games and in other places than on the outdoors. We have a number of groups, clubs that exist and this artificial reef program should allow our kids community service opportunities that many are always looking for. It will also allow them to make a connection to marine culture in such a way that creates a legacy of civic involvement, understanding of conservation principles and teachable moments galore. The spark that is created by having an abundance of artificial reefs may just go to spark groups of students to look into the marine biology, marine ecology and conservation issues that will no doubt be a focus of life in their futures.	
13	Victor Viola	captvic1@optonline.net	As a recreational fisherman for over 50 years I feel the reef program has enhance my fishing abilities. I primarily fish the Moriches reef site. The expansion of the reef gives us a greater safety margin to fish the reef sites without congestion of fishing vessels. The new 12 mile reef site definitely is going to expand my fishing ability to a deeper sight with larger vessels. The governors program to enlarge the reef sites has definitely giving a boost to the recreational fisherman, local bait and tackle shops and party boats which has been a long time coming. Victor Viola 95 Wavecrest dr Mastic Beach NY 11951	Comment noted. No text changes required.
14	Phillips	nemo1@optonline.net	Please keep expansion and building our fishing reefs. A great many of recreational fishermen think this is a great service that has not seen in a very long time! A NEW REEF at proposed 16mi. [name?] is a great idea! Many fishermen love it! There is so much OVER CROWDING on existing reefs now this will only provide more space, safety, and pleasure for all!	Comment noted. No text changes required.
15	Beth McCrea	bethmccrea@gmail.com	I am writing in regards to the Supplemental Environmental Impact Statement relating to the expansion of the Artificial Reef Program along the coastline of Long Island in NY State. As a member of the Executive Board for one of the biggest scuba diving clubs in the US (the NYC Sea Gypsies), I know how much artificial reefs help our waters/marine life, increase tourism, & benefit those who live in the area. The sandy bottom around Long Island has very little shelter for fish, crabs, lobsters, anemones, & additional marine life. When an artificial reef is created, life flocks to it & an entire ecosystem quickly develops. I've seen this firsthand with a number of artificial reefs around NY & NJ...literally, within a year of an artificial reef being created, ecosystems are established. This is how our waters begin to thrive again bringing in amazing marine life from the tiniest of fish & mussels to whales. I know 2 different divers that saw whales while on local dives this past summer & it's because our waters are becoming healthier. I myself am putting my money where my mouth is & personally hosting a number of local area dives this year including a big camping & diving weekend on Long Island. But we need your help to make these areas thrive with more artificial reefs—we desperately need increased funding for this program! Divers enjoy seeing marine life & new dive sites will help local divers as well as local businesses including the local dive boat charters in our area. This is an industry that needs new sites to retain diver interest! As you'll see from the link above, I'm able to host shore dives out of Montauk, but had to arrange for a Long Island boat to go to Block Island in Rhode Island because there aren't enough artificial reefs in Long Island.	Comment noted. There is currently no dedicated Artificial Reef Program funding source. Program funding is based on the Governor's budget. No text changes required.

Comment Number	Commenter Name	Contact Email	Comment	Response
			I agree with the SEIS assessment that the negative impact of the construction to create these reefs is of a temporary duration well worth the end result to help our local divers, our local marine life, & our local businesses. Please accept this email as my full support of the Artificial Reef Program. Regards, Beth McCrea NYC Sea Gypsies Social Events Chair 469 W. 57th St. Apt. 4C New York, NY 10019	
16	Captain Robert Rocchetta	captbobrocchetta@gmail.com	As a professional fisherman and lifelong NYS resident, representing the North Fork Captain's Association and other user groups, it is my opinion that artificial reefs provide significant benefit. I'm sure you've realized there was a time when NYS had sent railroad cars to other southern states for their benefit. Now's the time to do it right for the overall population of New York. Many New Yorkers live or vacation on Long Island and benefit from the surrounding coastal areas. The artificial reef program should continue and expand so that future generations can continue to enjoy and benefit from the waters surrounding Long Island. Respectfully submitted, Capt. Bob Rocchetta Rainbow Charters, Orient Point Former Officer, Suffolk County Police Marine Bureau	Comment noted. No text changes required.
17	Greg Rosengarten	grosengarten@gmail.com	To whom it may concern, I'd like to voice my support for the Artificial Reef Program which I have seen firsthand to provide a valuable habitat for fish and other creates, and generates a lot of interest in local diving. Please consider extending the budget for this program as it is a great resource to us all. Thank you, Greg Rosengarten Treasurer NYC Sea Gypsies	There is currently no dedicated Artificial Reef Program funding source. Program funding is based on the Governor's budget. No text changes required.
18	Jason Feldman	fhanglers@gmail.com	Dear Commissioner Seggos, As a duly elected representative of the Freeport Hudson Anglers, I can speak on behalf our fishing club and would like to take this opportunity to fully support New York State Department of Environmental Conservation's (DEC) draft of the SGEIS as part of Governor Cuomo's reef expansion project. The Freeport-Hudson Anglers fishing club was established over 50 years ago in Freeport, New York, and is comprised of approximately 50 members that draws heavily from Long Island's south shore communities. We all share a common passion of sport fishing and most of our club's activities are geared toward that passion. As long as New York's artificial reef program has been in existence, our members have plied the waters above the reefs as they provide essential habitat for many of the species that we target. Whether our members use their private boats, or board party and charter boats, our members have used the reefs extensively and would benefit enormously from the Governor's plan to expand New York's artificial reefs. We are even more excited about the establishment of four new reef sites, especially the deep-water "16 Fathom" site located approximately 12 miles southeast of Jones Inlet.	Comment noted. The artificial reef program does not have a mechanism in place for donations or contributions of funds. If a member of the public is interested in providing materials for the program or to sponsor reef projects they are encouraged to contact the artificial reef program through the NYSDEC website at https://www.dec.ny.gov/outdoor/7896.html. No text changes required.

Comment Number	Commenter Name	Contact Email	Comment	Response
			I know our members would join the many thousands of anglers all across Long Island that have been yearning for additional opportunities to fish New York's coastal waters, and we look forward to providing any assistance to the Governor and the DEC to put this plan into action. Sincerely, Jason Feldman, Secretary Freeport Hudson Anglers	
19	Ronald Pfister	Rainbowrobin54@aol.com	The importance of expanding the Artificial Reef around Long Island is beneficial for the fishing industry and sport fishing. The economy improves as well.	Comment noted. No text changes required.
20	New York Recreational & For-Hire Fishing Alliance	harborman@optonline.net	Dear Chris, On behalf of the New York Recreational & For-Hire Fishing Alliance which is the largest organization advocating for the party & charter industry along with the customers who ride upon for-hire vessels in the NYS Marine Coastal District, we would like to extend to NYS Governor Andrew Cuomo as well as to Chris LaPorta our gratitude in helping to continue to restore nearshore eco-system health, improve habitat quality and in increasing fishing and diving opportunities in the NYS Marine and Coastal District. After review of the 'Draft Supplementary Generic Environmental Impact Statement For New York State Department of Environmental Conservation Artificial Reef Program,'1 and in and consultation with the NY RFHFA Executive Director Joe Tangel and our board, the NY RFHFA will vehemently support, 'Alternative 2 - Proposed Project (Preferred Alternative). Benefits of Artificial Reef building and eco-system enhancement is recognized both by current advances in marine science and the US Congress: With almost a century of artificial reef development by the states along the east coast, and recognition by the National Marine Fisheries Service (NMFS) in the development in November 1985 of the 'National Artificial Reef Plan' (NOAA Technical Memorandum, NMFS OF-6) and the amended February 2007 'National Artificial Reef Plan,'2 that there are notable positive environmental habitat impacts from artificial reef creation and expansion. With decades of research and monitoring by various federal and state marine agencies along in coordination and a partnership with the academic community, the US Congress in 2018 has issued a statement of findings and purpose of Artificial Reef development at 33 U.S.C. 2101(a)(5) in which: "Congress found that properly designed, constructed and located artificial reefs can enhance habitat and diversity of resources; enhance United States recreational and commercial fishery resources; increase production of fishery product in the United States; increase the energy efficiency of recreational and commercial fisheries; and contribute to the United States and costal economies." Over the last two decades, current progressive artificial reef programs in the states of Florida, North Carolina, Maryland, Delaware and New Jersey have stood out for the increased bio-diversity they have created in areas negatively impacted by man caused commercial and recreational fishing activities as well from nature-driven severe storm damage. As noted on page ES-5 in the 'NYSDEC Artificial Reef SGEIS document,' artificial reef creation has been proven by marine science to, "Enhance local refuge, forage, and some spawning opportunities for regional structure associated species." This was mentioned at the February 10, 2020 public comment session meeting at the NYSDEC in East Seatucket where the program not only, "Intends to increase the material repurposed on the 12 previously permitted sites but as much to expand the acreage or current AR footprint of	Comment noted. No text changes required.

Comment Number	Commenter Name	Contact Email	Comment	Response
			seven existing artificial reefs and to create four new artificial reef sites along both the south shore and within New York territorial waters in Long Island Sound." Mitigating concerns over increased artificial reef enhancement: Coastal state marine agencies along with the NYSDEC have consistently improved in the scientific ecological structure and function in the enhancement of artificial reefs, along with yearly diver assisted monitoring of these sites in order to ensure that repurposed reef building items have the most minimal impact to the environment as so far as to the disruption of spawning activities, along with providing protection, shelter and subsistence to both resident and migrating finfish and other marine related species. Repurposed man-made materials have followed the guidance of 'The Atlantic States and Gulf Fisheries Marine Commission document on 'Guidelines for Marine Artificial Materials – 2nd edition,'4 as so far as ensuring best practices in the cleaning and preparation of manmade materials in the removal of any chemical hazards such as from vessels, highway or bridge construction debris or various fabricated reef balls/pyramids in order to prevent any detrimental impact to various marine life, vegetation or even human life as a result of the consumption of marine species harvested from an artificial reef location. The primary concerns noted by those who had attended the two NYS public meetings in February of 2020 concentrated on these six issues as the NYS DEC is in the early process and planning to perform the largest expansion in the history of the NYS artificial program: 1- A negative economic impact to commercial fishing activities within state and nearshore federal waters. 2- Taking what is proverbially 'garbage' and now performing ocean dumping. 3- Disruption to, or increasing hazards to safe navigation. 4- Creating areas of concentrated fishing effort activities. 5- Depletion of various local targeted fish to such a level to be impactful to a particular fish stock in the noted artificial reef footprints. 6- Impactful to other marine life which is not targeted by recreational fishers or divers. In addressing each of the concerns of the six items in order, it has to be noted: - By increasing the artificial reef footprint acreage from 3400 acres to a proposed 6,812 acres (pg. 69 NYSDEC Artificial Reef SGEI doc.), impacts may disrupt less than 1 percent of available NYS Marine and Coastal District waters as measured in acres. An approximate scaling example in area which would be impacted would be in using the proposed Long Island Sound 50 acre artificial reef footprint, which would be an equivalent to 0.06 square nautical miles. At this time there has been no reported documented interruption of commercial fishing activities due to the creation or expansion of artificial reef building in the Mid-Atlantic region. - The claim of 'ocean dumping' is a misnomer used by an extremely small number of anti-artificial reef building people as state developed artificial reef building is a highly regulated activity in which non-hazardous "materials of opportunity" are strategically deployed in pre-defined locations all along the coast. In fact one of the most noted decades long permitted 'ocean dumping' locations in the NY-NJ BIGHT area of which is designated for the depositing of dredge spoils composed of bedrock and softer bottom sediments removed from the waters of the Kill Van Kull, are re-deposited at the Mud Buoy off the Atlantic Highlands and have been noted as one of the most prolific locations for fishermen to target various pelagic and demersal species in this region..	

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			- The creation and/or expansion of artificial reefs in nearshore areas with close proximity to various New York City and Long Island based fishing ports and inlets has rarely been an issue in the impeding or disrupting either privately owned boats, for-hire vessels or commercial shipping. Prudent safe navigation on coastal and ocean waters must always be observed by operators and licensed mariners to use best judgement in avoiding any anchored, drifting or moving vessel or vessels over their intended route of navigation. - The creation and/or expansion of artificial reefs is well noted to disperse concentrated fishing and diving effort over a wider area off our shoreline. Artificial reefs also aide in lessening fishing and diving effort on other noted man-made structures (shipwrecks or purposed dumped rocks) or natural reefs. - There is no documented research which conclusively reports that the creation and/or expansion of artificial reefs will increase both catch and harvest to such high removal levels as to be detrimental and risk the sustainability of any of the MAFMC, ASMFC or NEFMC managed stocks. - Artificial reef creation and/or expansion will also vastly increase production of encrusting vegetation and various mollusks such as mussels as well as burrowing marine life, all of which positively contribute to localized healthy eco-systems. A recent diver assisted video on YOU TUBE illustrates the bio-diversity of life from artificial reef building and expansion on New York State artificial reefs in the Marine and Coastal District (see: NYSDEC Artificial Reef Building video, 2019)5 5 NYSDEC produced video, Building Artificial Reefs 2019, https://www.youtube.com/watch?v=HjQ4tZhcUX0 A much welcomed and needed benefit to both the fishing, diving and shore side business community with Artificial Reef enhancement in NYS waters: At a time with the negative economic impact due to the unending constraining of regulations on many of the recreational fishing sector fisheries, the creation and expansion of artificial reefs is one of the most welcomed benefits to not only to for-hire businesses, but as much to various shore side businesses that economically rely upon both fishing and diving activities. Artificial reefs provide the fishing and diving public with a marine-rich nearshore resource that is within close proximity to various fishing ports, marinas and inlets along all locations in the NYS Marine and Coastal District. There is also a major environmental benefit which all people should support as artificial reef enhancement aides in habitat and eco-system repair and restoration in nearshore areas negatively impacted and damaged from fishing activities, pollution or natural storm damage. The positive impact of artificial reefs to the marine environment eventually creates and results in the bio-diverse stability of localized nearshore waters, and for this reason the NY RFHFA supports 'Alternative 2 - Proposed Project (Preferred Alternative).' The NY RFHFA appreciates the opportunity to provide input in public comments, and we again thank Chris LaPorta for his time and unending efforts in improving the local marine environment as he understands how critical artificial reef habitats are in the Northeast region. The NY RFHFA will continue to participate in this process moving forward, and we look forward to sponsoring the strategic deployment of a vessel on one of the NYS artificial reefs in the future. Thank you for carefully considering these comments from not only the NY RFHFA, but also we believe represent the sentiments of fishermen and those within the diving community.	

Comment Number	Commenter Name	Contact Email	Comment	Response
			Sincerely, Steven Cannizzo, NY RFHFA New York Recreational & For-Hire Fishing Alliance mb1143f@gmail.com NEW YORK RECREATIONAL & FOR-HIRE ALLIANCE: Executive Director Captain Joe Tangel, fv KING COD Board Member Captain Carl Forsberg, Viking Fishing Fleet Board Member Captain Jimmy Schneider, James Joseph Fishing Fleet Board Member Captain Kenny Higgins, Captree Pride & Captree Princess Board Member Captain Anthony Testa Sr., f/v Stefani Ann Board Member Captain Anthony Testa Jr., f/v Stefani Ann	
21	Alena Walters	jonesbeach.statepark@tutanota.com	Dear Chris LaPorta, Please accept this comment related to whether the Draft SGEIS for the Artificial Reef Program adequately addresses greenhouse gas emission impacts of the program. There are two indirect sources of increases in greenhouse gasses caused by Artificial Reef expansion, each are addressed herein. The program seeks to expand by several thousand acres the permitted area within which hundreds of thousands of tons of metal rubbish will be allowed to be dumped into the ocean, including metal bridge parts, concrete, and metal vessels and vehicles. The DEC Draft impact statement concludes the program will not have any climate change impact. The statement fails to estimate the indirect climate change impact of the project. The environmental impact statement fails to take into consideration that by dumping used steel into the ocean rather than melting it down for reuse and resale as steel, more fossil fuels will have to be burned to produce new steel. Burning approximately 1.9 tons of coal is required to produce 1 ton of steel, resulting in four to five thousand pounds of carbon dioxide released into the environment for each ton of steel produced. Dumping 100,000 tons of steel into the ocean via the program rather than recycling it for use as steel would result in hundreds of millions pounds of carbon dioxide being released into the atmosphere via new steel production. This could be avoided by recycling the steel for resale rather than dumping it into the ocean. As recycling a large proportion of the refuse used steel would likely occur if it wasn't dumped into the ocean, the environmental impact statement does not properly estimate the impact to climate change of the programmatic expansion relative to the no action alternative. 90 percent of the value of an old ship in domestic markets is in the metals that can be reduced to mill-grade, and sold for re-melting and reforming into other metal products. The calculation of how much carbon emission results from the expansion of the artificial reef program should take into consideration the coal burning spared by actually recycling (selling and then melting and reforming the metals for resale) relative to reuse for the purpose of building reef. The estimate of carbon emitted as the result of the artificial reef program by such coal burning should be reduced by those released in the making of the energy to mill, melt, and reform the steel. This will allow your office to arrive at the total net carbon emissions that indirectly result from dumping of steel up to permitted limits rather than recycling it for resale. Such calculation	One of The NYSDEC Artificial Reef Program's goals is the planned development of artificial reefs through purposeful placement of clean material that has been demonstrated to provide suitable habitat for reef obligate species. Prior to reef building materials being placed they must be documented as free of contaminants and other materials that may be detrimental to the marine environment as per the Atlantic States Marine Fisheries Commission guidelines provided here: http://www.asmfc.org/habitat/artificial-reefs. The NYSDEC and US Army Corps of Engineers (USACE) have jurisdiction under the Clean Water Act (CWA) to enforce these rules on materials prior to placement on Artificial Reefs. The materials utilized for artificial reef construction are materials of opportunity that meet the requirements noted above. As noted in Section 3.1.6 – Climate Change, greenhouse gas emissions would be temporary and short in duration. The project would not introduce a new and consistent source of greenhouse gas emissions to the atmosphere and would not contribute to sea level rise. In addition, the impacts of climate change such as flooding and sea level rise are not applicable as the Project occurs in open-water habitats where flood prevention is not applicable. Performing a specific cost benefit analysis ~~of~~ for the disposing of concrete, steel, and rock via other methods is beyond the scope of the SGEIS and not part of the Project Purpose and Needs which is focuses on the development of beneficial marine habitat. Settlement of artificial reefs by epibenthic species are a link to higher trophic levels. With the addition of physical structure, the complexity of the community is increased and epibenthic species like barnacles are considered important links in creating microhabitats on the reef. Section 3.2.1.3 – Fish, notes that "Demersal fish species, like tautog, summer flounder, Atlantic cod, sea robin, scup, and black sea bass, frequent reef sites to feed on reef-associated species as well as take advantage of the enhanced benthic community found around the reef." Specifically adult cunner (Tautogolabrus adspersus), tautog (Tautoga onitis), and scup

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			of the carbon emissions result of the proposed reef program expansion was not made. A conservative approximation of how many tons of steel expected to be dumped per square area can be arrived at by using average known weight-to-volume ratio of sea vessels that fall within one standard deviation of the average size of vessels known to have been sunk previously as a part of the program, and, using the formula that relates the area of a pyramid to the length and width of its base, calculating how many ships would fit in each site if each site were built up to the maximum level for which permits for dumping are sought, in order to arrive at a rough measure of the weight of steel that would be sunk at each site, then sum the weights across all sites. Though this models carbon-emission environmental consequences when all of the metal comes from ships, such a model at least informs of the carbon emissions resulting from the program in that particular scenario, which is far superior to not making any model at all and just ignoring the carbon emissions impact of the expansion completely. Since your office knows exactly what items have been used to date, your office alternatively has the ability to do a calculation of what tonnage of metals have been sunk in the already-completed portion of the prior (2018-2019) expansion, measure the actual dimensions of the existing permitted sites, estimate what additional volume would be required to build the sites up to their permitted maxima, and extrapolate how many more tons of metal would be used if like materials were used to build the existing sites up to their permitted maxima. Then, add the already dumped metal tonnage to the expected weight required to build to (the prior already-approved uncompleted expansion) maximum. (This model would automatically account for the fact that mixed material - both concrete and steel - is used, because the known metal.weight-to-exising.site.volume ratio already accounts for the fact that not all the volume is from metal items.) This yields and an estimate of total metal weight for the completion of the prior expansion and an estimate of carbon emissions for the manufacture of equal weight in new steel, whose manufacture could have been spared by not permitting the prior expansion. The prior estimate of known dry.metal.weight-to-mixed.material.volume ratio can then be utilized in the calculation of carbon emissions for the preferred alternative in the newly proposed expansion, using the total added reef volume of the preferred alternative of the newly proposed expansion, if the newly proposed expansion were built up to its permitted maximum. I do not find the argument that the sites might not be built up to their permitted maxima acceptable. The state should know and make public what carbon-emission indirect impact approval of the programmatic expansion is expected to have 1, if it is completed to its permitted maximum. GREENHOUSE GAS EMISSION FROM DECREASED FUEL EFFICIENCY, BARNACLES Decades of overwhelming scientific evidence documents that barnacle coverage on, and roughness of, barnacled ship surfaces substantially increases frictional resistance, fuel consumption, and greenhouse gas emissions. The effect of barnacle coverage and roughness on vessel operation through increased drag reduces fuel efficiency by as much as 40%, estimates the U.S. Navy, and consequently substantially increases greenhouse gas emissions by increasing the amount of fossil fuels burned due to higher abundance of barnacles. Artificial reef systems create a plethora of surface area substrate to which barnacles attach and multiply. The expansion of the artificial reef system along the Atlantic coast is creating barnacle	(Stenotomus chrysops) feed on benthic invertebrates such as barnacles, small crustaceans, polychaetes, and mollusks. In addition, there is no known link between the placement of artificial reef habitat leading to an increase in fouling of ship hulls by barnacles. Furthermore, the hulls of many ships are painted with biofouling paints to limit the growth of organisms on these surfaces.

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			settlement in areas where none naturally existed. Owing to the highly three-dimensional nature of the objects sunk to create artificial reefs, the substrate surface area available for barnacle growth can be several dozens of times that of the square area of the artificial reef project footprint. The cumulative impacts of a program or action must be assessed when, added together with past, current, future, and reasonably foreseeable actions (that either use the same resource or produce the same effect), have adverse impacts, including long-term impacts. Please note that, even if by itself, the contribution to fouling by the current programmatic expansion under consideration is modest, there are many artificial reef programs by other states up and down the Atlantic, and cumulative impacts should be considered. The impact of barnacles on vessel operation through increased drag, costs the shipping industry billions in reduced fuel efficiency, direct costs of remediation procedures, and loss of use during remediation. The reduced fuel efficiency is, of course, concomitant with increase in greenhouse gas emissions. Expansion of artificial reef programs will cause an exponential increase in barnacle-settlement surface area. The state's draft impact statement is remiss in that it does not make any estimate, or even mention, of adverse economic impacts to the shipping industry, or increases in greenhouse gas emissions resulting from reduced fuel efficiency that the cumulative expansion of artificial reef systems in the Atlantic can reasonably be expected to worsen. It merely looks at expected changes to the cost of recreational dive excursions, which is extraordinarily trivial by comparison, and concludes there is no climate impact. The cumulative effects of artificial reef programmatic expansions on bio-fouling by barnacles is a serious environmental impact that needs to be considered in any responsible review. The state should model the effects of expansion by estimating the number of barnacles being added to Atlantic Populations. Your office can do this by having an engineer estimate the surface area to footprint ratio for a given site if built up to the permitted maximum height and then using measurements of actual barnacle density (individuals per square area) at existing sites to calculate the increase in abundance of barnacles across all sites expected to result from the expansion. While the resulting estimated increase in vessel biofouling may be more difficult to model from increased abundance, if even a rough estimate can be attained, a measure of the quantitative impact on fossil fuel use can then be made, as the effect of barnacle surface coverage on ship drag and fuel efficiency reduction is well documented. It is especially important to calculate these and other adverse potential environmental effects while the programmatic expansion is under environmental review, as artificial reef building is for all practical purposes irreversible, as it would be cost prohibitive to perform effective remediation. Regards, Alena Walters	

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22	Alena Walters	jonesbeach.statepark@tutanota.com	Dear Chris Laporta, Please accept these comments related to whether the Draft SGEIS for the Artificial Reef Program adequately addresses possible adverse effects on Cetaceans. Introduction New York's Artificial Reef program, combined with artificial reef programs of other states along the Atlantic, may cause an explosion in barnacle populations which can reasonably be expected to increase barnacle-attachment on cetaceans and associated increase in energetic expenditures with adverse effects on fitness. Sites of barnacle attachment also permit exploitable by whale lice parasites, as is detailed further below. Insufficient information on the heights to which the state indents to build up the dump sites underwater sow concern over whether the dump sites render the habitat useless for large cetaceans. Although - relative to the total New York ocean area and outer continental shelf - the expanded dump site acreage is small, and cetaceans are presumed to be able to "swim around it", it does not address the loss of habitat area within the project footprints or echolocation blackout areas behind them potentially caused by the reefs. New ocean energy projects which also use whale habitat have been contracted, and it would be prudent to address the cumulative effects of an expanding reef system and industrial use of ocean areas on already stressed endangered cetaceans, as New York has Sperm, Blue, Finback, Humpback, Sei, and Right Whales and five of these six are Endangered. Whether the artificial "reef" system impairs the ability for whales to echolocate at, or through the reef site has not been studied. As even large whales have been cited close to shore off our barrier island and as some reef sites approach 850 acres, it at lease warrants investigation into whether or not it is a concern. Echolocation is expected to be impaired by complex three-dimensional structures, especially those that possess many smaller flat surfaces that exist at angles to one another. Potential for adverse impact - barnacle drag, mites, cetaceans Your draft impact statement didn't address the potential for adverse impacts to cetaceans via increase in barnacle population. The effect on whale parasites of the programmatic expansion of artificial reefs was not fully, or at all, considered by your draft impact statement. Barnacle attached sites on whales serve as shelter and attachment point for Whale Lice which also dig into genital folds, eyes, and exploit any skin lesions that may be on the whale by attached and feeding at the lesion. Decades of research documents that barnacle coverage and roughness on ship surfaces substantially increases frictional resistance, fuel consumption, and greenhouse gas emissions. Drag-inducing barnacles likewise cause cetaceans to have to expend more energy to travel a given distance or maintain a given speed. Artificial reef systems create a plethora of surface area substrate to which barnacles may attach and multiply. The expansion of the artificial reef system along the Atlantic coast creates an explosion of substrate area for barnacle settlement in formerly featureless flat benthic communities (where no three dimensional structure naturally existed). Owing to the highly three-dimensional nature of the objects sunk to create artificial reefs, the substrate surface area available for barnacle growth can be several dozen times that of the square area of the artificial reef project footprint. Barnacle attachment is found in many species of Marine Mammals, and causes substantial increase in energetic expenditure due to drag via a similar process as occurs on ships' hulls; via an increase in the coefficient of friction. Decrease in fitness from exponential growth of	Comment noted. Per Section 1.2 – Proposed Action the SGEIS and permit requirements reefs will be constructed in a patch reef manner with specified minimum depths which will prevent reefs from impeding migration or use of the reefs by cetaceans. Section 3.2.3 – Threatened and Endangered Species notes that the placement of reef materials will take place during short intermittent periods during daylight hours, the vessels delivering reef materials to the reefs are slow moving and represent a small portion of the total vessel traffic in the Project area and therefore would not substantively increase the risk of vessel strikes for listed species. The reef program will coordinate and consult with National Marine Fishery Service and US Fish and Wildlife Service as part of the SGEIS process. Indirect impacts to marine mammals are not anticipated as a result of the action. The reefs have been noted to be utilized by marine mammals for overnight feeding and foraging as documented on the Atlantic Beach Reef.

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			barnacle populations from cumulative expansions of artificial reef programs across several states up and down the Atlantic Coast is an anthropogenic source of mortality, but there is no mention of this in you Draft impact statement of this type of cumulative impact to Marine Mammals reasonably expected to be caused by expanding artificial reef programs by states up and down the Atlantic Coast. Except for certain species, that barnacles are harmless to whales is a myth. Whales have evolved special features in their skin to combat barnacle attachment, and have been known to make efforts to scrape them off (e.g. see at 1:35 http://www.youtube.com/watch?v=UW2e8M3nzvE]. To give you an understanding of the very high cost of drag-induced friction on energetic expenditures, the effect of barnacle-coverage and roughness on vessel operations through increased drag reduces fuel efficiency by as much a 40%, estimates the U.S. Navy, and consequently substantially increases greenhouse gas emissions. The state's draft impact review comes short of making any estimate, prediction, or even mention, of impact to whales via increased energetic demands from barnacle population expansion that artificial reef system expansion across Atlantic states may reasonably be predicted to trigger. The cumulative effects of artificial reef programmatic expansion on barnacle populations and subsequent parasite load on marine mammals needs to be considered in any reasonable review. Potential for adverse impact - Actual habitat loss, cetaceans Cumulative impacts of a program or action must be assessed when, added together with past, current, future, and reasonably foreseeable actions (that either use the same resource or produce the same effect), have adverse impacts, including long-term impacts. The environmental statement released by your office ignores all cumulative and other impacts to marine mammals. Though the reef expansion uses 6,000 acres of ocean area, it is maintained that no cumulative impacts are expected to occur - despite an 80,000 acre Wind-turbine Power Plant that is foreseen to be built in an ocean area on the OCS are nearby. "Cumulative effects" means that combined with the effects of the other existing, upcoming, or foreseeable projects, there is a potential adverse effect, even if the proposed program by itself may not warrant substantial concern. When the proposed action (of vastly expanding the artificial reef program) is combined with expected use of large ocean areas for the power plants, it is clear that multiple actions have the potential to affect the same resource. Large marine mammals are known to require travel over and forage over enormous area to meet their energy demand. It is nonsensical to say that because the reefs are not planned to be built within power plant areas that the combined endeavors do not have cumulative effects on the availability of open ocean resources. Further, if one also considers the multiple lease areas expected to be newly provisioned by BOEM to meet state's statutory mandates, and expected high levels of other ongoing economic activity that is in conflict with whale movements, it is all the more clear that six thousand acres when added to other projects may collectively affect the marine mammal habitat, and is not trivial when combined with other artificial reef projects along the Atlantic and projects in the Wind Energy Area. For example, the nearby Equinor wind-turbine power plant will use gravity-based piling, each projected to be about 17 square meters diameter, and according to its project envelope, the company may install up to 240 of them. This alone would result in the loss of 51 acres of area from a single power plant project, not including stations. The reef expansion project's role in cumulative loss of whale habitat together with growth in	

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			other reef projects up and down the Atlantic coast, and increasing industrialization of ocean areas, warrants consideration. The state has said that the maximum heights up to which the state seeks permits (at the respective sites) to build has been chosen for watercraft clearance. Please note that whales may typically be found for extended periods at depths below those needed for vessel clearance and that, depending on the height to which the state plans to build, artificial reef systems may render the areas unusable by whales, which, in addition to ocean area expected to be industrially-developed into wind-turbine power plants, may cumulatively have an impact. Potential adverse impact - Effective habitat loss, cetaceans The ability to echolocate is expected to be impaired by complex three-dimensional structures, especially those that possess several flat surfaces at difference angles to one another. Artificial reefs commonly have these characteristic. In fact, the surface of stealth aircraft are designed to evade detection with this very principal in mind (See, e.g. F-117 Stealth Nighthawk). Cetaceans such as dolphins and toothed whales have very poor vision and rely on echolocation to "see". Sonic eye technology exists that can be helpful in allowing the NYS DEC to, using existing reefs, study how three-dimensional structures are perceived via echolocation in order to determine if long-range echolocation (not only in extremely localized area at and very close to the reef site) but rather through the site is impaired, in order to predict the consequential loss of effective habitat of the new expansion. This can be combined with observations as to whether animals are actually observed to "swim around it [an 850 acre site, for example]" just to experience what is on the other side of it, or whether they are more apt to simply continue on their way past it without expending the energy to swim all the way around a site just to echolocate ("see") what the site may have been blocking. Then a determinations on whether (or if) any effective habitat loss is occurring as a result of the program can be made. Until this is done, assertions that there will be no impact to marine mammals because they "swim around it" are conclusory statements without basis.	

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23	Alena Walters	jonesbeach.statepark@tutanota.com	Dear Chris LaPorta, Please accept this comment related to the adequacy of the Draft SGEIS in addressing the potential of the programmatic expansion of the Artificial Reefs Program to effect the evolution of virulence pathogens of important species. It is very common knowledge among evolutionary ecologists that concentrates or aggregates of organisms (density) causes the evolution of increased virulence and pathogenicity of pathogens and parasites in those pathogens and parasites requiring host proximity for transfer; This is for the simple reason that, under non-dense conditions there is strong natural selection acting against high-virulence phenotypes which possess the ability to rapidly cause mortality or illnesses that immobilize the host animal before the host animal has an opportunity to make contact with other host individuals in order to pass along the chain of infection. In short, high virulence phenotypes cannot reproduce without contact with another available host, and therefore do not ordinarily evolve in conditions where hosts density is low or hosts are dispersed over large areas. Aggregating host animals into denser concentrates lowers or removes natural selective pressures ordinarily present against highly virulent phenotypes. This allows pathogens and parasites of higher-virulence phenotype to spread among individuals in the aggregate even though they may cause the host to rapidly succumb or die, because even in the very short time it takes for the host to succumb, the pathogen or its progeny are likely to encounter another host when host are in high density conditions. In naturally occurring areas of high host density, hosts may have evolved, over many thousands of years, better defenses to high virulence phenotypes, a so-called “arms race” over many generations that leaves host species better defended against such phenotypes. Introducing refuge structures in regions where high densities do not naturally occur may relax selection against very virulent phenotypes of pathogen and parasite, but host populations that ordinarily experience low density conditions are far less likely there to have evolved adaptive vigorous responses to infection than in those regions characterized by naturally occurring concentrated areas of high host density. An extreme example is the high virulence and incidence of disease found aquaculture where fish are in much higher densities, due to containment, than the conditions under which they have evolved.1 It is therefore reasonable to expect that anthropogenic introduction of aggregation-enhancing structures poses risk of making the evolution of higher pathogenicity phenotypes more likely in populations of pathogens and parasites of our species local to Long Island. For species of recreational and economic interest intended to benefit from the program, and ecologically important species, the spread of more harmful pathogens and parasites may present a problem. It appears from the Draft SGEIS, that a cursory look at potentially problematic pathogens or their pathogenicity inside relative to outside reef sites has not been made. The potential for this phenomenon to occur as a result of the program has not been considered, nor has been identified the pathogens and illnesses it would be responsible to monitor. Regards, Alena Walters	Comment noted. As noted in Section 1.2 – Proposed Action of the SGEIS, the reefs are anticipated to be occupied by reef-obligate species. These are species that have evolved to live, breed, and feed in or around hard structures. Therefore these species have evolved to live in ~~a~~ reef habitat with higher population densities than found in the open-water, and sandy benthic habitat that surrounds the proposed reefs. The comparison of the artificial reefs to that of an aquaculture pen, where open-water species are concentrated to live and feed within an enclosure is, therefore, not applicable.

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24	Alena Walters	jonesbeach.statepark@tutanota.com	ENVIRONMENTAL JUSTICE It is no surprise that the owners of charter boat businesses and companies who sell diving lessons support the program. However, no recreational interest accessible to the public at large can justify a program of underwater land use of this large scale. Recreational value achieved by the programs may disproportionately benefit economic privileged persons, creating an "Environmental Justice" disparity issue for use of the funds that pay for it. To invest in a program of such massive scale for purported benefit of public recreation, where the ones who will benefit are limited to those who have the financial resources to rent charters, own watercraft, or invest in scuba diving lessons, is not an equitable use of public funds for recreation, let alone recreational fishing. Alena Walters	Comment noted. As noted in Section 3.3.4 – Environmental Justice, the impacts associated with the Project are not anticipated to be disproportionately shared by a specific race, color, or income with respect to the development, implementation, or enforcement of the Project. Therefore, there is no impact to Environmental Justice communities. Individuals may access the reefs at their will as they are intended to provide additional fishing and diving opportunities to all who wish to utilize them.
25	Alena Walters	jonesbeach.statepark@tutanota.com	Dear Chris LaPorta, I have reviewed the Draft SGEIS. It is my assessment that New York has not yet measured whether it has met with the goals of the program with respect to the prior authorized last major (2018-2019) Artificial Reef expansion, which is still in progress. The Draft SGEIS lends the mistaken appearance that New York is under legal obligation to authorize another expansion; "Selection of this [no expansion] alternative [was rejected because it] would not meet the purpose and need for the Project". New York has no legal obligation to continue to authorize additional expansions of existing reef, particularly at a time when the present reefs have not been fully laid or their effects realized. New York is not, under the NFEA, obliged to give authorization of additional sites or enlargement existing sites at a time when the previously-approved site areas already authorized have not yet been substantially laid or built to their permitted maxima, and when its obligation under the same statute to measure the effects of the artificial reefs already in place has not been performed. To authorize an additional massive expansion is imprudent without first meeting, for existing ARs, the requirements of "conduct[ing] an evaluation of the effectiveness of existing artificial reefs in achieving program goals" [See Final GEIS and Plan for the Development and Management of Artificial Reefs]. The Draft SGEIS published by the NYS DEC should contain but lacks reference to demonstrated scientifically realized benefits of prior programs to fish production. The distinction between production and aggregation of fish is key. Production improvement means more fish are produced as a result of the sites whereas aggregation means fish are attracted to the sites. Some Artificial Reefs may increase fish abundance, but some have been demonstrated to not actually increase the amount of fish, but rather just concentrate them around a specific area or areas. The higher fish concentration makes it easier for fishers to catch them, especially with advances in technology. This might even increase the overfishing problem instead of helping the marine life if the DEC lacks or cannot reasonably acquire a force large enough to patrol and enforce all six thousand new acres. While the environmental impact statement states that NYSDEC has the authority to limit fishing activity in the existing and expanded areas, it makes no comment about whether it has the practical capability to do so. Without a reasonable estimate of whether enforcement efforts can keep up with fishing pressure, the expected effects on fisheries remain elusive. The practicality referenced in the NFEA must incorporate expected adverse impacts that reasonably have the potential to occur and prudent use of underwater land, as well as current state of existing sites and our current state of knowledge about the benefits versus the risks.	Comment noted. Section 1.7 – Regulatory Framework and Permitting Requirements of the SGEIS provides the regulatory framework for the Proposed Action and as noted under *State Agencies* "NYSDEC derives its authority to develop and manage artificial reefs from New York State's Environmental Conservation Law (ECL), Section 11-0303. Further, ECL Article 3 and Title 3 of Article 11 give NYSDEC exclusive jurisdiction over fishery resources and ECL section 3-0301 (2) (j) states that NYSDEC is authorized to 'act as the official agency of the state in all matters affecting the purposes of the department under any federal laws.'" NYSDEC also manages the fishery resources of the State and in doing so establishes the size, fishing season and bag limit harvest restrictions on specific species including reef associated species (e.g. tautog, scup, black sea bass, Atlantic cod, lobster). This action regulates potential overharvest of reef associated species on the sites. National Fishing Enhancement Act (NFEA) §202(b) states that the purpose of the title is to promote and facilitate responsible and effective efforts to establish artificial reefs in waters cover under the article. The Proposed Action is consistent with NFEA as the Proposed Action is enhancing and restoring fishery resources and associated habitat utilizing artificial habitat to the maximum extent practicable. This is consistent with NFEA §203 – Establishment of Standards which states that artificial reefs shall be sited, ~~and~~ constructed, and subsequently monitored and managed in a manner which will – (1) enhance fishery resources to the maximum extent practicable; (2) facilitate access and utilization by United States ~~r~~recreational and commercial fisherman. Section 4.5 – Development of Special Management Zones (SMZ) notes that the creation of SMZs meets the Project Purpose and Need and will remain an option that could be utilized in combination with the proposed action. NYSDEC has the regulatory authority to limit activity and regulate reefs within state waters and also outside state waters through

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			A word related to the selection of alternatives from which the preferred alternative was selected: Including the discontinuance of maintenance and management of existing reef sites in the "No Action (no expansion)" alternative was wholly inappropriate as an alternative to expansion, and probably made the option easily and unduly rejectable. Of course, not only is it the case that existing sites do need to be managed, but such management is an obligation of the previously authorized program and previously authorized programmatic expansion. The fact that what is under consideration is a programmatic expansion dictates that the alternative to expansion is non-expansion. The alternative is not abandoning responsibilities of already approved programs. The Draft GEIS also did not adequately explain why it rejected the SMZ alternative, referencing only that the SMZ alternative was rejected because the Program would have to be adapted to SMZ rules. Rejection of the "No Action" alternative was not well reasoned. Too much emphasis on recreational diving and recreational off-boat charter and private boat fishing eclipses the most important aspiration and objective of Artificial Reef Programs, ensuring the health and sustainability of fisheries. Consequently, there isn't effort and there is an utter dearth of studies –for New York's AR systems - to distinguish the extent to which fish density at reef sites result largely from production, from production and aggregation each largely contributing, or primarily from aggregation alone. A main aim of the Act is to ensure the vitality of our fisheries is sufficient to withstand continued and increased fishing pressures. Objective and impartial scientifically-conducted studies published or accepted for publication in reputable, peer-reviewed journals demonstrating production benefits to our fisheries should be paramount. The state can then balance these benefits against the potential for and risk of adverse economic and environmental consequences, and the magnitude of those consequences, when deciding whether the program should be expanded. It is my hope that the state at a near future date and before this programmatic expansion is approved, will quantify the reefs' effect on production, and does take the potentially adverse consequences identified during this public comment period as reasonable concerns and scientifically study them so a reasoned decision can be made as to whether this additional programmatic expansion should be approved, rather than assuming benefits, listing potential adverse impacts but downplaying their effects with unsupported conclusory statements in order to feign their consideration so support for an already decided approval is able to be back-filled with rationalization. In numerous places throughout the Draft, the State indicates or maintains the project benefits biodiversity to native species. For example, "The proposed Project would provide habitat for native aquatic species and thereby would enhance the aquatic resources and increase biodiversity in the area ..." [See CMP Consistency Determination]. Unfortunately, it appears that the state's only measure of "diversity" is that a number of different species of fish were observed at reef site during sampling. However, this is expected to result from aggregation, even where there's no increase in diversity. For example, suppose, as has been indicated in the review, that a site known to be an area of fish aggregation, such as an artificial reef site, has four times the number of fish as an equal area of flat benthic ocean floor. If reef sites do not add any diversity, but rather merely aggregate fish by a multiplier of four, the number of individuals found at the site should be equal to the number pooled over four flat benthic sites. In the case of no diversity effect, the number of different species of fish found at the reef site would be equal to the number of fish species found in the pooled total of n different large flat	coordination with national and regional groups (Mid Atlantic Fishery Management Council, National Marine Fishery Service).

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			benthic areas1 which combined have an equal number of fish as the reef site (in our example n=4). There are other ways diversity can be measured. Unfortunately, although DEC documented which species were present at reef sites, and how species composition differed between reef sites, no field study or statistical analysis thereof whatsoever comparing fish diversity at reef sites to diversity at non-reef sites was done or referenced anywhere in the Draft SGEIS or its appendices. Underwater shelters attract marine life, and substrate obviously allows sessile organisms to attach, and variety in substrate materials may yield increases in diversity of sessile organisms, invertebrates, and other marine life ecologically related to them. A priori, it does follow that fish diversity may result, but there has been no demonstration of this for reefs off Long Island referenced in the Draft SGEIS. The programmatic expansion seems to lack measurable goals. The Draft SGEIS does not identify any life history stage of any local species expected to benefit from the program that would allow the success of the program against its goals to be measurable; It merely references which life stages of local species are known to occur in areas selected for expansion. Does the state seek to benefit non-native species that have been shown to be in decline (further south) by creating 'stepping stones' of habitat areas for them in regions where they would not ordinarily be found? Which? It is not specified or even suggested. It is concerning that the Draft SGEIS does not identify goals or targets by which success can be measured. The Draft SGEIS is devoid of debate of substance relating to a thorough examination of the tradeoff between scientifically demonstrated improvements to New York fisheries production/diversity, and the creation of the hazard of2 invasion by non-native species which are known to wipe out or substantially impair endemic species, so as to understand where the tradeoff lies in order to guide responsible planning. E.g. lionfish aren't native to Atlantic waters, their venomous spines deter predation and there are few predators of them in existence. The NOAA concluded invasive lionfish populations will continue to grow and can't be eliminated with conventional control methods. These marine invaders are nearly impossible to eradicate once established. Non-native species can dramatically affect native ecosystems and local fishing economies. To use lionfish as an example, they feed on small crustaceans and fish, including the young of many commercially important fish species. Because they cannot be controlled, do not ordinarily occur in these waters, and put predation pressure on native fish populations, substantial concern is warranted that there will be adverse consequences to native fish populations and commercial fishing industries, especially as their invasions can be very rapid resulting in severe negative impacts to recipient ecosystems – and these are not the only non-native marine organism of concern3. It is my strong recommendation that the State develop risk assessment mathematical models National Fishing Enhancement Act's primary reason for enactment is the degradation of vital fishing resources and overfishing, and reduction in abundance and diversity relative to demand. For the reasons stated herein, and for failure to consider adverse consequences of the expansion about which I have sent communication to the DEC under separate cover, the Draft SGEIS is insufficient to estimate the environmental effects of programmatic expansion of the scale proposed. To finalize the draft into an SGEIS and move forward with the expansion without further consideration would be in conflict with the purpose of the NFEA as stated in §202(b), the promotion of responsible and effective establishment of reefs. If one uses the NFEA standards, the Draft SGEIS does not make the case that an additional proposed expansion	

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			of this scale should be approved at the present time. The NFEA mandates an artificial reef sustainable long-term plan in accord with the purpose of the title (Title II). I recommend developing mathematical models including risk assessment models and sharing them publicly and with the scientific community so that they can be review with some rigor. Or, if your office does not have the capacity, skill, or time to develop models and perform the modelling, it may seek outside assistance. There are numerous companies which provide this service4. Regards, Alena Walters	

DEPARTMENT OF ENVIRONMENTAL CONSERVATION
----------X

DATE: February 6, 2020
TIME: 6:00 P.M.

MINUTES OF PROCEEDING of ARTIFICIAL REEF PROGRAM PUBLIC MEETING, taken at the Freeport Public Library, 144 W. Merrick Road, Freeport, New York 11520, before Eileen Monteagudo, a Notary Public of the State of New York.

CHRISTOPHER LaPORTA: I want to thank everyone for showing up. My name is Chris LaPorta. I'm the artificial reef coordinator for New York State. Jesse Hornstein is also with the reef program.

We are here to give an update on the supplement -- the draft supplement of the generic environmental impact statement, and for the artificial reef plan for New York State.

If you have any comments, feel free to do that after so we can move this along.

A little history about the program and the mission. 1962 is when the program was first established, well before my time. In 1993, my predecessor, Steve Heinz, wrote a generic environmental impact statement and reef plan for New York State; that was the first.

New York State happens to be one of the very few states actually, if not the only, that has a GEIS running its reef program.

Obviously, very dated. When we applied for permits back in 2004 - the last one was 2004 and 2008 - the permitting agency and DEC said that we would need to update our GEIS,

which is the 1993 document. As you can see, it's very dated.

So, what we have done, we went and listed the services of HDR as a contractor. We have developed a draft supplement, which will eventually be a final supplement to the generic environmental impact statement. And that's right now, that's being done right now.

So, the program mission is to provide additional fishing and diving opportunities by enhancing global marine habitat through beneficial, secondary use of existing materials that are approved for artificial reef construction in the coastal waters of New York State.

The proposed action - and it's a big one, and the governor's office is all in on this - is to continue the use of the existing sites. We have 12 sites right now, ranging from Rockaway, all the way out to Shinnecock, two up in Great South Bay, two up in Long Island Sound, currently, and eight in the ocean.

What we are looking to do is -

shifting gears a little bit - we are looking to expand even more. Seven existing sites; Rockaway, McAllister Grounds, Hempstead, Fire Island, Moriches, Shinnecock and Smithtown will all be expanded from their current acreages. I will show a table later on that will show you all of those specifics.

On top of that, we are looking to create four brand-new sites. Three of them will be up at the Long Island Sound. They will be ranging - and you will see the map of them - from around the Mattituck area out east, and all the way back to Huntington.

And then one new site, which I had mentioned before, the Sixteen Fathoms site, which I'm very exited about because that will be a complement to the 12-Mile reef, which is out east.

This is where the real meat and potatoes are right here. So basically, this is where they are located. Going up to the Sound first, the existing sites, the Shinnecock Reef and Smithtown Reef, are the two that are currently out there.

So, what we are looking to do, as I said before, the Shinnecock Reef is currently 41 acres, and that is going to remain the same. The Smithtown Reef is now three acres. We are looking to expand that to 31 acres to bring in all the materials that are adjacent to it.

As far as new reefs go, Huntington-Oyster Bay right out here is one, Port Jefferson-Mount Sinai Harbor is number 2, and Mattituck Reef is number 3; all three of them, 50 acres each. Folks have been asking for longer than I have been at the home, and that's 2004, four sites up in town. So, we are particularly excited to get these; these are what we are proposing.

Now, going to down, basically, Yellowbar and Kismet will remain the same, so no changes with that.

Rockaway Reef is going to be expanded, if not by too much, probably about, maybe like, not quite half. Atlantic Beach will remain the same, McAllister will be extended, Hempstead Reef will be extended, somewhat.

This is the site I was telling you about

before, Sixteen Fathoms. The name, technically, it's going to be in Sixteen Fathoms of their amount, so it would be about 100 feet of water, and it will be 850 acres, so that will be very sweet, very large in complement to the 12-Mile Reef, which is out here.

So, moving from west to east, Hempstead will be expanded, Fire Island Reef will be expanded -- not significantly, by about 100 acres each, and I will show you the table very soon.

Moriches and Shinnecock, however, Moriches being 14 acres and Shinnecock being 35 acres, are going to be expanded, significantly, if all goes well through the proposal, to about 850 acres each, which is a really kind of a significant addition. And overall, getting to the end point, which we want, which will be to double the current acreage that New York State has for reefs.

This kind of spells it all out. As I said before, these are the current existing acreages: 413 acres will expand Rockaway to

propose at least 635.
McAllister expanding, significantly, from 115 to 425.
Fire Island is just going to go up 150 to 850.
Moriches and Shinnecock, significantly. We are talking like 99 percent increase on those.
Atlantic Beach, remaining the same, Hempstead increasing by 106 acres,
12-Mile will remain the same, and the same with Yellowbar and Kismet. Here is Smithtown, which is going up 28 acres to 31, Matinecock will stay the same, and then here are the other reefs that we had mentioned.

You can't really see it well down here, but it's 3,389 acres for the total acres that we currently have. We are looking to build that to 6,812 acres, for a net increase of 3,423 acres. This is going to be very significant.

All of this information is actually available on the SGEIS website, but feel free to take photos if you want.

The purpose and need, this is all in the supplement for the Generic Environmental

Impact Statement, number one, is to update the GEIS, the artificial reef plan to address all of these advancements that are currently going on.

A lot of water has gone to the bridge since we first started the program and after the GEIS in '93. So, basically to fulfill New York's obligations of the National Fishing Enhancement Act, and under the guidance of the National Artificial Reef Plan, which all artificial reef programs are intended to work with or under.

As I said before, providing fishing and diving opportunities for associated fisheries, and for our little finny friends and crusty friends out there. They really enjoy them. The resources are being done by a selective placement of our artificial reef habitats in both state, which is a majority of the sites, and also, federal waters.

And I didn't mention this before, but in federal waters right now, Atlantic Beach, Hempstead, and 12-Mile are all in federal waters. Sixteen Fathoms will be in the

federal waters also. That is outside of three miles.

Also, to enhance and restore fishery resources and associated habitat, that's basically utilizing the materials that we were putting out there that were all approved when they do that. And also, to administer and manage the artificial habitats to ensure its use, its basically fisheries management program. That's where it really came up from, Atlantic States Marine Fisheries Commission. In order to use these to enhance the local habitat, is to be using them as a fishery management tool.

These are some of the benefits. Secondary use, aquatic recycling, which is what I have called it for years. We can't use just anything. We are not ocean dumping. Basically, we are taking materials that have been used in the past, mainly vessels, steel vessels -- we used to use wood. These are materials, like rock and other clean materials that are prepared to our standards, the standards of the National Artificial Reef Plan,

and also, the New York standards, so that they can be placed out there.

It's a far cry from anything along the lines that we have been accused of in the past of ocean dumping. People think we put out barrels of oil, but we are not. This is a highly regulated activity.

We are adding more complex diverse habitat out there. Basically what we are doing is we look to improve on areas that are just big sandy bottoms. Basically, picture this room as a desert and what we are doing is putting materials on that that are going to profile a complex habitat. The bottom is living, but it is not as complex, it can't produce as much diversity by not providing this complex habitat, meaning height over bottom profile. It's basically key in artificial reef building. So, that is what we are looking for now; stable, durable structures that are going to stay.

The habitat that we are improving is basically for the critters I listed before; we are talking fish and lobsters as some examples.

It's out there for them also to feed on and to actually have refuge from other species, and also, some sporting opportunities. Actually, one of my co-workers had done her master's thesis on tautog sporting behavior out in Shinnecock. It also provides foraging refuge for threatened and endangered fish in various species.

So, these benefits, and it may take some habitat away, but overall what's happening is we are providing the same opportunities for them that we are for all the other non-threatened and endangered species. So, it is a very positive thing there too.

And as we said before, benefits to recreational scuba divers and some commercial fisherman, whereas it does actually take some of these areas off of limits, let's say, for any gear that's rolling gear, commercial, net gear, and whatever else. Pin hookers, people that hook and line fish, they can take advantage of this also, and some pot fisherman also. Fish pots are banned in New York State waters but lobster pots are allowed.

So, those are some benefits, obviously, for commercial and recreational fisherman out there, and also for divers. They know the benefits.

These are some of the impacts. There are physical, biological, human and marine regulatory areas. These are all things -- I'm not going to go through all of them because we would be here for an hour, but these are all explained in the document, which is available for your review and for your comments also. But as you can see, there are quite a few different impacts.

Now, the impacts are not necessarily negative, many of them are positive. But you would have to go through and review just to get a good idea. Basically, just as I said before, you're changing up the symmetry while you're putting down hard structure that is going to be allowing a lot of growth for them. It's going to become a great habitat and the diversity it creates is amazing. Hundreds of species can come in and inhabit a larger structure. So, that can happen.

Other things that I had gone over before, basically, threatened and endangered species, invertebrates, new homes for them; surfaces of attachment, as compared to -- they can attach to sandy bottoms, but a storm comes along and that just wipes them out. If you have a big piece that comes up, everything is going to attach to it and stay there for a while, and it's going to create a habitat for them. Special management zones, that is little bit more perplexing. That is not something that we are necessarily going to do, but we will have the opportunity to do if we need to. New Jersey ran into a situation with that and they had to create a special management zone. So, New York may do that in the future, as one of the opportunities that we have.

Some of the more permanent impacts, and then some of this mitigation that goes along with it in the symmetry. Relatively flat, featureless bottoms are going to be turned into a structured habitat, as I have mentioned before. Impacts for navigation, we

can only build up a certain height off the bottom because we need to allow for shipping to move through. So, that's mitigated by the permits that we have.

Just as an example, the deeper water sites, we can build up no higher than within 60 feet of the surface. Rockaway is 23 feet, so it will vary, depending on the actual site itself, the location, and that's determined by the permitting agencies and engineers.

The benthic communities are impacted negatively, unfortunately, by direct burial. But for what is lost there, whether it be heartlands or the life that is on the bottom, you're creating a much more productive habitat that is more stable, that is going to last a lot longer. So, there is a trade-off.

Then what I mentioned before about the commercial gear is, basically, no longer able to fish the areas. The basic trade-off there is the increased productivity, but also, the other thing to mention is the acreage -- the overall acreage and the amount that we have out there is less than one percent of the total

open water bottom, which is significantly smaller, overall.

Still, it doesn't negate the fact that if we are pulling back some of this by making it unavailable to other people, we are certainly sensitive to that, but at the same time, it's a situation where it's that much smaller, that it's almost a dismal when it's comes down to that.

These are the alternatives that are proposed in the SGEIS. So, these are all the things that we could do, we have our proposed actions, no action, which basically would be to continue the current reef program, no expansions, no additions, and that would happen and just go on until the current permits expire. When that happens, it is game over. They are going to continue to do what they are going to do.

The proposed action is what I explained before and what was in that tape, which basically shows the addition, the expansion of seven sites, the addition of four sites, and just a lot more room to grow on

that.

Fewer expansions, that's something that we were proposing before, which would just, basically, not as much as we are looking to do now, which is doubling the total acreage. We were looking to do maybe a third or thereabouts, not quite -- maybe closer to a half, I would think. But overall, certainly not something like what we are looking to do now. Maintaining the current program, what that would be is that would be renewing permits, but no new sites and no expansions.

So, we would build out. It would, basically, allow us to build for years to come. But after a while, what happens if when you are building on reefs, there's only so much area. And we build through the patchwork area. So, you have to leave some space in between.

So, it's a matter of time. Maybe it would be - I don't know - a permit or two before there's no more room to build on those. So, that's what maintaining the current program is.

Basically, the special management

zones, that actually is, basically, where we could use regulatory means to limit fishing or any activity on these sites, whether it be fishing, or diving, or just -- we can make them complete zones where everybody can come in and use them, whatsoever. So, that's not something that we would, necessarily, want to do, but that would be in our purview if we wanted to do that.

So basically, quite a few different alternatives there, but the proposed action is what we are looking to do.

Basically, as I said before, the GEIS is available right here. You can find out more information, but on the web page, there is a PDF that you can get to on there. Also, this is where you can provide public comment here if you would like, or you can provide public comment through the electronic highway, through an e-mail. It would come to me, we would make record of it, and that is all brought into the whole process. But basically, it's a very small idea of what's going on down there.

This is a tug that was sunk in

Shinnecock at the very beginning of the program, under the governor's initiative. It was a very, very productive area down there, a destination for divers, also. We are hoping to bring back all fishing and diving opportunities, overall. So, that's pretty much the long and short of it.

CARL LOBUE: Chris, what was the date for the comments?

CHRISTOPHER LaPORTA: So, folks have the opportunity, if you choose not to make comments now, which you are welcome to, you can do it through either written or the e-mail system.

JOHN POULOS: I have a question.

This is all very good, and I think it's a really good use of these resources that we no longer need; steel, structure, stuff like that. But why isn't any of this structure -- and I'm not talking about boats, I'm talking about all that beautiful

steel from the Tappan Zee Bridge, why isn't it being used for an artificial reef that will stop downtown Montauk from eroding away? Isn't anybody's right hand looking at what the left hand is doing here?

Shadmoor State Park, the cliffs used to be about a hundred yards into the ocean; it's eroded down. There's no more sand replenishing town beaches, right? It's all a matter of energy, the way the actions are moving the sand westward. If we could get the waves to release the energy - you're talking to a guy who flies planes and surfs - if you get all this energy to release on the reef off of Shadmoor, it's not going to be able to cart all that sand away.

They are spending millions of dollars to put sand on the beach that is being washed right away, and all this economic impact -- this is great

that you're doing this, but this should be secondary to using this steel to do something good for the entire economy of a village.

Is anybody giving this any consideration? Is anybody looking at what's going on, and saying we have these assets and resources? First things first, let's stop the town from washing away. I mean, it's insane the way I see it. What do you think?

CHRISTOPHER LaPORTA: Well, basically, what I can tell you is that the Artificial Reef Program and the way that these programs function is far afield from shoreline protection.

JOHN POULOS: This is an artificial reef. I'm not talking about --

CHRISTOPHER LaPORTA: I understand, and I'm going to explain to you. It's basically -- and I have

had -- you're not the first person to ask. I have had quite a few surfers over the years ask me.

JOHN POULOS: It's not about surfing.

CHRISTOPHER LaPORTA: No, but it's part of it, and I understand what you're saying about trying to protect the shoreline. Essentially, when we build reefs, we build them as fishery management tools, for enhancement for the fisheries, themselves.

JOHN POULOS: We do that.

CHRISTOPHER LaPORTA: If we were to build something closer to the shore, like what you're saying, the amount of energy that hits these pieces, what we do is we want it to sustain itself to grow and to stay. If we put things out in the high energy zones, they get beat up real bad, they get buried.

So, what you're going through

is a cycle of destruction and replenishment. That's not what we are looking to do because they are going to be barren at certain times. It's kind of an apples and oranges thing, if you understand what I'm saying.

JOHN POULOS: I understand. My question isn't why aren't you creating a fishing reef there. Why isn't this material being used? I mean, it's great, but how many recreational fisherman are you benefiting -- it's not that I'm against it -- as opposed to the economy of the entire freaking town and all the millions are having sand dumped on -- isn't anybody working together here?

CHRISTOPHER LaPORTA: Well, that would be a situation that you would have to bring up with, say, maybe the governor's office.

JOHN POULOS: I wouldn't waste

my time. Do you have some place where I could write a comment down; a piece of paper or something?

CHRISTOPHER LaPORTA: Yes (handing).

JOHN POULOS: Great. Well, thank you very much.

That's all I came here for. I think it's a good idea, but first things first. All the steel from that bridge --

CHRISTOPHER LaPORTA: I can tell you this also. We didn't get a lot of steel. We got much more concrete.

JOHN POULOS: Because in the '60s and '70s, there were a lot of big boulders out there and there was an erosion problem. Concrete, steel -- anything is better than what they're doing. It just --

CHRISTOPHER LaPORTA: It could very well be more of --

JOHN POULOS: Well, you could

turn it into a great fishing spot. All those small fishing boats -- I'm in the marine industry. All of those little cuddy cabin guys, it's right there. It's such an obvious spot to create a fishing reef and to kill two birds with one stone, but that's -- jeez.

CHRISTOPHER LaPORTA: Please do submit it. We do take that into account. We had someone just recently -- as a matter of fact, just yesterday, putting a site to the west of Rockaway. So, new places are something we would like to consider.

JOHN POULOS: Yeah. It seems to me it would be sufficient with how bad it's eroding. Where it's right up to the street, used to be 100 yards of beach when I lived there. You had to walk hot sand, as far as you could see, to get to the water. Now, it's just at the street.

You have to release the

energy. You've got to release the energy somewhere, not on the beach.

JOHN POULOS: Have a good night.

JESSE HORNSTEIN: Anybody else have questions?

MARK HARRINGTON: Mark Harrington from Newsday.

Can you explain why it's such a large expansion to those two or three that are going up to 850? And do you have materials sort of earmarked for that to build it that large?

CHRISTOPHER LaPORTA: There is quite a few -- there is lot of material out there. More comes into our sites as times goes on. As I mentioned before, there is potential for large volumes of rock to come -- construction material comes our way from time to time. Only certain things we will accept because they need to meet our guidelines, overall.

But there are large numbers of steel vessels, larger pieces out there too.

There is a discussion of that cost. There has been discussion of a lot of other materials that are out there. So, a lot of it really comes down to funding, and that's the way it's been for a long time. We would have put a lot more material out years ago, but it's an expensive proposition to do. We are looking to move forward on that.

I don't think there's so much of a situation where there's a lack of material. It's a matter of securing it, preparing it, then transferring it out, and sinking it; and all of that is a lot of money, it can take. We basically take one project at time. We have -- I don't know. We have at least - I don't know - a dozen going on now.

JESSE HORNSTEIN: Yeah. I

mean, part of the material issue is when and where they come about. So, if there's a construction project going on, and it's right on water, it's a perfect opportunity to get that and barge it out to the reefs. But a lot of construction projects going on further from the water access, they may not be quite as easy to get them down to the reefs.

So, part of the material issue is just the opportunity to finding the materials when they are there for the taking, essentially. It's not an easy thing to do.

MARK HARRINGTON: Did you say railcars?

CHRISTOPHER LaPORTA: They are big to consider, just like subway cars have been in the past. Railcars have come into the picture, among other things. There is quite a bit out there. Variety is always of interest. We are trying to vary

that. They would be more of steel. We do use green steel, green concrete and also rock. So, something like that could happen.

MARK HARRINGTON: Is there any consideration given to downsizing some of the spots? The acreage seems like a pretty large sudden expansion to do 400.

CHRISTOPHER LaPORTA: That's what we were originally considering, but the thought was to be going larger. The way we build -- and I don't think I made this very clear before. We build in a patch reef method. When you build patch reefs, you are purposely leaving spaces in between materials.

So, when I design targets to put these materials down, I try to keep them far enough part, so that you're having natural habitat in between. So even though it may be sand, there is still a lot going on

down there. There is a lot going on, whether it be sand dollars, which we just recently came across in some of the video.

It's also known that live sea bass like to forage actually off the structure, and not on the structure, itself. So, you're trying -- and some are fluke, some are flounder on the structures also, and out and around.

CARL LOBUE: Just a follow-up question.

The fact that you guys are going out to designate these areas, it could be a really long time before it gets filled, so I think it makes sense to drill these areas. That would make these other areas off of Shinnecock and Moriches on par with Fire Island and the other reefs that you kind of want the same size; is that correct.

CHRISTOPHER LaPORTA: It's

actually a very good point Carl is making. Because the two sides of Shinnecock and Moriches are very, very active. We have had sponsors in the past that have created a lot of reefs. They are at 14 and 35 acres -- tiny, compared to Hempstead and Fire Island, which have been around for just as long, and both of those are 744 acres.

So, the expansion out east is, basically, to bring them on par, but also very active areas out there. We have received materials from up north. We have worked with New Bedford in the past.

JESSE HORNSTEIN: I will also say too, one of the things we do is an aerial survey of reefs to get more of an idea of usage of the reefs. So, one of the things we found out through that study is the bigger reefs tend to have more people fishing on them.

Part of the program is also to provide this habitat, which then provides an economic benefit to recreational fisherman, divers, and so on. So creating these bigger, larger sites will, in theory, also have a bigger economic impact on the Long Island economy and allow more people to fish on those sites, as opposed to having a smaller space, where you can only get so many people fishing on there at once.

MARK HARRINGTON: Is this a situation where the amount of debris, the amount of material is driving the size, or is it the plan that is driving the size and looking for material?

CHRISTOPHER LaPORTA: Well, basically, the plan does drive it to a degree, but the situation being, if we had something very large offered to us, we are trying to plan ahead. So say the deep water sites or the

larger sites, if we had something very large offered to us, say like a 300-foot vessel, or something along those lines, we can't really put that on Moriches right now, or even Shinnecock, because they are already so small and they are already well populated.

So, it's kind of a little bit of the chicken and the egg, but at the same time, we are trying to look into the future. And the plan right now, as Carl had pointed out, which was very, very well put, if this happens, we are going to be building on these sites for many, many years to come. It's not going to be something where we fill them up next week. It's going to be many years, probably after I'm retired.

MARK HARRINGTON: Is there a big construction project concept that's in the works?

CHRISTOPHER LaPORTA: There

are different projects that we have become aware of, but nothing more specific than the West Point project, and even that is not definite.

JESSE HORNSTEIN: That's another thing. A lot of projects have come up, but it's never definite until the end.

CHRISTOPHER LaPORTA: Yeah. I have had quite a few slip through my hands, including others that looked really very good, unfortunately. That is just the way it works in the reef business because we think the beneficial secondary use of reefs material is the lesser expensive disposable option.

Essentially, if the construction groups are looking at this -- like, we have the Mill Basin Bridge, we have City Island Bridge material, also. That's because it was less expensive for them to bring the material because it was located

on the water, as Jesse had mentioned before, less expensive for them to actually put it on a barge and take it out to the reef site, which actually makes it to now be a win-win, than to be a landfill, which landfills erode also.

MARK HARRINGTON: I have another question, which is is there any thought to or is it done, any sort of the preparation for the site beforehand before you drop this, as opposed to just dropping everything?

CHRISTOPHER LaPORTA: Very, very focused surveys need to be done beforehand. We dont just go out and grab the site. Basically, what we have had -- the imagery work done to see what's on the bottom right now, and also sediment work to see if it's a productive habitat.

We also reach out, when we can, to fisherman to see if there's any commercial work going on over

there, the same thing, surf clammers and things along those lines. All of this is brought into effect beforehand. That is also why we come out for public comment.

JESSE HORNSTEIN: You know, these sites are sited in areas to avoid things like very dense surf clam beds and very popular commercial fishing. We want to avoid those areas.

CHRISTOPHER LaPORTA: Yeah. We are just looking for, what I would call, a desert out there. It's still alive, but technically, just sand, for the most part. I have dove on these many times, and all you need to do is just go off the site maybe like 50 feet, and literally, it's just a desert, and then you come back to this structure, and it is just an oasis. It is just amazing.

PETER KISSINGER: Yes, how are you? My name is Pete Kissinger. I'm

a pin-hooker, and my father was a party boat captain for years.

On your reef program, that's great. But you're saying it's supposed to spread stuff out on the Atlantic Beach Reef, they call it the wall. It's a mile long. On the weekend, there's a thousand boats there. Everyone is fishing there on top of each other, we are losing anchors. And I mean, my best fishing is on little drops that are half the size of my boat.

You're building a bigger fish area and habitat of the fish, and I'll tell you this much, that is more profitable for me. Even some of the tugboats and barges are sinking. You're burying them there right in the middle of the reef and then dumping more concrete on top of it.

CHRISTOPHER LaPORTA: Actually, your point is well-taken about the rock wall. That was an

experiment.

PETER KISSINGER: But even Rockaway Reef. You have stuff from the bridges right in the middle of the reef, which I stay away from because it's very populated. It's very hard to anchor there. They were dumping all that new debris right on the stuff that already had growth on it. You're killing it and it's going to take that much longer to build up.

CHRISTOPHER LaPORTA: The thing is it's more of replenishment because what happens --

PETER KISSINGER: Well, I'm just saying. I fished the dropped for years, and my father fished them too. They are the size of -- twice the size of that table, and they are very productive. We hit, we run, and there's maybe 50 drops like that. There are guys who do it for a living. It keeps the sport fisherman away from it because they can't

really accurately anchor on it.

CHRISTOPHER LaPORTA: It's not an exact science, I'll tell you that, after my 20 years of doing it. It's a situation where we have stayed way from Rockaway for quite a long time. It's very low lined. It was supposed to be originally built well before my time as a drift fishing reef. I have dove on it before. There is not really a lot of high profile. A decision was made.

PETER KISSINGER: There's second ground tackle. You know, every time we go to anchor up, you can't even drop your anchor. If you go another 15 feet, you still can't drop your anchor.

I stay off the reef. I fish the little drops. It's more -- I'm just saying, if you can make little drops -- it doesn't have to be 15 feet. It has to be maybe three to five feet, and that is very productive as well.

CHRISTOPHER LaPORTA: I will

take that under good advisement for the extension of Rockaway.

PETER KISSINGER: People I am friends with who are in the field feel the same way. On the weekend, you can't even get in there, and there's guys five feet away from you just anchoring on top of you.

CHRISTOPHER LaPORTA: It's unfortunate, but as Jesse was saying before about the aerial service that we do, we have been counting boats for a long time, and it's amazing how many more you get to the west because of the number that are out there. So essentially what you're saying, there's no way I'm going to refute that.

PETER KISSINGER: If you made a lot of little drops --

CHRISTOPHER LaPORTA: That's what we are trying to do. That was done a long time ago. That was done, once again, kind of experimentally.

Let's do this as a drift fishing reef, let's say. So, we now have the opportunity to build out another 220 acres; that would be to the south of that area. So, that is where we are going to start working.

PETER KISSINGER: It seems like Rockaway, it's the same debris. There is a seaweed bar there. We are able to anchor in a safe manner, but it seems like when they did those, they were drifting and just cleaning the rest of the barge off.

CHRISTOPHER LaPORTA: They put a lot of material there. If you think about it, it's 430 acres. When we were putting the -- actually, the transco pipes went out first. Those actually went out in 2015. Those were put down in like 2016, 20 to 30 pipe drops. And those were very effective. We started that with something different.

PETER KISSINGER: Even the

Atlantic Beach Reef, they dumped the Good Humor trucks years ago, and they just dumped all that railroad right on top of the barges and everything, and covered it.

CHRISTOPHER LaPORTA: I can't speak to that. All I can tell you is the way I build reefs, when I do that, is basically something goes down here, something goes down here. I keep them apart as best I can. Sometimes, I will try to put them close enough to where, say, divers may be able to get from one to another. It's not as easy to do, but that can happen sometimes.

But I will never -- unless we can document that the material that is down there is dead or pretty close to being dead and unproductive, then in the reef building business --

PETER KISSINGER: As far as you had old army tanks on Hempstead, they are all spread out. We can

anchor shipS to them, some barges that are spread out. But when everything is on top of each other, you just have a big line of boats on the weekend.

CHRISTOPHER LaPORTA: That's the unfortunate part. And that is actually speaking to what Mark was saying before. As far as the expansions go, and we touched on this too, is that's another reason for expanding these. This is what you don't have.

I have been on the Hempstead Reef trying to do a dive with friends and, literally, every piece was being hugged that day, and we had to wait until the afternoon for someone to move off a piece, so that we could go in.

So, the purpose of doing these expansions is to allow more opportunities for both fishing and diving, and then the replenishment,

which basically takes time. So, that's it.

BRUCE FORRESTER: Bruce Forrester. I'm a board member for the Freeport Tuna Club.

We are very much in support of expanding the territory and provide the funding to increase the size and numbers of the reefs. Our member take great advantage of all these pieces.

As far as the Shinnecock, I wanted to ask, how did you select the Sixteen Fathoms as a location, and you and I had spoken briefly about the upcoming impact of the wind farms in Collera [sic] that are coming, apparently, and how that affected your decision making and where that should go.

CHRISTOPHER LaPORTA: Initially, to address that, Bruce, initially, when my predecessor, Steve Heinz, and I were talking about

creating deep water sites, 12-Mile, which is what you say before, that was supposed to be the eastern site, which did come to fruition. The Sixteen Fathoms Site, which was actually the original, was supposed to be around the Collera event.

That's what we thought would be most productive as a deep water site to the west. It's not as deep, but as large of a site would be good, and advantageous to both sides, meaning east and west fisherman and divers. That, unfortunately, didn't come through because of issues -- requirements that were being required by the Coast Guard. We just couldn't fulfill them, at the time. So, Sixteen Fathoms went away.

Now, with this happening all together, in looking at what was available to us in all of these leased areas, it just did not make good sense -- sense is probably not

the right word. There's a better chance of having this proposed site be put in a little further to the east than it would be to the west.

So, the current location, which is not by Collera, it's a little bit of a distance from there, that's how we arrived at that overall.

And then when you were talking about the wind farms, the monopiles that are going in, those would be the fact of artificial reefs in a different way. We can only build up a certain -- for navigational purposes, we can only build up a certain amount of height off the bottom.

So, that's -- it will be interesting when all that happens, overall. So that's a little bit of a competition, in a good way. It all depends.

JESSE HORNSTEIN: Yeah. While

all these sites are proposed in these areas, depending on the feedback that we get for the permit, they may shift around a little bit here and there. So that may not necessarily be the final location, but just to put that out there.

CHRISTOPHER LaPORTA: That's a very good point. Surveys that are being done right now, HDR has been doing quite a bit for us, the consulting company looking at what's out there, say, the Sound, in particular. The Sound is a very busy place. We have to avoid areas where there are cables down there, whether it be existing shellfish beds or productive spawning areas, anything along those lines.

Also, another thing I didn't mention before was I was talking about sandy bottoms. Some of these bottoms may be silt or mud. And that we'll avoid, because it's -- things

sink into them a little bit quicker. It's not as productive a habitat. It could be potentially hypoxic during the summertime too.

So, we try to avoid any area like that, that would cause any negative issues. It's all about making homes for our little finny and crusty friends.

CARL LOBUE: Something for you to think of, I said on my survey, environmental technical working group, we have a meeting on Monday. They are just about to fund a 5.5 million dollar geophysical and geotechnical survey of the potential lease areas. They could probably cover this Sixteen Fathoms Reef for, like, no cost for you guys.

So, they haven't written a contract yet. If you send them a map, I mean, the boats can be out there to a cover a piece that size is, like, nothing. But that's going

to happen in the next eight months. It would give you to the geo -- it will tell you what the bottom looks like.

CHRISTOPHER LaPORTA: Absolutely. Thank you for letting us know about that. As Jesse said before, it may not necessarily go right on that spot, but the more information --

CARL LOBUE: They haven't written the contract yet, but they will be in the next couple of weeks. So give them a call, and send them the coordinates. It's worth a shot. It's a free survey.

CHRISTOPHER LaPORTA: I heard there was a lot of work done after Sandy, and I can't get my hands on it. It probably would have been awesome to do that. It would have saved us a few bucks.

JESSE HORNSTEIN: Did you have a question back there before?

JOSEPH MARESCA: My question is, basically, your funding. Where do you stand on talking about all this material and all that?

CHRISTOPHER LaPORTA: Right now, the New York government is coming up, New York Power Authority, among others. That's some of the bigger funding that we have received recently. There will be other sources that will come forward also. Folks that are looking to, say, donate materials. They will help out too.

We have had sponsoring organizations in the past, and now that the Reef Program is beginning to ramp up again, the word will be going out. I have been talking to Bruce in the Freeport Tuna Club about possibly helping out in the future. Other, say, fishing clubs, the Moriches Offshore and Moriches Anglers, actually subsidized quite a bit of

the Moriches Reef, which is now going to be, hopefully, expanding too.

So, we do get some internal funding through, sometimes, the Environmental Protection Fund, through state funding. Then any match that we can work with, we certainly will.

So, things are coming around right now. The governor has been very, very helpful with this artifical reef. We started this in 2018, and we have seen some serious significant growth in those two years, as compared to -- I mean, it certainly was not precedent.

JOSEPH MARESCA: Basically, whoever is providing the material, basically, is going to have to donate the dollars to move, dump it.

CHRISTOPHER LaPORTA: What happens is the materials from the Tappan Zee, that was all donated. Basically, I believe a majority of

that was donated, but funding had to come up with to, basically, take the materials, prepare them in any way that we needed, take plastics off them or anything that was not an acceptable for reefing. After the preparation, then they get loaded on and they get taken out. So, all of that was extra funding.

People come to me, and I have had it done a lot in the past. I had -- there was a 220 steel freight up in Massachusetts. They were going to give it to me for a dollar. We didn't have two nickels to rub together, at that time, in order to take it out. That was a shame, missing that.

So, the reefing business is a hit and miss. A lot of it is if the funding is available, we can do it. If there is a lesser expensive opportunity, it happened in City Island and Mill Basin. They came to

us. We worked closely together.

So, that's how it works. It's pretty complex, overall. If I ever won the lottery, it would be a different story, but we will see what happens.

MARK HARRINGTON: Is there any plan to remediate older sites that have things like tires and stuff that you would not be dumping there?

CHRISTOPHER LaPORTA: We are not aware of where the tires are, at this point. Basically, I haven't seen them diving on spots, that I can recollect. A lot of the materials, and that's why we don't use things like tires, is stability and durability profile with them is totally lacking. Basically, if you look at a tire, it is a durable structure, it's going to last a long time. It is not stable at all.

Any materials that we put out, which is really paramount, is that we

have a permit to put materials down on these coordinates, this square, not outside of it. If something goes outside of it, it's a violation of the permit.

So, the reason why we don't use things like, say, tires, is because they are either going to move, or they are going to get buried, just like the gentleman was saying before. I was trying to bring that out.

So, what I have seen so far, and from the video that we have taken under water, we haven't come across things like, say, a field of tires or something along those lines. North Carolina had that horror show. So, the assumption is whatever we put down, or whatever was put down many, many years ago, decades ago, is either buried -- more than likely, it is just buried, just gone.

JESSE HORNSTEIN: And we will

replenish those areas with new materials and create productive habitat again.

CHRISTOPHER LaPORTA: Similar to what we were talking about with the Rockaway stuff.

JESSE HORNSTEIN: Stuff gets buried over time, and sometimes, the ships will break apart, and then they fall to the sand, and then over time, you need to replenish it with new materials to keep the reefs producing and functioning.

CHRISTOPHER LaPORTA: Those large pipes that we put down on transco, the transco pipes on Rockaway, they are beautiful. But the problem was they don't have a bigger profile, so over time, what's going happen is it will just work its way into the sand, and it will be buried in the next ten plus years.

MARK HARRINGTON: Can we talk about the non-native species that get

attracted to these because it's warming, which species are these, and how much of an issue is that?

CHRISTOPHER LaPORTA: With different species, we are in the early stages of that right now. We have traditionally and historically had tropical stragglers coming on on the Gulf Stream. That has been happening for a long time.

MARK HARRINGTON: Those aren't native?

CHRISTOPHER LaPORTA: Fish that might come in that would be displacing native species, or indigenous species, say like black sea bass, tautog, porgies, those, I'm not aware of any competition right now -- any heavy competition that would be displacing them.

JESSE HORNSTEIN: I mean, I think as far as reefs go, whether or not they are there or not, as the water warms and changes, they are

going to have this competition regardless of the reefs being there or not, and naturally, every year, you get tropicals and all kinds of different species that make their way up here. Right now, winter is getting too cold for them. Most of them, they don't make it back down south, they end up dying. But as the water warms, things are going to change and it will certainly be an interesting study, if nothing, to watch as things change.

CHRISTOPHER LaPORTA: Fortunately, we haven't experienced anything like, say, Florida is with the line fish. That is a non-native species that is coming in, and taking over, and not in a good way. So, hopefully, it won't happen in our life.

MR. HARRINGTON: Is this going to be the largest on the east coast?

CHRISTOPHER LaPORTA: Not on

the east coast. Other programs have larger sites. I'm just going to say, like I'm just going to cite South Carolina because I'm familiar with their program. Their largest site is I think, if I remember correctly, two miles by six miles. The 850-acre sites are one square nautical mile. So, to give you an idea, that one site is bigger than all of our sites put together.

New York is trying to get in the game a little bit more. We are trying to beef up. It's long overdue. And thanks to Governor Cuomo and his artificial reef initiative, we are moving in the right direction, overall. There is a lot more to be done, and hopefully, through the supplement to the GEIS, we will be able to take care of expansions, and get more material out there, and get more opportunities for our fisherman and divers. That's one

of the goals.

MR. HARRINGTON: Is there a budget for it, or is there a number that you have allocated as a budget this year?

CHRISTOPHER LaPORTA: I don't think we have anything specific set in stone right now. There have been some --

JESSE HORNSTEIN: It varies from year to year, but there is -- I mean, they are looking into a budget line for the program, and putting it more on par with other states.

CHRISTOPHER LaPORTA: There has been discussion, but nothing is set in stone. Ideally, that is what you would want to have. You would want to have a, say, specific identified funding source, but right now -- or something that will be a budget. Many different states have these three different things, like, say, licenses and things along those

those lines. So, we will see what happens in the future.

MR. HARRINGTON: And how soon will this start, if approved?

CHRISTOPHER LaPORTA: When we get permits.

JESSE HORNSTEIN: We are hoping to get the permits. So, after this is all finalized, this is a draft, and then when the commentary closes, we will get it revised and turn it into a final document, and then permitting process, we are expecting, within the next year or two, to have these permits.

So, it's a long process, but we also have to get other studies done on some of these sites. So, there is a lot of moving parts.

JOSEPH MARESCA: Is there a finite light for the permit?

CHRISTOPHER LaPORTA: Technically, they are usually ten-year permits. There are

five-year permits, as well, but in New York State, all of ours have been ten-year permits. So, certain permits, the ones that we originally had -- not originally, but the ones from 2008, 2010, they will be expiring this year. So, we are hoping to either get an extension on those. We probably won't have them renewed by then, but we could apply for an extension.

Ideally, what we would like to do is just marry all the permits together. I think we are going to be under one instead of separate ones.

JESSE HORNSTEIN: Just another thing about the permits. They may come in shifts. So, like, all of them might not come at once. We may get permits for some sites and then permits for the other ones, at a later time.

CHRISTOPHER LaPORTA: It takes more time to permit a brand-new site,

because you need to -- it's something that's, say, as compared to something that can be grandfathered.

So, the expansions of, say, Shinnecock, Moriches, Rockaway, Hempstead, and Fire Island, and also Smithtown, those would be possibly an easier take on that, because it's -- they are kind of adjacent to existing. So, we have data on them and good information, compared to the site at Sixteen Fathoms, as with the case with 12-Mile.

MR. HARRINGTON: Is there a reason why you haven't done any of these programs out by Montauk? Why not go east?

CHRISTOPHER LaPORTA: Basically, we have had some input about that in the past. We tend to stay away from very productive areas, if we can, because there's a lot of other areas that really need it. It's not that we don't like the folks

out on Montauk, but they have a really productive fishery out there. Also, the water is a lot deeper. There is a lot more live bottom.

JESSE HORNSTEIN: There is a lot more rock and rock habitat. In Montauk, the old saying is "If it ain't broke, don't fix it." It's some of the prime fishing on the east coast.

CHRISTOPHER LaPORTA: Probably one of the reasons why Connecticut doesn't have a reef program, because they have all natural rock over there?

Anybody else, comments? I think we're good.

JESSE HORNSTEIN: Thank you all for coming.

CHRISTOPHER LaPORTA: We very much appreciate your input. Thank you for coming down.

JESSE HORNSTEIN: Yeah. If you have any other comments, the

period is open until the 21st. So, feel free to send them in to us.

CHRISTOPHER LaPORTA:

Appreciate it.

(Time noted: 7:12 P.M.)

C E R T I F I C A T E.

STATE OF NEW YORK)
: SS.:
COUNTY OF SUFFOLK)

I, EILEEN MONTEAGUDO, a Notary Public for and within the State of New York, do hereby certify:

That the witness whose examination is hereinbefore set forth was duly sworn and that such examination is a true record of the testimony given by that witness.

I further certify that I am not related to any of the parties to this action by blood or by marriage and that I am in no way interested in the outcome of this matter.

IN WITNESS WHEREOF, I have hereunto set my hand this 6th day of February 2020.

_____
EILEEN MONTEAGUDO

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

----------X

DATE: February 10, 2020

TIME: 6:00 P.M.

MINUTES OF PROCEEDING of ARTIFICIAL REEF PROGRAM PUBLIC MEETING, taken at NYSDEC Marine Resources Headquarters, 205 N. Belle Mead Road, East Setauket, New York 11733 before Stephanie O'Keeffe, a Notary Public of the State of New York.

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MS. SOCRATES: Good evening everybody. Thank you all for coming.

I'm Julia Socrates, the Bureau Chief of Marine Habitat here at the Division of Marine Resources. Our Assistant Division Director, Dawn McReynolds, is here as well. This is Christopher LaPorta from our Marine Access and Artificial Reefs Program.

Tonight we're here to seek comments from all on our Supplemental Generic Environmental Impact Statement for our Artificial Reef Program. Chris is going to be giving a presentation about the GEIS.

Before we start that, just to let you -- some of you have been here before, but we have exits at the back of the room. Over here is an emergency exit if we need evacuate. Bathrooms are down the hall to the right.

If you haven't already done so, please sign up and let us know that you have been here tonight.

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If you would like to speak, you can check off on there that you would like to make a comment. If you don't wish to speak, there is also a form you can fill out or take with you afterwards.

Chris is going to go through the presentation. We ask that you hold all of your comments to the end. He'll call the people that have checked off that they want to speak.

After that, we will open the floor to other additional questions for people that have changed their mind about speaking.

Chris.

MR. LaPORTA: Thank you, Julia; and thanks everybody for showing up.

It's pretty exciting times in the wonderful world of New York reef building. As many of you know, it's been quiet for quite a few years up until 2018 when Governor Cuomo decided to step in and give us some resources to

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get the job done.

The presentation we will be talking about tonight is what Julia mentioned, the Supplemental Generic Environmental Impact Statement.

What that is going to give us is what we need in order to move forward.

(New slide.)

A little program history, back in 1962 is when the reef program was officially established, let's say. In 1993, my predecessor, Mr. Steve Heinz, some of you may know Steve, he was the one that actually wrote the Generic Environmental Impact Statement and Artificial Reef Plan that this program has been operating on since then.

'93 is a long time ago. Guess what, it needs to be updated, so that's what we're doing here now.

In 2020, the draft Supplemental Environmental Impact Statement was completed. That is basically gonna update the '93, and this is what we are

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going to need to move forward for new permits, etcetera.

Simplified, the program mission is to provide additional fishing and diving opportunities by enhancing local marine habitat with the beneficial use of approved materials to construct artificial reefs in New York's marine and coastal district.

(New slide.)

Okay. This is the proposed action, this is what we're currently proposing to do.

We're gonna continue the use of all the previously permitted reef sites. There are currently 12.

We're looking to expand seven of those sites. Essentially what we're looking to do is double the current acreage. Those sites that we're looking to expand are Rockaway from West to East Rockaway, the McAllister Grounds slash Fishing Line Reef, the Hempstead Reef, Fire Island, Moriches. Shinnecock and

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Smithtown up in the Sound. All of these are either, or they're all the ocean, south shore.

The other exciting news is, we're looking to create four new artificial reefs. Three of them will be in the Sound, many people have been waiting for this for a long time. When I started at the helm 20 years ago, people were asking about getting new signs, new sites, excuse me, up in the Sound. Three will be in Long Island Sound -- I'll show you the locations that are proposed, none of this is set in stone -- and one is in the Atlantic Ocean, that will actually be south of the Fire Island Inlet, a little bit to the west.

Okay. Here we are. Let's see if this actually works on here. No, it doesn't. That's not a surprise.

(New slide.)

Okay. Starting up in the north shore to the west, starting over here

(indicating) at the Shinnecock Reef, basically looking here, Huntington, Oyster Bay is the first new site for the Sound. This is the second (indicating) Port Jefferson and Mt. Sinai. As you can see, they're strategically located near areas of egress where there are boats, marinas, etcetera. The last one is Mattituck Reef, over here (indicating). Those are the 350-acre sites that we're proposing.

Also, the Smithtown Reef, a lot of material that was placed not on the coordinates many, many years ago, what we're looking to do is expand that site in order to include all the materials there, so it will all be one happy family.

Now, moving on the south shore from the west to the east, Rockaway Reef, we're looking to expand, and I'll show in the table following this, the size of the expansions. Expansions, Rockaway Reef, McAllister, Hempstead,

the brand new site, which is particularly exciting to me is Sixteen Fathoms which will be the complement to Twelve Mile Reef. So Hempstead expansion, McAllister Grounds expansion, Fire Island Expansion; Kismet and Yellowbar will stay the same; Moriches and Shinnecock also expansions; and Twelve Mile will remain the same.

(New slide.)

Okay, now we're gonna show you it in numbers. Some very significant expansions. Starting with Rockaway once again, currently 413 acres, the proposed acres we have, are looking for, are 635, an expansion of 222 acres, significant expansion.

Going to the McAllister Grounds, that will be really quadrupled. That will go from the current 115 acres to 425, a net gain of 310.

Fire Island and also Hempstead are in the same ballpark, they're our second-largest sites at 744 acres, we're

looking to round them off at a square nautical mile to 850 acres, a net gain of 106 acres.

Shinnecock are Moriches are the big gains because they are currently very small and very populated, 14 acres for Moriches, 35 acres for Shinnecock, bringing them both up to 850 acres. Once again, proposed, nothing is set in stone, but this is what we're proposing to do, and that will be a net gain to a serious amount of acreage there.

Moving on, Twelve Mile Reef will stay the same at 850 acres.

Yellowbar and Kismet will stay the same.

In Great South Bay, no expansions there.

And as I said before, Long Island Sound, Smithtown going to 31, a net gain of 28.

Those are all the expansions that we're looking at right now, the proposed expansions. Then we move over to the

proposed new reef sites.

As I mentioned before, 850 acres for the Sixteen Fathom Reef, that will be the complement to Twelve Mile Reef. Both deep water, that's in about 100 feet of water, twelve miles 120 to 140.

And then we go to the Long Island Sound, each of those will be 50 acres. We're kind of like wading into the waters gently because it's a very productive area and when we site the different reef sites, we try to put them in areas that are not productive at all.

Those are the current -- and also, I should review this, we're currently at about 3,300, I'll say 3,400 acres. We're looking to expand, doubling the acres to over 6,800. That would be a net gain of over 3,400, so this is the proposed plan. So remember this because we're gonna have other proposed alternatives also after this.

(New slide.)

The project's purpose and need.

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As I said before, updating the GEIS, absolutely necessary to do, mainly to address advancement in science and knowledge on artificial redevelopment. A lot of water has gone under the bridge in the past 20-plus years and that's something that we need to keep up on.

We're going to fulfill New York's obligation under the National Fishing Enhancement Act in accordance with the standards of the National Artificial Reef Plan. That's how we've always done things.

We're gonna provide fishing and diving opportunities for reef-associated fishery resources, those are the structure-associate species, so it will be done through selective placement of artificial habitat in State and Adjacent Federal Waters. Those are the sites, all but Hempstead, Atlantic Beach, Sixteen Fathom, and Twelve Mile, all but those are in State waters, those four are in Federal waters or will be.

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Also, enhance and restore fishery resources and associated habitat to the maximum extent practicable utilizing artificial habitat which is what we do in the reef program.

Also, administer and manage artificial habitat to ensure its prudent use as part of an over fisheries and management program. That's really the basis of artificial reef work.

(New slide.)

Okay, some of the benefits, you may be aware of these, if you're not, basically aquatic recycling is what I call it, beneficial secondary use of materials. What we're doing is we're taking things that are no longer used or no longer of value that are on land, rather than being landfill, they're cut up or whatever, we're taking them and we're cleaning them up and recycling them.

We're adding more complex diverse habitat through conversion of low

diversity benthic community. I often refer to the ocean as a desert in many area. If you have ever dove out there, you know what I'm talking about. A lot of it is just sand, silt, and mud out there, but it's just barren. It's not that it's not productive, there are organisms living in there that are important, but what we do is we take those areas that we target in order to create these sites and we put in high-profile, stable restructure. Stability is a very big thing, but when we put something down, we want it to stay there, but also, you're coming up off the bottom, you're creating a more complex habitat because things may grow on the bottom, but a big storm is gonna wipe that out.

So we're gonna improve habitat for structure associated species which are lobster, if you fish or dive on these, you know what I'm talking about, blackfish, sea bass, cod, etcetera,

there's a lot there.

We also provide foraging and refuge areas for threatened and endangered species and larval state species, very important. Some people look at this and say, well, you know, we may be displacing them, they provide benefits for them also which is very important, so keep that in mind.

And the things that we appreciate most, benefits to recreational angler and scuba divers and some commercial fishermen also.

Granted, some of these sites, you cannot roll commercial gear over or nets or whatever else because they will get hung up, they call them hangs, but that doesn't negate some trap fishing going on which would be like lobster traps in State waters, no fish pots, and also our friends out there who commercially fish on the reef sites are welcome to continue.

(New slide.)

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These are some of the impacts. I am not gonna go through every one. These are all addressed in the SGEIS which is available at the very end. I'll show you where the link is, and you can check it out. Basically from physical to biological to human to marine regulatory areas, these are all things that have effects. Some are, most of them are positive truthfully, but I will let you wade through that, or if you have questions later on after I'm done with the presentation, you can feel free to ask during the public comment period, but these are just some of the things, some of the many things that they do affect.

(New slide.)

Okay. Permanent impacts and mitigation. Bethmetry, as I mentioned before, relatively flat featureless bottom will be turned into stable vertical structured habitat. Impacts to navigation will be mitigated by

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maintaining permitted vertical clearance depths above structures.

What that means is, our permits, our current permits state that we can only build up a certain amount of feet off the bottom. That is for navigational depth clearance for traffic that goes through, these large tankers, some of these things take 50, 60 feet of water, which is incredible, so we have to maintain that depth.

Benthic Communities, they're gonna be directly impacted when we're producing or creating new reefs and hatcheries, it's inevitable, some of these areas are gonna be affected by things growing on top of them, and basically what we call habitat conversion. So what's gonna happen is this permanent loss to some of these endobenthic species, whether they be clams or the life that can't move out of the way, but that is gonna be mitigated through the creation of this complex

structure which is growing and which increases diversity quite a bit. There have been some great studies out there about just increasing it tenfold, sometimes more than that.

As I mentioned before, commercial gear, mobile gear will no longer be able to fish the reefs unless people don't mind getting their gear hung up, which not many do, so basically, they will avoid it. They will actually drag around the reefs which they have been known to do, but not on the reefs themselves.

New reefs will only be sited in areas that are not productive commercial fishing ground. That is all down beforehand, we research this, along bathymetric studies, and we do bottom grabs also to characterize the areas, what's living there.

In addition, the reefs represent less than 1 percent of the total open water area available for commercial

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harvest. That's an important thing to remember. As I mentioned before, New York, we're looking to go to about 7,000 acres. I did a little bit of research earlier, Jersey currently has about almost 16,000 acres, the Carolinas, they have 20,000 plus, so New York is kind of behind a little bit here, trying to do a little catchup, but it's just gonna provide better habitat overall, and it's gonna benefit commercial rod and reel fisherman also.

(New slide.)

These are the alternatives.

The no-action alternative, and these are all proposed inside the SGEIS for you to read.

No action is to continue the current reef program until the permits expire, then no additional improvements. We have kind of a hodgepodge of permits right now. There are some that are due to expire later this year. There are others that will last for another eight,

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nine years or so; so we're trying to pull all this together. Basically, the no action would just let the permits expire and we wouldn't do any additional improvements, everything would just stay out there, over time it subsides and will also eventually fall apart.

The propose action is what we described to you before. What we're looking to do is provide the greatest potential resource benefit that aligns with the Reef Program Mission.

Fewer expansions is something that we were thinking of doing before, meaning not as much, not doubling. We were looking to go a little larger, about 2,000 acres or so, addition of a single site and some expansions, but that's not our current proposed action.

We could also maintain the current program. Basically, no expansions or new sites. It's gonna improve the existing sites, we'll still build on them through patch reef

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additions, but it's restricted to those sites in particular. Some of those sites are almost full right now. You can only build up a certain amount. What we do is we patch refill, so we don't carpet bomb the whole bottom. We actually give space in between the species that exist to their advantage and also, sea bass like to forage offsite, off the actual structures.

Lastly, development of special management zones. Some of you may be familiar with these. These are proposed actions where, either some or all of the sites through regulatory management can actually be used to restrict, say, gear usage. There are some places, some reefs where, not in New York, but they're restricted to say, hook, like, and spear, meaning, no traps, no other gear, no mobile gear, none of that can be used. There are actually -- I know there's one site down in South Carolina, I still don't know how they do it, but I

think it's called Area 51 or something where nobody but the reef program knows where it is. What's awesome about that is, you get to really do your control versus your used reefs, you get to see what's going on. So that's how SMZs do come into effect.

If you're familiar with New Jersey, they had a very serious situation happen where they actually lost their funding because of conflict between commercial the recreational usage, so avoiding potential conflicts.

(New slide.)

Basically, that's it pretty in a nutshell. The draft SGEIS is available for review. You can go to the DEC website and that's where you'll find it right there.

Comments can be forwarded electronically to us, written also, we have sheets in the back over there. Some folks will be providing verbal comment here right now.

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If you have any additional questions after tonight, feel free to contact me. That's my contact information and that's my e-mail address, and in case you don't, Sandra Clopp, right, this is a diver on the Shinnecock Reef on the Tug Reliable which is a New York canals corporation 75-foot tug that we sunk on the governor's initial event back in 2018 and within weeks, the fish came in and within a year's time, if you were looking at the video before, it's overgrown, we green muscled, it's a living reef right now and will continue to be.

So that all being said, I'm gonna take a big drink of water here, I've been doing a lot of talking, so it's gonna be your turn now.

We have some folks that have selected to give public comment. First within a reasonable short period of time, if you have any questions before

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we go to the public comment, we can address those now.

MALE SPEAKER: Question about the Sixteen Fathom Reef.

MR. LaPORTA: Yes.

MALE SPEAKER: I looked it up online, it appears to be in the traffic separation zone --

MR. LaPORTA: Yes.

MALE SPEAKER: It would seem to be the right place to put it --

MR. LaPORTA: That's why we put it there.

MALE SPEAKER: That's where it is?

MR. LaPORTA: Yes.

MALE SPEAKER: That seems like you got that right.

MR. LaPORTA: Yeah.

The other thing was, just to give you a little bit of background, we, Steve Heinz and I, years ago when Steve was at the helm, when we came to those two deep-water sites, Sixteen Fathom was

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supposed to be closer to Colibar (phonetic), that's ideally what we wanted it to be, but because of the wind farms and all the rest of this that's coming in, I don't think we would have had much of a chance. You know, right now it's still up in the air, this needs to get a lot of approvals, all of this needs to get a lot of approvals before -- none of this is set in stone, as I keep saying, so hopefully it will happen, but nothing is definite. Believe me, there is a lot of work going on before this.

Sir.

MALE SPEAKER 2: So you're talking about, like, restoring habitats, so were there historic reefs there before that were destroyed in some way or --

MR. LaPORTA: Basically, as I mentioned before, most of this is just sand. It's just, literally, if you drained the ocean, you would be looking

at, like, desert on a lot of these areas, so they're not preexisting. As a matter of fact, if there was anything out there that was pre-existing, we avoid it because anything that was there may have been productive and still could be, so we want to avoid that completely. We want to go to areas that are not productive at all and that's, basically, how we site them.

MALE SPEAKER 2: Kind of like a shift away from -- because that seems like that would be the natural ecosystem, if there was no historic reefs, there, it's not necessarily, like, restoring but more like shifting into a more diverse ecosystem?

MR. LaPORTA: The proper term is enhancement. Basically, we're not so much like -- it's not a creation type of thing, it's we're taking the existing habitat and we're enhancing it. So what you're doing is basically, just to make it real simple, mussels and whatever

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else, living organisms that grow on the bottom, sponges, fine that's all good living habitat, storm comes along, they're gone. Sand waves move, they're gone.

We put in something like a vessel, steel vessel, profile comes up off the bottom, it's stable, it's not going anywhere, right, it's hanging out, the organisms come in, they grow on that, storms come through, they're still there. That's the difference. That's the tradeoff in the habitat, you know other between one and the next.

So that's what artificial reef building is really about.

MALE SPEAKER 2: So kind of offsets the, like, the storms and the increased turbulence from climate change and whatnot, I guess.

MR. LaPORTA: Basically what we're looking to do is looking to put areas out there that will be homes, you know, homes -- as one of my old friends

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out east Captain Capuano (phonetic) would say, affordable houses for fish. Basically we're taking this and we're recycling many things, whether it be concrete, steel, rock, whatever becomes available to us, materials of opportunity, we selectively and strategically place things out there. There is nothing that is just random about this at all. Believe me, I've spent many hours siting where certain things are going to go.

MS. WALTERS: What inquiries have been done to estimate or consider the effects of predators that might be attracted to such reefs posing a risk to humans, such as surfers and swimmers?

MR. LaPORTA: Basically, as far as that's concerned, I'm not aware of any particular studies about that, but as far as what we're creating here, the only -- and some divers here can back me up, I mean, I've dove on a lot of these reefs through my years and I have yet to

see a shark.

MS. WALTERS: But this is new.

MR. LaPORTA: No, this is pre-existing. This has been going on for decades. What we're doing is, we're looking to enhance what's out there right now.

MS. WALTERS: Right.

MR. LaPORTA: This is old science as far as the creatures that are coming in to inhabit them -- well, what you usually will have, you'll have -- you'll put down that structure, say a vessel --

MS. WALTERS: I have a few more questions, so if you don't have an answer to my first question.

So you said, you're not aware of any particular studies, are you aware of any studies that have been done?

MR. LaPORTA: Not for -- if you're talking about large predators and you're talking about --

MS. WALTERS: Okay --

MR. LaPORTA: Let me back up --

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MS. WALTERS: I have one more question.

MR. LaPORTA: Before you go ahead, let me back up once.

MS. WALTERS: Sure.

MR. LaPORTA: These sites are located nowhere near the surf, so no surfers are gonna be --

MS. WALTERS: The new one.

MR. LaPORTA: Any of them. Any of them.

The only ones would be inside the Bay and there are only two small ones there, but as far as, you're talking about attracting predators that could hurt humans.

MS. WALTERS: Yes.

MR. LaPORTA: No.

MS. WALTERS: So if predators -- so sharks don't -- we really enjoy relative safety from any shark attacks right now because there is a flat sense of community right now, so you have already answered my question that no

studies have been done.

I have a question --

MR. LaPORTA: That I'm aware of.

MS. WALTERS: Okay so the tonnage, what tonnage is expected with this new expansion to be added to new sites, and to be dumped into new sites and to be added to existing sites; do you have an estimate of tonnage?

MR. LaPORTA: No. Actually, we don't because we take materials of opportunity as they become available to us --

MS. WALTERS: Do you have --

MR. LaPORTA: As a matter of fact, I cannot give you an estimate right now because it depends on -- I mean, all of this unfortunately is in the mix. As I said before, right now, the only thing we can build on definitely is what we currently have permits for. This is --

MS. WALTERS: Right. But you can only build up to a certain height. Do

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you have an estimate tonnage that would reach that height that you are allowed to --

MR. LaPORTA: I have not calculated that out. That's gonna take a long time to, take it a little bit at a time.

MS. WALTERS: My third question is, what is the expected economic benefit of being spared from otherwise disposing of these very heavy large materials that might cost the government and government subcontractors to dispose of, what is being spared by dumping them in the ocean?

MR. LaPORTA: Not ocean dumping number 1. It's a heavily regulated activity.

MS. WALTERS: -- dumping --

MR. LaPORTA: Please.

It's a heavily regulated activity.

We clean everything up before it goes in. It is expensive, but what

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happens is, there are major socioeconomic benefits to these things. What that comes down to is the fishing and diving industry, people that want to go out, I do this myself, when we go travel to the reefs, you're talking about fishing gear, diving gear, gasoline, boat maintenance, all of this comes in, people go into local restaurants or delis or whatever else, these are the socioeconomic drivers that benefit the reefs.

MS. WALTERS: Sir, respectively [sic], that wasn't my question.

My question is, what is the economic benefit of being spared from otherwise disposing of these outside the ocean?

MR. LaPORTA: I'm not sure I understand your question then.

MS. WALTERS: So if one were to dismantle a bridge, you would need to recycle that or sell it to another country or reuse it here, and that has

costs associated with it. Surely this ocean dumping program will be saving tons of money so that those things won't happen. I'm sure there is an economic, there's an estimate of the economic benefit of not having to do anything with it but put it on the ocean floor.

Do you have an estimate of that.

MR. LaPORTA: I don't have that. You're talking very --

MS. WALTERS: Thank you.

MR. KARPEN: My name is Daniel Karpen, I'm a professional engineer.

I think that the dumping of steel and iron in the ocean is a terrible waste of energy. It takes about one ton of coal equitant to produce a ton of steel or iron and you're better off just dumping concrete which won't rust.

MR. LaPORTA: Okay.

We're gonna turn this over to -- thank you for -- one more question and then we need to get to the public comment on top of that, that's what

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we're gonna do.

MALE SPEAKER 3: You mentioned permits, do you have any idea of the length of the permits, time period of expiration?

MR. LaPORTA: Basically, the average permits that we do, they're either five or ten years, and New York has always had ten-year permits, so once we secure them, they're good for ten years from that date.

One last question, then we'll go to public comment.

FEMALE SPEAKER: I saw a link, thank you so much for explaining everything, I saw the link through the SGEI. I didn't see an appendices in there, maybe I'm looking in the wrong place.

MR. LaPORTA: The appendices, I don't know if -- I thought we put a link to that, I'll have to look back.

You can give me your information or I'll give you my card after the

meeting and we'll see about making sure that's available.

I want to thank everyone for their questions, now we're gonna get to the meat and potatoes.

What's gonna happen is, we have -- now, anybody else that's interested in providing public comment verbally now as part of this meeting can. If you're not signed up already, you can go back where, I believe Martin is right now and you can sign up, and there is a little checkbox next that where we'll actually call upon you to come up and give your public comment.

Stenographer is over here, we have a recorder over here.

We are going to move along right now and I will have to -- I apologize if I mispronounce anybody's name.

Mr. James Foley. James, would you please provide your comment.

MR. FOLEY: I'D first like to thank you for organizing this. I think

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it's a great, great opportunity for the local fisherman and everybody in this room. I think these people right here are the ones you need to focus on and hear all the comments.

I just ask that when you do go ahead with the reef building project that you do talk to the local fishermen on where you're gonna do with the existing material that you have because the last time you dumped some of the existing material on the current reef, and it caused a lot of problems for us trying to anchor and it also killed a lot of the marine life that was already in place, you know, all the mussel growth that was on the existing reef when you came in and just dumped it all over the Shinnecock Reef. You know, it's great, we love it and I know you're building it up for the future, but in effect it did quiet down the few locations where that material was dropped on top of some of the existing

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locations; so I also saw that you said that you spoke to a couple of the fishermen and asked them, you know, what would be a good location for you to dump this stuff but, you know, nobody seemed to contact me or any of the other local fishermen in the area, and I think it would be beneficial to come talk to myself or Captain John from the Shinnecock Star, you can get a grip of where the existing material is and we can point you maybe in the right direction or at least help out as best we can.

MR. LaPORTA: It's a good point. Thank you for making that.

What I will tell you is that whenever we put new materials out, we work with existing bathymetric work, so basically we're seeing what's down there and I do have to say that right now we were working with older -- we just had a brand new survey done last year which is gonna be really huge for us as far as

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determining where everything is, is it -- it's an inexact science in that what I do is I'm the one that actually reviews what's down there to the best of my knowledge with the information I have and I make the determination of the targets and I try to stay with those targets, try to stay away from the existing materials.

Now, that's my job. The next job goes to the people that are bringing it out and dumping it. Now, I'm watching them and if they're live boating, that's where the action starts because then they're not going directly to that target and we try to hone them in as much as we can, so I'm just giving you an idea of the inexact science it is and unfortunately, it's not our intention to actually destroy pre-existing habitat; believe me, that's the last thing I want to do because it takes a lot to get them going.

MR. FOLEY: We understand that.

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I'm just saying maybe you can communicate a little better with the fishing community to find out, you know, we have every piece of, you know, every button located on the reef in our machines, and I'll be more than willing to, you know, share that information with you if it can help, you know, pinpoint on a better location where to dump it in terms of, okay, we can anchor on this piece, but now you dumped material in this location, now it prevents us from dropping anchor there because now it's just a big giant debris field, so that's what I have to add to this.

MR. LaPORTA: Appreciate your comment, and as I said before, it is somewhat of an inexact science, and unfortunately for Shinnecock in particular, it's a small site, Moriches is even smaller. That's the reason for the expansion, so now we can just leave sleeping dog's alone and let people

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enjoy that.

If you need to contact me, feel free to, you know, give me a call, send me an e-mail whatever it is and say, I'd like to sit down with you and provide this information, I'd be more than happy to listen to you.

MR. FOLEY: Thank you.

MR. LaPORTA: It's a give and take thing.

All right, Courtney Bozic.

MS. BOZIC: I'm gonna read my question, if that's okay.

MR. LaPORTA: It's not -- I'm sorry, this is the public comment part, so you're providing comments.

MS. BOZIC: I'm gonna make a statement.

MR. LaPORTA: Okay.

MS. BOZIC: My concern involves what testing for lead-containing materials will be performed on both marine ships' salvage materials and bridge components, if there are bridge

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components from the Tappan Zee Marina Roadway Bridge or any other bridge. If so, if testing shall be done, are there reports which will show such testing has been done and the results of the testing, and if remediation is necessary, what form will the certification be in that these remediation procedures have been undertaken?

MR. LaPORTA: We do test the materials that we put down beforehand, especially the older materials and they are done through chemists and the like. I can't tell you what the exact -- but we just don't take anything.

MS. BOZIC: Lead paint --

MR. LaPORTA: Lead paint, PCBs, the old vessels had tribunal tin which is particularly nasty. Things along those lines, and these are all things that are within our guidelines as far as reef building, not only the National Artificial Reef Program but also New

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York State, and we do take it very serious, and we do have a laundry list of guidelines that we work with, just anyone that's tried to work with us, there is a lot that needs to be -- that's a very good question because the last thing in the world we would want to do is to put pollutants out there and be accused of ocean dumping, which is something that the programs have been -- not just New York, but any of the programs are very sensitive about that.

Hope the answers your question.

Now, we have a little tough one, Watters, I can't read the first name, W-A-T-T-E-R from Atlantic Avenue?

MS. WALTERS: Yeah.

So my first comment is that this is -- even the existing program is such a massive scale that it's very difficult to fathom that it's really to benefit just divers. I believe the economic importance of disposing of these enormous materials or enormous items

like boats, subway cars, bridges, are the driving force behind the program and that the artificial reef is really a euphemism for ocean dumping.

Now, you can say you're using recycled materials, but it's not recycled materials being used, it is refuse that in the process of dumping it, it becomes an artificial reef, so you're not using recycled materials, they become recycle in air quotes by the dumping and the conversion to an artificial reef, so there's something fundamentally wrong with the language.

Secondly, it's very important to understand that there are, this new expansion program is, there's not enough recreational interest in diving to warrant the existing sites, let alone the huge expansion by 7,000 plus acres, this is a huge expansion --

MR. LaPORTA: It's 3,400 acres approximately.

MS. WALTERS: Well, okay, so even

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if it's 3,400, but I read 7,000 into the --

MR. LaPORTA: That was the total, 6,800 was the total.

Could I interrupt you a second, could you please state your name so the stenographer can get it.

MS. WALTERS: Alina Walters.

MR. LaPORTA: Thank you. Sorry to interrupt you.

MS. WALTERS: That's okay.

So I just want to state that this is an irreversible program because the cost of exhuming these very heavy objects would be prohibitive, so there's no way to reverse any effects, ill effects that may be discerned in the future, so this is a permanent and irreversible change that we're making, and as this person in the audience correctly pointed out, the term habitat restoration is improper because you're not restoring the habitat to something that was there before, you're actually

changing the habitat. There is, have been some studies done that the question that the diversity, I'm sorry, that the fishing is actually going to be, fishing is easier to come by the recreational fishermen, but it is not necessarily any kind of solution to overfishing because the fish are more easily caught near those sites as opposed to, they're more easily caught near the site, so there may be actually more fish catched [sic] than otherwise would be able to be harnessed.

MR. LaPORTA: That's why we have regulations, and my agency are the ones that determine those regulations so that people don't go onto the sites and target the structure associated species, blackfish, sea bass, etcetera, and wipe them out. They're only allowed a certain amount that they can take.

MS. WALTERS: I saw in some of the press releases, fluke and flounder, those are benthic --

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MR. LaPORTA: Yes.

MS. WALTERS: -- animals so those wouldn't be helped by the program, they would be hurt because --

MR. LaPORTA: Oh, no, they would be helped also, they come and they forage on the sites too. They actually will come up onto the top. I've seen them.

MS. WALTERS: There have been at least one study that shows that flounder does not benefit from artificial reef, so some of the things that have been put into the press releases are at odds with the scientific literature.

And then, finally, I'd like to say that the predator and prey dynamic around these sites and if you compare the former flat bottom ocean floor to what you're building now, and it's a massive scale, the difference may mean that predator prey dynamic will be changed, so you have predators that chase schools of fish and use their to

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hearing to locate pray, it may obstructed by these very large massive areas where there is built up three-dimensional debris.

So I think that my comment is that it should be never -- carefully studied because we have some very important species, especially mammal species, but also fish species, it should be very carefully studied before we go to this next phase and expand the program by many thousands of acres.

Thank you.

MR. LaPORTA: Thank you for your comments.

Daniel Karpen.

MR. KARPEN: Daniel Karpen, K-A-R-P-E-N.

I'm a professional engineer in New York State. I've been fishing for the last 15, particularly on the north shore.

As I said earlier, disposing of steel and iron in the ocean is really

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not an energy efficient thing to do, it take about one ton of coal equivalent to produce one ton of steel, so really if you want to solve the -- well, if you want to help the global warming problem, don't dump steel and iron in the ocean, recycle it. Cut it up and melt it again because you have invested a tremendous amount of coal in a blast furnace to produce pig iron. Pig iron is then refined into steel by the basic oxygen furnace, so I think dumping steel in the ocean is really a no.

There is possibly some unintended consequences. You get these fish populations and then fisherman know how to catch and hit them, so I'm not gonna comment on that.

I fish mostly along the north shore of Long Island. I do know this, you have large rocks on the bottom of Long Island Sound, that's where the blackfish hide out.

MR. LaPORTA: Agreed.

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MS. WALTERS: And they can get to a good size, 8, 10 pounds.

MR. LaPORTA: Bigger.

Thank you for your comment.

John Mihale.

MR. MIHALE: I wanted to make a couple of comments about the original 1993 proposal, and I was involved a little bit with Steven Heinz, he actually came out and fished with me on the Rockaway Reef and he invited me to comment at that proposal, and then he nicely typed up my comments which I had scribbled to him.

But I do remember, and this is just an aside, first of all, this is great, this is terrific, this is wonderful news for anybody that's fishing and using the artificial reefs that were moving forward. After a long period of time we're not really doing that and that's not your fault, we didn't have the money --

MALE SPEAKER 4: Can you speak up

a little?

MR. MIHALE: You couldn't go ahead with some of the programs that you wanted to go ahead with.

I'm going by memory here, but I remember on that 1993 Environmental Impact Statement, there was talk, not only of the offshore reefs, but there was also talk of a reef southwest of Fire Island Inlet, and there was also talk of a drifting reef, an inshore drifting reef which I think would be a traffic idea.

One of the things that you need to do here is to look at the past and look where we were and look where we've come to. Basically I fished some of these reefs in the '60s and 70s and every decade since then. If you look initially at the effort bottom fishing by the individual, not necessarily the party boats or the charter boats, it was limited, and human ingenuity created first Loran Sea then the GPS and now

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everyone has access to all of these areas. So if we only had that existing material, the effort on that existing material is increasing, and I think that one of the things that you really have to look at is, how much effort was put in to the reefs as they existed in the '70s and '80s and '90s and now how much effort is being put on to the reefs in this century with all of the electronic innovations, GPS whatever. I think what you're gonna find is that if we had -- if nothing had changed, if the electronic innovations hadn't come into existence, what was down there was probably sufficient and now what's down there is grossly insufficient.

I don't want to take up a lot of time but one of the tings that you're gonna ultimately run into is something, the lack of money. You're gonna have a lack of money, you're gonna have a lack of manpower. This should be the start, not the end. This should be the start

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where you're gonna move forward.

At the July 2017 meeting, I got up and I was allowed to speak for about ten minutes, and I said you need a corporate sponsor and I suggested to you at that time, Pepsi Cola -- and I picked them for one very specific reason, they're domiciled in New York. I'm sure Governor Cuomo knows them and they actually have the products that are used on a boat, water carbonated beverages, Lays potato chips, if you want to take a Tropicana orange juice out with you, those were all Pepsi products. That's why I picked them, and what I said then was that they would do it or might do it because there would a benefit to them if they could be involved because when you went to a website and said it was the Diet Pepsi Reef, there is a subliminal message to person that goes there that maybe they ought to choose that product, the Pepsi product over another product and I still think this will get you to

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the point where somebody else is going to be paying to clean up the material and somebody else might be willing even to splurge, this woman is concerned, metal for rock. I know it's very expensive, you've told me how expensive it is, but these guys are spending millions of dollars for 30 second commercials on the Superbowl, they can spend a few million here and get a benefit also. I think it's a good idea, it might not be Pepsi, it might be someone else, but we need to think ahead because the effort is only increasing. This is good. This is a great start. This is terrific, we've got to do more.

Thank you.

MR. LaPORTA: John, I've got a mission for you. You're elected.

Thank you very much.

Floyd Carrington.

MR. CARRINGTON: I'd like to speak tonight primarily on the Shinnecock Reef, a little bit on the

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Twelve Mile Reef.

I fished the Shinnecock Reef extensively for many years including the summers 2000, 2001, and my better half was doing her research for her masters thesis on blackfish on the reef. She had a collector's permit for 500 fish a year, we caught 400 of them each year.

MR. LaPORTA: Spawning behavior, very good study.

MR. CARRINGTON: And since then, I have been there. 35 acres, you missed the box in several pieces already, you need to have it made bigger.

The other thing is on the weekend at this point, it is so crowded it's getting to be dangerous. You throw a couple boats, other than the big red boat back there who knows what he's doing anchoring, most of them don't, you got more of a problem. We need to have the bigger area. If you can get the full 850, that would be great.

You need to talk the fishermen

about placing this thing, expanse (phonetic), such as drawing a line from the west jetty of Shinnecock to 180 degrees all the way down and don't get close to that because that's where the traffic comes in and out the inlets, but you have plenty of room south, north.

Now, the fish on this reef don't just pop up out of the bottom, they have to travel somewhere to get there, and the reef is the magnet. You have a little magnet outside Shinnecock. If we expand this, you're gonna have a far bigger magnet for fish to come to and a place to live. The pot fisherman have a bigger area to set outside the reef, there's nothing to say bigger area, the draggers can't drag there right next to it. We might not think of it that way, but that's, you know, the best way to deal with it, and we all have room so we're not looking three ways at once to make sure somebody isn't drifting into you or you're not drifting up on

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somebody.

On the Twelve Mile Reef, I was one of the group of people who came to Steve Heinz in the early '90s about putting a reef out there. It's a long time coming. Thanks.

MR. LaPORTA: Tell me about it. We finally put something on that reef in November and that took nine years which is amazing but it got done and you can thank the governor's office for putting that over the top there. This is something we all appreciate, putting more material out there for sure.

Mr. Barry Lipsky.

MR. LIPSKY: Good evening. My name is Barry Lipsky, I'm the president of the Long Island Diver's Association, and between myself and my colleagues, we have been working very, very hard with the DEC and the governor's office on increasing the size of these artificial reefs and we see the tremendous benefit to the reefs, especially to future

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population of which is gonna come after us.

I look at everything from my point of view as being president of this organization and being a diver for over 50 years as, what is something that we could do to enhance and better those coming ahead of us. We are talking about taking materials, mostly concrete, mostly steel and then other ships that are being abandoned. Concrete, when it's coming off of the bridge is sometimes ground up into materials called RCA or recycled concrete aggregate. New York State has an over abundance of RCA material that's being put into landfills and you know what grows on it, absolutely nothing, it is a dump site. We are taking concrete and putting it to use and we are recycling that material for a good use to attract fish, attract divers, attract fishermen for recreational use. We have steel that if we look at the shipwrecks that

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have been out there for hundreds of years, the only thing that's left in most cases is the steel, that is the shipwreck. The shipwrecks that are existing out there right now that are hundreds of years old are deteriorating, they're sinking down to the ground, they're almost gone and for the purpose of diving, to go into those shipwrecks that are still survivable, you don't want to go inside those. What we're creating here are new vessels that are going into the water that have been cleaned very thoroughly, cleaner than anything on the bottom, it's been manmade, put down there and now the divers can go inside of those shipwrecks relatively safely and do penetration of wreck diving and going through a ship that's actually something of which is very much of great interest.

Man, as most agree is somewhat responsible, if not all responsible, for what we're talking about as being global

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warming. That global warming, I have firsthand witnessed, so have my colleagues all over the entire world, we see it ourselves, we don't have to ask anybody about it, we don't have to look at any studies, we can see the effect upon global warming as it affects the reefs around the entire world. Those reefs are deteriorating, they're going away. That's what came naturally to the world. What we're doing here as well as many other places all over the world is we're now taking materials which would normally be thrown in the dumpster and putting them to use to bring reefs back to the environment for the people into the future, that's what we're doing here.

I really commend the DEC, I commend Governor Cuomo's office for putting such a great program together and not looking at what's going on just today, but looking at the past and what man has done and trying to correct the

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errors as best they could to what's gonna happen and what we're gonna give to those who are in the future.

Thank you very much.

MR. LaPORTA: Thank you.

Bob Wilson.

MR. WILSON: Thank you. My name is Bob Wilson. I'm a local teacher and I run the Ward Melville High School Fishing Club.

I'm here because, first off, I'm very happy about this program and it's super beneficial to a couple of guys from the club that came here because really that's what we're looking to do.

Artificial reef programs are extremely essential and necessary for a developing thriving ecosystem in our waters. It's easy to see the marine life and marine benefit that these reefs bring from day one that they're set down. They strengthen the base of the food chain, creating habitat from barren areas and further lessen the strain that

you have on the pre-existing fishing areas and diving spots. One day, I hope that, you know, with this type of progress, we can be in line with where Florida is at with their reef system being that they're leading everything that's just beyond ideal. You talk about New Jersey and the acres that they have down there which is phenomenal and really helps their ecosystem, and Florida is really that much further past that.

I could go on and on and talk about the fishing benefits that it has, that actually isn't really where my comments are coming from here. There are a couple different areas that I think play a role that I think a couple of groups get benefited from this increased system of reefs.

First off are the divers. You see recreational spear diving, all other types of diving -- I lost my place. All other types of diving that are taking

place nowadays where you see guys at the end of harbors up here locally on the north shore. That's simply unsafer. We have such a stretch, specifically between the Mt. Sinai proposed spot and the Mattituck proposed spot that you can create new area or in an ideal world, we can create new areas only kayakers and land-based guys in small boats can actually access and get to where they're not gonna have the pressure and they're gonna have the time to, you know, enjoy the benefits of what Mother Nature is gonna definitely provide.

Another area that I'd like to go through is actually the educational system. Looking at local high schools and local colleges, this is a gift. This is where, I tend to call it a floating classroom, where schools can, not only specialized programs such as marine biology or marine ecology, but you can take a normal living science course which every school tends to

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offer, you can utilize the for-hire fleets that are out there, and now you can turn that vessel into a classroom where with today's technology, send down cameras from day one charting the progress, taking a look, they're learning about everything in the textbook but now it's real world because ultimately they're the ones that are gonna be dealing with the real world environmental issues, and the more they start to learn now, the more of an interest they'll have and the better solutions they're gonna come up with later on in life.

Specifically and maybe a little bit selfishly, I would love to see the local clubs of high school kids get involved. I run a high school fishing club, and one of the things that I think it benefits is, first off, we always complain that kids nowadays, too much time on the computer, too much time on video games, not enough time outdoors,

and for the most part it's true. Give them the opportunity they're looking for. What I mean by that, they're always looking for some way for service credit, some way they can give back, allowing kids into this process and getting them situated allows them to leave a legacy, a legacy of accomplishment and a legacy of interest that they're gonna keep going. The amount of knowledge they learn and the amount of interest that that tends to generate in terms of jobs, majors and futures is gonna be a vitally important role to play and something that if we invest in them now and we invest in these now, they'll have dividends later on.

Thank you.

MR. LaPORTA: We do actually have a volunteer reef survey program, so I'll give you my card after and we can have a discussion about this.

Neil Delanoy.

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MR. DELANOY: Hi, I'm Neil Delanoy. I'm the executive director of the Captree Boatmen's Association, we're the largest fishing port on Long Island. We take 300,000 people fishing a year. Over the last 20 years, we have seen tremendous loss, economic loss, fish loss due to brown algae in the Bay, the decline of bay flounders, the decline of wheat fish. Brown algae in the bay has really declined the number of fluke that we catch, so we have had a significant decrease in our fisheries. The one bright spot that we have had is the wheat fishing, but more and more of our fishing every year is done on the Fire Island Reef. Now, for us most of the trips in the summer are very limited to half day, we don't really have the time to go any further than that, but every year, it's more and more people so 300,000 fisherman in New York get to enjoy this resource. It's proven. It's been around for a long time. There are

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artifical reefs all up and down the coast. Almost all the material that's being put there has already been in the ocean, it's been the ships, the bridges, things that have already been in the water, so this is proven. Now, the addition of the Sixteen Fathom Reef for us will be tremendous. It will give us a little deeper spot we can fish, the same size as the Fire Island Reef is gonna be expanded to in a little deeper water, so when the fish are in the shallow, we can fish on the Fire Island Reef, a little deeper, we can fish there; but this is the greatest thing for us. It's something we needed, this is the future. We see all our other fisheries declining. The reef fishery has healthy porgys, the stock is through the roof, sea bass, the stock is through the roof, these are fish that are gonna be inhabiting these reefs, so there's so many. Let the people of New York enjoy them, let them catch them. Build this

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reef, the sooner the better.

Thank you.

MR. LaPORTA: Thank you.

Steve Witthuhn.

MR. WITTHUHN: I've got written comments coming.

I just want to say, I do support the program 110 percent. Being a charter boat captain, it's right way to go, it's been a long time coming and I was just enjoying watching that video, and it just speaks a thousand words, so that in itself will just tell the story.

MR. LaPORTA: Seeing is believing. Unless you're diving on these spots, you really don't have a clue. You see people fishing right here, no fish, there's a ton of fish.

Lastly, Mr. John Capuano.

MR. CAPUANO: Thank you for all the work you're doing here. I just wanted to make a couple of comments about the reef extension. The basic idea, I agree with Captain James, it's

getting kind of crowded, it's necessary I mean, functionally to have more space to put some of these items down, and somebody had brought something up about affecting the environment in a negative way. The planet seeks biodiversity, you can't have one species, we have to have more species and have more place for them to live, and putting more reef sites down on the bottom creates biodiversity, different species get attached to the reef sites, little fish are attracted there to hide, big fish come to eat the little fish. It's a program that works.

The environmental impact studies that Mr. LaPorta and these guys do, unbelievable how thorough they are with these projects, if they're gonna sink an old dragger or old tug boat, they go through every inch of this boat to make sure it's not gonna negatively affect the environment, every piece is just, how thorough this process is. They're

creating biodiversity, they're creating more fish, better habitat, and I don't want to bring up the whole subject of global warming, but things are changing on a daily basis. You had said something earlier, the diving. If you're out there every day for 30 years, you're seeing changes happen, gradual, but it's happening. The only thing that these reef sites can do is make a positive impact on any fish that are in the area, trigger fish, for instance 25 years ago wasn't a target, but you would catch a few now and then, but I actually target them now, you go to spots and you catch trigger fish. This is basically a southern species that's getting pretty abundant here, all of the fish, major fish bodies, fluke, sea bass, their main bodies of migration are shifting to the north. I mean, if you look at charts, and being able to put down these sites to expand them is just something that allows these fish to hang

out, stay in the area.

The other thing is economically, that just out at Shinnecock, that 12-mile reef site, if you can get that destroyer that I want, Chris, and sink it.

MR. LaPORTA: You're hired, I'm gonna need some help.

MR. CAPUANO: I know you've got to work out all the bugs.

Divers, fisherman, you put a 400 foot destroyer down on that site, you are gonna build an economy, and the proof is, you look at the west coast of Florida, they sank an aircraft carrier off the west coast of Florida, it is boom town in that area now. We're talking about places where they didn't have anything much going on, there's divers, hotels going up just so they go see more fish on top of that aircraft carrier.

Just keep up the good work, keep the faith. Chris?

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MR. LaPORTA: Okay.

I want to thank everybody for making your comments, for attending tonight. If you have any additional comments or if you just want to write them down, we do have papers in the back where you can actually fill it out and mail it in.

You can still comment, I apologize, I didn't say this before, public comment will be received up until the 21st of this month, so you still have plenty more time if you want. If you don't want to do it right now, you can do it later. You can send it electronically or by snail mail or whatever.

The whole purpose of this process is to receive your input and to let us know what you're thinking, both positively and negatively. That's the way these things work.

Steve.

STEVE: If you could also, maybe

get this information out like a little quicker. I know you -- something that to have a short notice like this on an important item possibly, at least a three week notice instead of a three day notice.

MR. LaPORTA: We actually had gotten word out through the usual channels which is basically our Environmental Notice Bulletin, the E&B, and also published in Newsday, not quite like an article, but those are the usual routes we start with. There was a little bit of a delay with the press release going out and that was probably something that we should work on next time around.

Your point is well taken.

Yes.

MALE SPEAKER 5: Chris, this was excellent, I mean you answered so many questions tonight. I just want to say what Bob Wilson did here with the group of young people, Barry Lipsky, you gave

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an excellent description about what's going down in our waters.

I think there's a lot of things you're gonna have to handle here with education of the public which the benefits of things sinking. We've had many things sink off our coast since the 1600s and he talks about steel, the last thing we see on the bottom are usually battle stars from ships, nobody's gotten sick from eating fish off the shipwrecks in the area.

I think people got to understand how much ecosystem damage has been done by fishing activities, if you go up to Georgia's banks and see what happens with the bottom, it's been destroyed up there from fishing activities. We need reefs, it's so important and everything else because we have created these deserts in the oceans now.

We have a life -- New York is very unique, New Jersey, we have a lot of fishing density, what the reefs allow

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is to spread it all out all across all Long Island. We're very large. We have the south shore, we have the east end, we also have the Long Island Sound.

Chris is one of the most dedicated people, I mean, over the years, he's always talked about it with the shows and everything like that.

It is essential, folks, the support this, not only for the for-hire industry but for private boaters, the diving community.

But what Bob Wilson did here tonight, these are young people, we always try to talk about the future, what is the future of fishing, what is the future of diving, what is the future of just going out in the ocean and enjoying.

And we got something coming up especially the for-hire industry and the commercial fishing industry, offshore wind, you know, that's gonna be an impact, it's something we got to pass

the bill to find out what's in it, we don't know.

What Chris and New York State is doing here is so essential, and I hope people become more educated when they speak about these topics what's going on in the water. The classroom is part here but you have to come out there, you have to speak to the people involved in daily fishing to see what's going on.

Again, we have had many shipwrecks, World War II especially, you have shipwrecks off Jersey, big world tankers, everything, they are some of the most productive fishing wrecks around. What we put in the ocean is repurposed, instead of going on land, it goes in the water, it has a benefit.

Thank you.

MR. LaPORTA: One last thing I would ask is, thank you for everyone that did sign in, if you haven't signed in, please do that before you leave. It's very important that we have that

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documented for the meeting tonight. This is one of two public meetings that we're having. Once again, we're still taking public comments until the 21st.

Thank you again for coming out on a miserable night to make some important comments to us.

Have a good night.

(Time noted: 7:15 p.m.)

C E R T I F I C A T E

STATE OF NEW YORK)
) Ss:
COUNTY OF SUFFOLK)

I, STEPHANIE O'KEEFFE, a Reporter and Notary Public within and for the State of New York, do hereby certify that the within is a true and accurate transcript of the proceedings taken on February 10, 2020.

I further certify that I am not related to any of the parties to this action by blood or marriage, and that I am in no way interested in the outcome of this matter.

IN WITNESS WHEREOF, I have hereunto set my hand this 10th day of February, 2020.

STEPHANIE O'KEEFFE

3. **The proposed activity will require:**

   d. State water quality permit or certification

   - *Policy #30 – "Municipal, industrial, and commercial discharge of pollutants, including but not limited to, toxic and hazardous substances, into coastal waters will conform to State and national water quality standards"*

     The proposed Project does not involve the discharge of pollutants. The proposed Project requires NYSDEC water quality certification and NYSDEC will comply with the permit requirements; therefore, this Project is consistent with this policy.

   - *Policy #38 – "The quality and quantity of surface water and groundwater supplies, will be conserved and protected, particularly where such waters constitute the primary or sole source of water supply"*

     See 1a. above.

   - *Policy #40 – "Effluent discharged from major steam electric generating and industrial facilities into coastal waters will not be unduly injurious to fish and wildlife and shall conform to state water quality standards"*

     The proposed Project does not involve effluent discharges; therefore, this policy is not applicable.

4. **Will the proposed activity occur within and/or affect an area covered by a State-approved local waterfront revitalization program, or State-approved regional coastal management program?**

   Consistency with the New York City Waterfront Revitalization Program (WRP), and the Long Island Sound Coastal Management Program policies relevant to the proposed Project has been completed and is included herein.