U.S. Army Corps of Engineers,
New York District

Hurricane and Storm Damage Reduction at Asharoken, Suffolk County, New York

Environmental Scoping Document

March 2002

Hurricane and Storm Damage Reduction at Asharoken, Suffolk County, New York

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1.0 INTRODUCTION

The U.S. Army Corps of Engineers, New York District (District), in partnership with the project's non-Federal sponsors, the New York State Department of Environmental Conservation (NYSDEC) and the Village of Asharoken, is initiating a study to evaluate the feasibility of beach erosion control, storm damage reduction and related purposes on the North Shore of Long Island in and adjacent to the community of Asharoken, New York.

This scoping document has been prepared to detail the proposed study approach and to solicit agency and public response to the proposed study. This document provides a discussion of the project purpose, the preliminary alternatives, the existing environment of the project area, and the proposed studies and coordination to be conducted during the feasibility phase of the project. The purpose of the feasibility effort will be to compare alternatives to identify an optimal plan for the area.

The District will prepare an environmental impact statement in accordance with the National Environmental Policy Act (NEPA) during the course of the feasibility study, which will be available for public and agency review. It is anticipated that comments received in response to this scoping document and topics discussed at public and agency scoping meetings will be used to identify data gaps and public opinion early in the planning process so that the NEPA document can be prepared to address these concerns.

Written comments in response to this document should be submitted to:

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2.0 STUDY PURPOSE

The purpose of the Asharoken Hurricane and Storm Damage Reduction Feasibility Study is to evaluate potential solutions to hurricane and storm damage problems identified in the North Shore of Long Island, New York Reconnaissance Study for Asharoken Beach (Corps 1995). The North Shore of Long Island, New York reconnaissance study was authorized by the Committee on Public Works and Transportation, United States House of Representatives, adopted 13 May 1993. The Reconnaissance Report, completed in September 1995, identified a potential Federal interest and the need for a more detailed feasibility study of the project area. Federal, State and local agreements and funding are now in place to initiate the feasibility phase effort.

The Long Island northern shoreline has historically experienced coastal erosion and storm damage, most recently from two storms of September 1996 and October 1996 and also from previous storms, including the Christmas Eve 1994 storm, the March 1993 Blizzard of the Century, the December 1992 northeaster, Hurricane Danielle of

September 1992 and the Halloween Storm of 1991. Other hurricanes affecting the area occurred in 1938, 1944, 1954, and 1960. Other tropical storms that affected the area included the 1950, 1953, 1955 and 1962 storm events. The December 1992 storm alone inundated thousands of residential and business properties along the north shore and caused damages at $12,000,000.

The Village of Asharoken experienced damage to the vital access road, Asharoken Avenue during the December 1992 Northeaster, and an emergency feasibility study was performed under the District's Continuing Authorities Program (CAP). This study, approved in 1994, found that an emergency erosion control project was economically justified for the area. The Plans and Specifications phase was completed under the authority of Section 103 of the River and Harbor Act of 1962. A Project Cooperation Agreement was subsequently negotiated for construction of the project between the Federal Government and the New York State Department of Environmental Conservation (NYSDEC), who acted for the State of New York as the Non-Federal Sponsor. The project was essentially completed in July 1996 but before stabilizing dune grass was planted in the fall, the project sustained damage as a result of the October 19, 1996 northeaster, which exceeded the design capacity of the project. Although Asharoken Avenue was temporarily closed, the project, though damaged slightly, was successful in preventing damage to and possibly the loss of the road. The project was repaired by July 1997 with dune grass planted in December 1997. The project was turned over to the NYSDEC for future operation and maintenance in April 1998. The alternatives evaluated for the current feasibility study effort will incorporate the recently constructed Section 103 Erosion Control Project, which protects roughly 900 feet of shoreline.

The Village of Asharoken lies on a narrow section of land that connects the Eatons Neck peninsula to the mainland of the Town of Huntington (Figure 1). The length of Asharoken Beach is approximately 2.5 miles, while the width varies from 100 feet at the northwestern end to 1,000 feet at the southeastern end. Asharoken Avenue, which generally runs parallel to the Long Island Sound shoreline, provides the only vehicular access to the Village and the Eatons Neck community. While the most critically threatened location of Asharoken Avenue is protected by the temporary shore protection project discussed above, the feasibility study will consider long-term protection throughout the Village.

The feasibility study will be organized in a progression of tasks to fulfill the scope and purpose of the study. The major tasks begin with the study initiation period, data collection and detailed assessment of the existing conditions in the project area. These tasks are then followed by the plan formulation process, which is based on the results of modeling, environmental investigations, drainage investigations, economic analysis, and engineering analysis. The economic, environmental, social and engineering (including hydrologic and geologic information), benefits and costs of various solutions will be evaluated to determine a recommended plan for the project area.

3.0 PLAN FORMULATION

The intent of the feasibility study is to analyze a wide variety of alternatives to select an optimal plan to provide hurricane and storm damage protection for the Village of Asharoken, New York project area. During a feasibility study, a number of alternatives are identified early in the formulation process and become more refined throughout the process as more information becomes available. The formulation process includes screening of alternatives based on economic, environmental, engineering and social considerations, and also includes the identification of potential mitigation measures, in concurrence with the formulation. The formulation process is divided into the following phases:

- Identification of Alternatives
- Screening of Alternatives
- Optimization/Comparison of Alternatives
- Selection of a Recommended Plan

3.1 Identification of Alternatives

The following alternatives have been identified for initial consideration. This range of alternatives seeks to include all reasonable alternatives.

1. **No Federal Action:** Under this alternative, no Federal measures would be taken to provide for storm damage protection to the study area.

2. **Non-Structural Measures:** Relocations, floodproofing and/or buyouts of threatened properties will be considered non-structural alternatives. The floodproofing alternative includes raising of structures, building barriers on the property between the flood and the structure, or waterproofing of the building.

3. **Structural Alternatives:** A number of improvement structural alternatives will be evaluated including beach fill only, and beach fill in combination with structures such as floodwalls, buried rubble-mound seawalls, dunes, stone revetments and related interior drainage features. Beach fill measures would consider periodic renourishment and potential sand bypassing around the power plant facility.

3.2 Screening of Alternatives

Based upon the overall project constraints, and individual constraints for each reach of the project, the above alternatives will be evaluated, individually and in combination, to determine the acceptability of the alternative for each design reach, and for the overall project area. If an alternative, or combination of alternatives is unacceptable based upon the project constraints, the alternative will be eliminated from further consideration.

3.3 Optimization/Comparison of Alternatives

Based upon the remaining project alternatives for each reach, the alternatives will be further refined to optimize the alternatives based upon refined coastal, and environmental information available. This will include variations in the combination of design elements, variability in design protection and avoidance of sensitive environmental resources to the extent reasonable. Mitigation measures, if appropriate, shall be incorporated into the decision matrix. The costs and benefits associated with each alternative will be utilized to compare plans.

3.4 Selection of Recommended Plan

Based upon the comparison of plans, the plan which provides the greatest net benefits will be selected as the recommended plan.

4.0 ENVIRONMENTAL SETTING

4.1 Location

Asharoken Beach is a narrow section of land in the Village of Asharoken, Town of Huntington, Suffolk County New York. Asharoken Beach connects Eaton's Neck with the mainland area of the Village of Asharoken. The length of Asharoken Beach is approximately 2.5 miles, while the width varies from 100 feet at the northwestern section near Eaton's Neck to 1,000 feet at the southeastern limit near the Northport Power Station. Asharoken Avenue is the only vehicular access to Eaton's Neck along Asharoken Beach. The study area extends from Long Island Sound on the north, Duck Island Harbor and Northport Bay on the south, the Long Island Lighting Company (Keyspan) facility on the east and Eatons Neck on the west (Figures 1 and 2).

4.2 Climate

The climate of the proposed project area is dominated by the influence of the continent and the nearby ocean (Gross et al 1972). The mean annual air temperature for the central portion of Long Island Sound ranges from 49.7° to 51.7° F (Gross et al 1972).

4.3 Geology and Substrate

Most of Long Island was formed during the Pleistocene Age. The major topographic features of Long Island are the plateaus of the north shore, which are glacial moraines, and the sloping plains of the southern portion of the island (Gross et al 1972). The north shore harbors and bays are in locations of former valleys of the north-draining streams of Cretaceous time. Manhasset formation covered Cretaceous rocks, and later on, the area was covered by Wisconsin drift and till. On the north shore, bays and harbors alternate with peninsulas and necks that are backed in some areas by fresh cliffs or bluffs of shore scarp. The material of the necks and bluffs has eroded over time and has been deposited

as spits (e.g. West Beach on Eatons Neck), baymouth bars, and tombolos (bars like Asharoken Beach which connect offshore islands to the mainland) (Davies et al. 1972).

In 1972, substrate characteristics in the nearshore waters of Long Island Sound were observed along three transects for purposes of studying the environmental impacts of the Northport Power Station. Table I in Appendix B summarizes the sediment characteristics of each sample point along the transects. Substrate sampling and analysis will be important for feasibility study of a potential sand borrow area north of the Northport Power Station.

4.4 Landscape

Beach, dune, marine, estuarine marsh, maritime scrub-shrub and maritime woodland are habitats represented within the landscape of the project area. Each habitat supports a unique assemblage of flora and fauna. The beach, dune and marine habitats will be those under direct study during the feasibility study. A District biologist surveyed the coastal vegetation supported on the beach and dune areas during September 2001. The beach and frontal dune plant community consisted predominantly of American beach grass (*Ammophila breviligulata*) and seaside goldenrod (*Solidago sempervirens*). Seaside spurge (*Chamaesyce polygonifolia*), sea rocket (*Cakile edentula*), common saltwort (*Salsola kali*), and halberd-leaved orach (*Atriplex patula*) were observed in small number in the main project area. Additionally, the beach and frontal dune habitat west of the Northport Power Station supports beach pea (*Lathyrus japonicus*). The beach plant community along the northern reach of Asharoken Beach on Eaton's Neck consists of sparser patches of American Beach Grass, sea rocket, beach pea, and sea chickweed (*Honckenya peploides*).

Vegetation exposed to the wind action and high levels of salinity on the beachfront have special adaptations for growth in such an extreme environment. Few plants have such adaptations and therefore, the backdune or protected inland environments support a more diverse plant community than the beach and frontal dunes. A variety of vegetation has developed on the backdune in the main feasibility study zone. In some areas, property owners have landscaped the backdune and roadside areas with native and non-native vegetation. The following plant species were observed vegetating the backdune: Virginia creeper (*Parthenocissus quinquefolia*), water dock (*Rumex orbiculatus*), prickly pear (*Opuntia drummondii*), yucca (*Yucca aloifolia*), woolly mullein (*Verbascum thapsus*), ragweed (*Ambrosia artemisiifolia*), common cocklebur (*Xanthium strumarium*), Japanese knotweed (*Polygonum cuspidatum*), *Aster spp.*, field pepperweed (*Lepidium campestre),* pitch pine (*Pinus rigida*), American beach grass, and seaside goldenrod.

A scrub-shrub area has developed behind the foredune west of the Northport Power Station. Plant growth in the area consists predominantly of autumn eleagnus (*Elaegnus umbellate*), and common reed (*Phragmites australis*), with a ground cover of seaside goldenrod, American beach grass and other weedy species such as field pepperweed, ragweed and mugwort (*Artemisia vulgaris*). A maritime woodland community has developed further west of the power plant and supports a variety of deciduous trees, shrubs and evergreens including northern bayberry (*Myrica pensylvanica*), red cedar

(*Juniperus virginiana*), pin oak (*Quercus palustris*), staghorn sumac (*Rhus hirta*), large-toothed aspen (*Populus grandidentata*), Norway maple (*Acer platanoides*), with a ground cover of ragweed, beach heather (*Hudsonia tomentosa*), seaside goldenrod and a variety of grasses. A maritime woodland and open meadow area is supported on the bluff of Eaton's Neck.

The 1995 Corps project area was planted with beach grass to provide habitat benefits and dune stabilization. Directly across Asharoken Avenue to the north of the 1995 Corps project, a sand-dune plant community has developed adjacent to the *Spartina* marsh areas of Duck Island Harbor. Beach grass, seaside goldenrod, dusty miller (*Artemisia stellariana*), beach pea, poison ivy (*Rhus radicans*), and common reed grass have vegetated the sandy incline graded towards the intersection of Asharoken Avenue and Bevin Road (Margiotta 1975). The sand was potentially redistributed to this area over time during storm events or by placement by workmen during road work.

4.5 Benthos

Blue mussels (*Mytilus edulis*) and slippersnails (*Crepidula sp*.) are spread about on the beach at Asharoken. Northern rock barnacles (*Balanus balanoides*) coat cobble-sized rocks in the swash zone. The abundant wrack material found on the beach gives the beachwalker clues to the abundant benthic fauna and flora, including marine algae, mollusks and crustaceans; that inhabit the nearshore environment. Tables II and III in Appendix B provide an inventory of the organisms inhabiting the benthic environment of the nearshore areas of the Long Island Sound, and Table IV provides an inventory of invertebrate organisms inhabiting the benthic and tidal wetland habitats of Duck Island Harbor. Table II in Appendix B lists benthic species surveyed using a Peterson Grab along three transects in the vicinity of Northport Power Station (D'Agostino 1973). Table III in Appendix B lists benthic species collected to determine the pre-disposal baseline conditions at the Eaton's Neck Aquatic Disposal Area (Serafy et al. 1977). Table IV in Appendix B provides a list of the invertebrate species collected from the wetland areas surrounding Duck Island Harbor, located across Asharoken Avenue from the feasibility study project area (Margiotta 1975).

4.6 Nekton

The National Marine Fisheries Service (NMFS) has designated the Long Island Sound waters of the project area as Essential Fish Habitat (EFH) for various life stages of the following key species: Atlantic salmon (*Salmo salar*), pollock (*Pollachius virens*), red hake (*Urophycis chuss*), winter flounder (*Pleuronectes americanus*), windowpane flounder (*Scopthalmus aquosus*), Atlantic sea herring (*Clupea harengus*), bluefish (*Pomatomus saltatrix*), Atlantic mackerel (*Scomber scombrus*), summer flounder (*Paralicthys dentatus*), scup (*Stenotomus chrysops*), black sea bass (*Centropristus striata*), king mackerel (*Scomberomorus cavalla*), Spanish mackerel (*Scomberomorus maculates*), cobia (*Rachycentron canadum*), and sand tiger shark (*Odontaspis Taurus*). The District will coordinate with NMFS during feasibility study to assess potential project impacts to EFH. Table V in Appendix C lists the life stages of the EFH species identified for the Asharoken project area.

Nekton data is available from a 1972 survey conducted in the vicinity of the Northport Power Station. Otter trawls, mid-water trawls and seining with a 100' seine were sample methods used during that survey effort. Tables VI, VII and VIII in Appendix C present some of the reported data. Winter species surveyed included winter flounder, silversides (*Menidia menidia*), white perch (*Morone americanus*), and hake. The spring species composition consisted predominantly of migrant fish including windowpane flounder, menhaden (*Brevoortia tyrannus*), anchovy (*Anchoa sp*.) and blueback herring (*Alosa aestivalis*). Summer species included blackfish (*Tautoga onitis*), hogchoker (*Trinectes maculatus*), sea robins (*Prionotus sp.*), toadfish (*Ospanus tau*), and also menhaden, anchovies and eel (*Anguilla rostrata*) in less abundance than during spring (Austin 1973).

The nearby portions of the Long Island Sound may be utilized by juvenile Kemp's Ridley sea turtles (*Lepidochelys kempi*) during late summer and fall. The gray seal (*Halichoerus grypus*) and harbor seal (*Phoca vitulina*) may utilize the nearby portions of Long Island Sound.

4.7 Avian Resources

A Breeding Bird Survey conducted for the Asharoken Beach and Northport Bay area in 2000 (Breeding Bird Atlas Block 6353C) listed the following species as probable breeding birds of the area: Canada goose (*Branta Canadensis*), northern bobwhite (*Colinus virginianus*), rock dove (*Columba livia*), mourning dove (*Zenaida macroura*), blue jay (*Cyanocitta cristata*), American crow (*Corvus brachyrhynchos*), house wren (*Troglodytes aedon*), wood thrush (*Hylocichia mustelina*), northern mockingbird (*Mimus polyglottos*), American redstart (*Setophaga ruticilla*), common yellowthroat (*Geothlypis trichas*), song sparrow (*Melospiza melodia*), red-winged blackbird (*Agelaius phoeniceus*), house finch (*Carpodacus mexicanus*), and American goldfinch (*Carduelis tristis*). The following species were identified as possible breeding birds of the habitat in the area: mute swan (*Cygnus olor*), osprey (*Pandion haliaetus*), hairy woodpecker (*Picoides villosus*), northern flicker (*Colaptes auratus*), great crested flycatcher (*Myiarchus crinitus*), brown thrasher (*Toxostoma rufum)*, cedar waxwing (*Bombycilla cedrorum*), and Baltimore oriole (*Icterus galbula*). Breeding Birds confirmed to use the Asharoken Beach and Northport Bay area in 2000 included: piping plover (*Charadrius melodus*), barn swallow (*Hirundo rustica*), black-capped chickadee (*Parus atricapillus*), eastern tufted titmouse (*Parus bicolor*), Carolina wren (*Thryothorus ludovicianus*), American robin (*Turdus migratorius*), gray catbird (*Dumetella carolinensis*), European starling (*Sturnus vulgaris*), yellow warbler (*Dendroica petechia*), northern cardinal (*Cardinalis cardinalis*), common grackle (*Quiscalus quiscula*), brown-headed cowbird (*Quiscalus major*), and house sparrow (*Passer domesticus*).

Laughing gulls (*Larus atricilla*), herring gulls (*Larus argentatus*), ring-billed gulls (*Larus delawarensis*), great black-backed gulls (*Larus marinus*), double-crested cormorants (*Phalacrocorax auritus*) and sanderlings (*Calidris alba*) are commonly observed feeding along Asharoken beach.

In addition to those bird species listed above, the following birds have been observed to use the wetlands which surround Duck Island Harbor at Asharoken: mallard duck (*Anas platyrhynchos*), black duck (*Anas rubripes*), old squaw (*Clangula hyemalis*), scaup (*Aythya sp*.), snowy egret (*Leucophoyx thula*), blue heron (*Ardea herodias*), green heron (*Butorides virescens*), black-crowned night heron (*Nycticorax nycticorax*), clapper rail (*Rallus longirostris*), black-bellied plover (*Squatarola squatarola*), semi-palmated plover (*Charadrius semipalmatus*), belted kingfisher (*Megaceryle alcyon*), common tern (*Sterna hirundo*), and yellowlegs (*Tringa sp*.) (Margiotta 1975).

District coordination with the U.S. Fish and Wildlife Service during feasibility study will be important in addressing potential environmental impacts of the proposed project on the nesting population of the federally listed piping plover. During the 2000 piping plover monitoring season, two nests within the proposed project area were observed to have a total of six fledged chicks. Four other nesting attempts, within the vicinity of the project area, were not productive due to possible chick and egg predation or by flooding.

4.8 Wildlife

The maritime scrub-shrub, meadow and woodland landscapes in the vicinity of the project area provide potential habitat to a variety of terrestrial mammals including: striped skunk (*Mephitis mephitis*), eastern cottontail (*Sylvilagus floridanus*), white-footed mouse (*Peromyscus leucopus*), white tailed deer (*Odocoileus virginianus*), gray squirrel (*Sciurus* carolinensis), eastern chipmunk (*Tamias striatus*), northern short-tailed shrew (*Blarina brevidauda*), meadow vole (*Microtus pennsylvanicus*) and raccoon (*Procyon lotor*).

4.9 Historical and Archaeological Resources

The Asharoken area has a long and rich history dating back to the Native American period. In compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, historical and archaeological investigations in the project area must occur. This area also includes offshore sites as the landscape of the north shore of Long Island Sound has changed over time.

According to contact ear records, the Matinecocks, a Native American Group, inhabited the north shore of Long Island, in the vicinity of Eaton's Neck and Asharoken Village (Voyse 1955:9). There may have been a Native American settlement nearby Walnut creek on the south eastern portion of Eaton's Neck along what is now Harbor Road, however, there are no known Native American sites located within or adjacent to the project area (Voyse 1955:9). There is a low probability that any remains of the incidental use of the shoreline by Native Americans have been preserved within the study area.

Historic occupation in the area began in 1646, when Theophilus Eaton, Governor of New Haven, acquired what is now Eaton's Neck from the Native Americans (Voyse 1955:6). During the 19th Century, a number of sand and gravel mining industries were situated in Eaton's Neck and Asharoken. Mining facilities were located on the West Beach spit in

southwestern Eaton's Neck; on Eaton's Neck Beach, where Asharoken Beach joins the main'; and near the Coast Guard Station and lighthouse (Voyse 1955:28-29).

There are four sites listed on the National Register of Historic Places for Eaton's Neck and Asharoken Village. They are the Delameter-Bevin Mansion on Bevin Lane and New Jersey Felix House, on the west side of Asharoken Avenue in Asharoken, and the Harry E. Donnell House, Locust Lane and Eaton's Neck Lighthouse in Eaton's Neck. These properties will not be affected by the proposed project.

4.10 Socio-Economic Resources

Suffolk County's population was reported in January 1, 1998 by the Long Island Power Authority to be 1,361,558, an increase of 3.0% over the 1990 census figure (Suffolk County Planning Department 1999). As reported by the Suffolk County Planning Department (SCPD), in 1998, the population of Suffolk County was estimated as 82% non-Hispanic White, 8% Hispanic, 7% Black and 3% Asian. In 1990, the median age of the population was 33.5 years (Suffolk County Planning Department 1999). As reported by the SCPD, the per capita personal income in 1996 was $29,221 for the County. The service, retail trade, and manufacturing sectors are the largest employers in Suffolk County. The population of the Village of Asharoken was reported by LIPA to be 790 persons in 1999 (SCDPW 2001).

4.11 Recreational Resources

The project area is used for recreational and commercial boating and fishing. Asharoken beach is used for fishing, swimming and other beachgoing activities.

5.0 ENVIRONMENTAL CONCERNS

The District will be preparing an environmental impact statement (EIS), as part of the planning process, which will evaluate the potential environmental impacts of the various alternatives to be considered for the proposed Hurricane and Storm Damage Reduction Project. At this time, several resource areas within the project corridor have been identified as valuable, and potentially sensitive, environmental habitats. These include the Piping Plover nesting habitat along Asharoken Beach, the nearshore benthic environments of Eatons Neck and along Asharoken Beach, and the benthic and fisheries habitat within the proposed borrow area. The nearshore areas and the borrow area may also be sensitive to cultural resources.

It is important that all significant environmental concerns be identified during the scoping process for consideration in the EIS. The District encourages agencies and the public to identify all other potential environmental issues and to also supply known data on the environmental character of the area. The District will focus environmental data collection efforts in the potentially sensitive habitats, as described above, to gain a greater knowledge of the current conditions in the project area. Existing information will be

used to the maximum extent possible, however, Section 6.0 below outlines the feasibility studies planned in order to collect additional data for evaluation of project alternatives.

6.0 PROPOSED FEASIBILITY STUDIES AND COORDINATION

The District proposes to conduct the following field investigations and coordination efforts during the feasibility study to gather additional information on the baseline biological, historical and archaeological conditions of the project area. This additional data will be used as a basis to evaluate the potential environmental impacts of the considered project alternatives.

1) Benthic macroinvertebrate surveys are proposed for investigation of the sand source area in Long Island Sound. A Smyth-Mac grab or similar equipment will be used to collect samples from stations generated randomly from a grid overlain onto the delineated sand borrow area. Collection efforts will occur in spring and fall. The number of stations has not yet been determined. Samples will be sieved through a 0.5-mm sieve. Species will be identified to the genus level, and species level if possible. Biomass will also be recorded. Water quality data and a sediment sample will be collected at each benthic survey station to record the physical characteristics linked with each benthic community surveyed.

2) Finfish sampling, using otter trawl equipment, will be conducted to provide an inventory of the finfish and crustaceans utilizing the targeted sand source area. Sampling will be conducted once a month for a minimum of one year. Approximately 7 trawls will be undertaken per sample day and transects will be based on a random sample grid overlain onto the delineated borrow source area. Individual lengths and weights shall be taken for 30 specimens of species per each haul for all finfish (total length) and macroinvertebrate species (carapace/shell length). Species collected above the 30 count will be weighed in groups per species to be included in biomass estimates. Total weight by species within length categories will be recorded for biomass estimates.

3) Biological assessment of the nearshore habitat: benthic grabs and seines may be used to sample and collect additional baseline data on the nearshore faunal community. Sampling protocol will be coordinated with involved agencies. It is anticipated at this time that this sampling effort will be biannual at up to three transects along Asharoken Beach.

4) The District plans to coordinate with local plover monitors, as well as the NYSDEC and the U.S. Fish and Wildlife Service, to identify significant nesting habitat and or other environmental concerns for the plover and or other shorebirds. The District may assist with pre-construction plover monitoring efforts if needed, and will develop a monitoring and management plan for the plovers dependent upon the selected project alternative.

5) Cultural resource investigation (terrestrial, nearshore and offshore): In order to insure that cultural resources are not impacted as part of the overall project, investigations shall be conducted and recommendations offered. Investigations will include historical and archaeological resources component: historical documentary research, interviews, terrestrial and offshore studies. Terrestrial study will include survey and, if necessary, excavation. Documentary research, testing, survey and/or fieldwork will also be conducted to determine if any shipwrecks or submerged structures exists within the project boundaries. Based on this work, the eligibility of sites for inclusion on the National Register of Historic Places will be determined. Recommendations will be made with regard to a mitigating situation if sites cannot be avoided.

Other sampling needs or construction alternatives for feasibility study may be identified as a result of agency and public review of this scoping document, public meetings and interagency coordination efforts. Coordination with local, state, and Federal, as well as other public interests, is an integral part of feasibility study and the National Environmental Policy Act review process. Coastal Zone Consistency Review, water quality and tidal wetlands permitting, EFH assessment, fish and wildlife coordination in accordance with Section 2(b) of the Fish and Wildlife Coordination Act and cultural resource assessment in accordance with Section 106 of the National Historic Preservation Act of 1966 are a few of the additional environmental compliance measures to be coordinated throughout the feasibility study process in addition to the preparation of an environmental impact statement. Figure 4 illustrates the timeline for environmental coordination in accordance with NEPA.

Figure 4 Timeline for NEPA Process

Publish Notice of Intent to Prepare a Draft Environmental Impact Statement (EIS) in Federal Register – January 16, 2002

Circulate Scoping Document to Agencies and Interested Parties – Spring 2002

Hold Interagency Scoping Meeting – Spring 2002

Hold Public Scoping Meeting – Spring/Summer 2002

Coordinate with agencies – throughout process 2002-2005

Prepare Draft EIS – Fall 2003-Winter 2004

Public and Agency Comment period for Draft EIS – Spring 2004

Prepare Final EIS – Fall 2004

Public and Agency Comment period for Final EIS – Winter 2005

Prepare Record of Decision – Winter 2004/2005

Note: Dates are subject to project changes

7.0 REFERENCES

Davies, D.S., E.W. Axelrod, and J.S. O'Connor. 1972. Erosion of the North Shore of Long Island. SUNY Stony Brook MSRC Tech Report 18.

Gross, M. Grant, Dewitt Davies, Paul M. Lin and William Loeffler. 1972. "Characterization and Environmental Quality of 6 North Shore Bays: Nassau and Suffolk Counties, Long Island, New York." Marine Sciences Research Center, State University of New York at Stony Brook, January 1972.

Margiotta, Frank S. 1975. The Biology of Asharoken Wetlands with Particular Emphasis on the Benthic Invertebrate Community. Long Island University, Graduate Dept. of Marine Science: April 1975.

Serafy, D. Keith, D. Hartzband, M. Bowen. 1977. Aquatic Disposal Field Investigation: Eatons Neck Disposal Site, Long Island Sound, Appendix C: Predisposal Baseline Conditions of Benthic Assemblage. Dredged Material Research Program Tech Report D-77-6. NY Ocean Science Lab, Montauk, NY. Prepared for the US Army Corps of Engineers: November 1977.

Suffolk County Department of Planning Website (SCDPW). 2001. http://www.co.suffolk.ny.us/planning/Publications/Local%20Gov%20Units%20in%20SC/hu.htmL#Asharoken

Appendix A Scoping Mailing List

Federal Agencies

EPA – Long Island Sound Study Office
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Strategic Planning and Multimedia Programs Branch
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State Agencies

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151 Laurel Avenue, Northport, NY 11768

Huntington Main Library
338 Main Street, Huntington, NY 11743

Appendix B Benthic Communities

Refer to Figure B-1for Tables I and II, Figure B-2 for Table III and Figure B-3 for Table IV

Table I Sediment Characteristics at Northport (D'Agostino 1973)

Station	Sediment Characteristics
A-1	Tan; sand, medium-fine; gravel, little; shell fragments, few.
A-2	Tan; sand, medium-fine; gravel, little; shell fragments, few.
A-3	Tan; sand, medium; gravel, little; shell fragments, few.
A-4	Brown; sand, medium; mud, little; shell fragments, some.
B-1	Tan; sand, medium; gravel; shell fragments, some.
B-2	Grey; sand, coarse; pebbles, few; shell fragments, some.
B-3	Black; mud; sand, little; shell fragments, many; organic detritus, much.
B-4	Black; sandy-mud; shell fragments, many; organic detritus, much.
B-5	Black; mud; shell fragments, many; organic detritus, much.
B-6	Black; mud; shell fragments, many; organic detritus, much.
B-7	Black; mud; shell fragments, many; organic detritus, much.
B-8	Black; mud; shell fragments, many; organic detritus, much.
B-9	Black; mud; shell fragments, many; organic detritus, much.
B-10	Brown; sand, coarse; mud, some; shell fragments, some; organic detritus, some.
B-11	Black; mud; shell fragments, many; organic detritus, much.
B-12	Black; mud; shell fragments, many; organic detritus, much.
C-1	Tan; sand, coarse; pebbles, many; gravel, much; shell fragments, few.
C-2	Tan; sand, medium-coarse; gravel, little; shell fragments, few.
C-3	Brown; muddy-sand; shell fragments, some; organic detritus, some.
C-4	Black; mud; shell fragments, many; organic detritus,much

Table II Benthic Invertebrates Collected at Northport – Dec. 1971-Oct. 1972 (D'Agostino 1973)

Sample transects and points for 1971-1972 benthic survey listed in Table I.

Protozoa: *Elphidium striata-punctata*
Porifera: *Mycale fibrexilis, Prosuberites epiphytum*
Cnidaria: *Campanularia gelatinosa, Campanularia calceolifera, Campanularia sp., Campanularia amphora, Clava leptostyla, Clytia sp., Eudendrium sp., Halecium gracile, Stylactis arge, Podocoryne carnea, Actinothoe gracillima, Thuiaria cupressina, Thuiara similis, Thuiaria sp.,*
Platyhelminthes: *Euplana gracilis* Sp. unidentified
Rhynchocoela: *Amphiporus bioculatus,* M*icrura sp., Lineus sp., Tubulanus pellucidus, Carinoma tremaphoros, Cerebratulus luridus, Cerebratulus lacteus, Cerebratulus sp., Lineus socialis, Procephalothrix spiralis, Tetrastemma sp.*

Nemathelminthes
Species unidentified

Ectoprocta
Cryptosula pallisiana, Alcyonidium verrilli, Conopeum truitti, Callopora aurita, Bowerbankia gracilis, Bugula turrita, Buskia armata, Schizomavella auriculata, Schizoporella unicornis., Tubulipora sp.

Mollusca
Gastropoda:
Nassarius trivittatus, Crepidula fornicata, Retusa canaliculata, Polinices duplicata, Acteon punctostriatus, Haminoea solitaria, Polinices heros, Alvania sp., Bittium alternatum, Diaphana minuta, Polinices sp., Mitrella lunata, Retusa obtuse, Rissoa sp.
Bivalvia:
Gemma gemma, Lyonsia hyalina, Mercenaria mercenaria, Mulinia lateralis, Pandora gouldiana, Pitar morrhuana, Spisula solidissima, Tellina agilis, Ensis directus, Mysella planulata, Solen viridis, Astarte castanea, Astarte undata, Corbula contracta, Macoma sp., Mytilis edulis, Macoma tenta, Nucula proxima, Yoldia limatula, Yoldia sapotilla, Mya arenaria, Macoma balthica

Annelida
Polychaeta:
Amage auricula, Ancistrosyllis hartmanae, Aricidea jeffreysii, Amblyosyllis finmarchica, Ampharete acutifrons, Amphicteis gunneri, Amage auricula, Autolytus cornutus, Autolytus sp., Brania clavata, Brania wellfleetensis, Capitella capitata, Chaetogordius canaliculatus, Cirratulus grandis, Clymenella torquata, Cirriformia feligera, Cossura longocirrata, Dinophilus sp., Dodecaceria coralli, Eteone heteropoda, Eteone lacteal, Eulalia bilineata, Eumida sanguinea, Eunice pennata, Exogone dispar, Eusyllis lamelligera, Flabelligera sp., Glycera americana, Glycera capitata, Glycera dibranchiata, Glycera robusta, Goniada maculata, Gyptis vittata, Heteromastus filiformis, Leanira tetragona, Lepidonotus squamatus, Lioma sp., Lumbrinereis fragilis, Lumbrinereis tenuis, Lysilla alba, Maldanopsis elongata, Marphysa belli, Marphysia sanguinea, Microphthalmus sczelkowii, Myxicola infundibulum, Nephtys incisa, Nereis arenaceodentata, Nereis grayi, Nereis pelagica, Nephtys picta, Notomastus latericeus, Notomastus luridus, Odontosyllis fulgurans, Orbinia ornate, Owenia fusiformis, Paranaites kosteriensis, Paranaites speciosa, Paraonis fulgens, Paraonis gracilis, Parapionosyllis longicirrata, Pareurythoe borealis, Pectinaria gouldii, Pherusa affinis, Pherusa arenosa, Phyllodoce arenae, Phyllodoce groenlandica, Phyllodoce mucosa, Podarke obscura, Polydora ligni, Potamilla neglecta, Potamilla reniformis, Sabella microphthalma, Sabellaria vulgaris, Sabellides octocirrata, Scalibregma inflatum, Scolecolepides viridis, Scolopus acutus, Scolopus fragilis, Scoloplos robustus, Sigambra tentaculata, Sphaerosyllis erinaceus, Spio setosa, Sphaerosyllis fortuita, Sphaerosyllis hystrix, Spiochaetopterus oculatus, Spiophanes bombyx, Stauronereis caecus, Stauronereis rudolphi, Sthenelais boa, Streblospio benedicti, Streptosyllis sp., Syllidis longocirrata, Syllidis setosa, Terebella lapidaria, Tharyx acutus, Travisia carnea
Oligochaeta: Tubificidae

Table II continued on B-3

Table II continued..

Arthropoda

Acartia clausi, Calanus finmarchicus, Centropages typicus, Chirodotea caeca, Cythere dawsoni, Cytheridea americana, Edotea montosa, Eurytemora sp., Harpacticoida Sp. unidentified, Halacarus sp., Hutchinsoniella macracantha, Idotea phosphorea, Leptocuma minor, Leptognatha caeca, Leucon americanus, Neomysis americana, Oxyurostylis smithi, Pseudodiaptomus coronatus, Sarsiella zostericola, Sarsiella sp., Temora longicornus, Nymphon sp., Ptilanthura tenuis, Heteromysis Formosa

Amphipoda:

Acanthohaustorius millsi, Aeginina longicornis, Ampelisca abdita, Ampelisca macrocephala, Ampelisca vadorum, Amphiporeia virginiana, Ampithoe sp., Batea catharinensis, Caprella equilibra, Caprella linearis, Caprella penantis, Corophium sp., Erichthonius brasiliensis, Gammarellus angulosus, Gammarus palustris, Gammarus tigrinus, Jassa falcata, Lembos sp., Listriella sp., Luconaca incerta, Melita dentata, Melita nitida, Microprotopus ranei, Microdeutopus sp., Microdeutopus gryllotalpa, Monoculoides edwardsii, Parametopella cypris, Paraphoxus sp., Phoxocephalus holbolli, Podoceropsis nitida, Rivulogrammarus sp., Stenothoe minuta, Unicola sp.,

Decapoda:

Pinnixa sayana, Megalopa larva, *Pagurus longicarpus, Crangon septemspinosa*

Table III **Checklist of Benthic Assemblage Collected at Eatons Neck: Pre-Disposal Baseline (Serafy et. al. 1977)**
Porifera: *Halichondria bowerbanki, Haliclona oculata, Microciona prolifera, Prosuberites epiphytum*
Cnidaria: Hydrozoa: *Bougainvillia carolinensis, Calycella syringa, Campanularia angulata, Campanularidae sp., Clava sp., Clytia coronata, Clytia cylindrica, Clytia longicyatha, Corynidae sp., Dicoryne conferta, Eudendrium carneum, Eudendrium rameum, Halecium minutum, Hydrallmania falcata, Obelia commissuralis, Obelia flabellate, Obelia longissima, Opercularella lacerata, Opercularella pumila, Pennaria tiarella, Podocoryne carnea, Sertularella, Thuiaria argentea, Thuiara lonchitus, Thuiara similis, Tubularia, Tubularidae* Anthozoa: *Actinothoe modesta, Astrangia danae, Athenaria sp., Ceriantheopsis americanus, Metridium senile, Stomphia coccinea, Thenaria sp.*
Rhynchocoela: Sp. Unidentified, *Carinoma sp., Cerebratulus lacteus, Cerebratulus luridus, Micrura sp., Tubulanus pellucidus, Amphiporus bioculatus, Amphiporus caecus*
Nematoda: Sp. Unidentified
Entoprocta: *Barentsia sp.*
Chaetognatha: Sp. Unidentified
Ectoprocta: *Aeverrillia armata, Alcyonidium verrilli, Bowerbankia gracilis, Bugula sp., Callopora aurita, Cribilina punctata, Crisia eburnea, Cryptosula pallasiana, Electra monostachys, Eucraea sp., Hippoporina Americana, Hippoporina porosa, Hippothoa hyaline, Lichenopora sp., Membranipora tenuis, Microporella sp., Schizoporella sp., Schizoporella unicornis*
Mollusca: Gastropoda: *Acmaea testudinalis, Aeolidacea sp., Colus caelatus, Coryphella verrucosa, Cratena aurantia, Crepidula fornicata, Crepidula plana, Cuthona concinna, Diastoma alternatum, Doridella obscura, Epitonium humphreysii, Eupleura caudate, Lunatia heros, Lunatia triseriata, Mitrella lunata, Nassarius trivittatus, Nassarius vibex, Nudibrancha sp., Odostomia bisuturalis, Odostomia bisuturalis, Odostomia seminuda, Retusa obtusa, Turbonilla interrupta, Urosaplinx cinereus* Bivalvia: *Abra lioica, Anadara transversa, Astarte undata, Bamea truncata, Cyclocardita borealis, Ensis directus, Gemma gemma, Lyonsia hyalina, Macoma balthica, Macoma tenta, Mercenaria mercenaria, Mulinia lateralis, Musculus niger, Mytilus edulis, Nucula proxima, Nuculana messanensis, Pandora gouldiana, Petricola pholadiformis, Pitar morrhuana, Poromya granulata, Siliqua costata, Solemya velum, Solenidae sp., Solen viridis, Spisula solidissima, Tellina agilis, Yoldia limatula*
Annelida: Polychaeta: *Ampharete arctica, Ampharetidae sp., Amphitrite affinis, Aricidea cerruti, Asabellides oculata, Autolytus cornutus, Axiothella catenata, Capitella capitata, Chaetozone setosa, Cirratulidae sp., Cirriformia grandis, Cirrophorus lyriformis, Clymenella torquata, Cossura longocirrata, Dioptara cuprea, Dorvillea sp., Drilonereis magna, Eteone longa, Eumida sanguinea, Eusyllis lamelligera, Exogone verugera,*

Flabelligera affinis, Glycera Americana, Glycera dibranchiata, Harmothoe imbricata, Hesionidae sp., Heteromastsus sp., Hydroides dianthus, Hypaniola grayi, Lepidonotus squamatus, Lepidonotus sublevis, Loimia sp., Lumbrinereis brevipes, Lumbrinereis fragilis, Lumbrinereis tenuis, Maldane sarsi, Maldanidae sp., Maldanopsis elongata, Mediomastus ambiseta, Microphthalmus sczelkowii, Nephtys incisa, Nereis arenaceodonta, Nereis grayi, Nereis succinea, Nereis virens, Nicomache lumbricalis, Notomastus luridus, Odontosyllis fulgurans, Owenia fusiformis, Paranaitis kosteriensis, Pectinaria gouldii, Pherusa affinis, Pherusa arenosa, Pholoe minuta, Phyllodoce arenae, Phyllodocidae, Pilargidae sp., Podarke obscura, Polydora quadrilobata, Polydora websteri, Polygordius triestinus, Polynoidae sp., Potamilla neglecta, Potamilla reniformis, Protodorvillea kerfersteini, Sabella microphthalma, Sabellaria sp., Sabellaria vulgaris, Scalibregma inflatum, Scoloplos armiger, Sigalion arenicola, Sigambra tentaculata, Spio setosa, Spiochaetopterus oculatus, Spionidae sp., Spiophanes bombyx, Stauronereis caecus, Stenelais boa, Stenelais picta, Streblospio benedicti, Streptosyllis arenae, Syllis gracilis, Syllidae sp., Terebellidae sp., Trochochaetidae sp. Oligochaeta: Sp. unidentified Sipuncula: Sp. unidentified
Arthropoda: Pycnogonida: *Anoplodactylus parvus, Anoplodactylus petiolatus* Acarina: *Halacaridae sp.* Cephalocarida*: Hutchinsoniella macracantha* Ostracoda: *Neonesidea sp., Parasterope pollex, Sarsiella ozotothrix, Sarsiella zostericola* Copepoda: *Harpacticoida sp., Calanoida sp., Cyclopoida sp., Acartia clausi, Acartia tonsa, Labidocera aestiva, Pseudocalanus minutus, Temora longicornis* Cirripedia: *Balanus amphitrite niveus* Isopoda: *Edotea montosa, Edotea triloba, Limnoria lignorum, Ptilanthura tenuis* *Amphipoda: Aeginina longicornis, Aeginina sp., Acanthohaustorius shoemakeri, Ampelisca abdita, Ampelisca vadorum, Caprella sp., Corophium tuberculatum, Corophium volutator, Erichthonius brasiliensis, Gammarus mucronatus, Halirages fulvocinctus, Harpinia propinqua, Jassa falcate, Lembos smithi, Leptocheirus pinguis, Luconacia incerta, Orchomonella pinguis, Paracaprella tenuis, Parametopella cypris, Paraphoxus spinosus, Phoxocephalus holbolli, Stenopleustes gracilis, Stenothoe minuta, Unciola irrorata* Tanaidacea: *Leptognatha caeca* Mysidacea: *Heteromysis Formosa, Neomysis americana* Cumacea: *Diastylis quadrispinosa, Oxyurostylis smithi* Decapoda: *Cancer irroratus, Carcinus maenas, Crangon septemspinosa, Euprognatha rastellifera, Eurypaneopeus depressus, Libinia dubia, Libinia emarginata, Neopanope texana sayi, Pagurus longicarpus, Pagurus pollicaris, Palaemonetes vulgaris, Pelia mutica, Panopeus herbsti, Pinnixa chaetopterana, Pinnixa sayana, Pinnotheres maculates, Pinnotheres ostreum, Thalassinidae sp., Upogebia affinis, Xanthidae sp.* Insecta: *Collembola sp.*
Echinodermata: Asteroidea: *Asterias forbesi, Henricia sanguinolenta* Echinoidea: *Arbacia punctulata* Holothuroidea: *Pentamera pulcherrima*

Table IV Invertebrates Collected at Asharoken (Margiotta 1975)
Porifera: *Cliona celata, Microciona prolifera*
Cnidaria: *Cyanea capillata, Hydractinia echinata, Haliplanella luciae, Calycella syringa, Campanularia sp.*
Ctenophora: *Mnemiopsis leidyi*
Platyhelminthes: *Bdelloura sp., Stylochus ellipticus, Stylochus zebra*
Rhynchocoela: *Cerebratulus lacteus, Lineus sp.*
Ectoprocta: *Electra sp., Membranipora sp.*
Mollusca, Class Gastropoda: *Crepidula fornicata, Crepidula plana, Eupleura caudate, Urosalpinx cinerea, Nassarius obsoletus, Nassarius trivittatus, Littorina littorea, Littorina saxatilis, Melampus bidentatus, Ovatella myosotis, Busycon canalicaulatum, Polinices duplicatus, Lunatia heros, Hydrobia sp., Bittium alternatum, Haminoea solitaria, Retusa canaliculata, Acteon punctostriatus, Odostomia sp., Mitrella lunata, Retusa obtuse*
Mollusca, Class Pelecypoda: *Anadara ovalis, Anadara transversa, Laevicardium mortoni, Aequipecten irradians, Macoma balthica, Yoldia limatula, Nucula proxima, Pandora gouldiana, Mulina lateralis, Gemma gemma, Ensis directus, Mya arenaria, Mercenaria mercenaria, Mytilus edulis, Modiolus demissus, Petricola pholadiformis, Anomia simplex, Crassostrea virginica, Tellina agilis*
Annelida, Class Polychaeta: *Clymenella zonalis, Glycera dibranchiata, Glycera americana, Nereis succinea, Nereis virens, Pectinaria gouldii, Lepidonotus squamatus, Scolopos acutus, Amphitrite ornata, Polydora sp., Lumbrineris tenuis, Hydroides dianthus*
Arthropoda, Class Xiphosurida: *Limulus polyphemus*
Arthropoda, Class Crustacea: *Idotea baltica, Edotea triloba, Jaera marina, Orchestia sp., Talorchestia sp., Gammarus sp., Melita sp., Caprella sp., Lysianopsis alba sp., Balanus balanoides, Balanus eburneus, Crangon septemspinosus, Palaemonetes pugio, Palaemonetes intermedius, Palaemonetes vulgaris, Homarus americanus, Pagurus longicarpus, Pagurus pollicaris, Carcinus maenas, Libinia dubia, Libinia emarginata, Neopanope texana, Uca pugnax, Uca pugilator, Sesarma reticulatum, Ovalipes ocellatus, Rhithropanopeus harrissi*
Echinodermata: *Asterias forbesi*

Table V Summary of Essential Fish Habitat (EFH) Designation

Species	Eggs	Larvae	Juveniles	Adults
Atlantic salmon (*Salmo salar*),			**X**	**X**
Pollock (*Pollachius virens*),			**X**	**X**
Red hake (*Urophycis chuss*),	**X**	**X**	**X**	**X**
Winter flounder (*Pleuronectes americanus*),	**X**	**X**	**X**	**X**
Windowpane flounder (*Scopthalmus aquosus*),	**X**	**X**	**X**	**X**
Atlantic sea herring (*Clupea harengus*),			**X**	**X**
Bluefish (*Pomatomus saltatrix*),			**X**	**X**
Atlantic mackerel (*Scomber scombrus*),	**X**	**X**	**X**	**X**
Summer flounder (*Paralicthys dentatus*),			**X**	
Scup (*Stenotomus chrysops*),	**X**	**X**	**X**	**X**
Black sea bass (*Centropristus striata*),			**X**	
King mackerel (*Scomberomorus cavalla*),	**X**	**X**	**X**	**X**
Spanish mackerel (*Scomberomorus maculates*),	**X**	**X**	**X**	**X**
Cobia (*Rachycentron canadum*),	**X**	**X**	**X**	**X**
Sand tiger shark (*Odontaspis Taurus*)		**X**		

Table VI Nekton surveyed at Northport Power Station (Austin et al. 1973)

Trawl data – Refer to Figure C-1

Species	Eggs				Larvae				Juveniles				Adults			
SAMPLE Transects	**Q1**	**Q3**	**Q4**	**Q12**	**Q1**	**Q3**	**Q4**	**Q12**	**Q1**	**Q3**	**Q4**	**Q12**	**Q1**	**Q3**	**Q4**	**Q12**
Myoxocephalus aenaeus Grubby									3		2		3		4	
Myoxocephalus octodecemspinosus Longhorn sculpin												4	3		2	2,4
Myoxocephalus sp.					1	1,2	1,2	1,2								
Paralichthys dentatus fluke													3	3	3	
Paralichthys oblongus Fourspot flounder																3,4
Scophthalmus aquosus Windowpane	2,3	2,3	2	2,3	2,3	2,3	2,3	3	3,4	2,3,4	4	3,4	2,3,4	2,3	2,3,4	2,3,4
Pseudopleuronectes americanus Blackback Flounder					1,2	2	2		2,3	2,3,4	2,4	2,3,4	2,3,4	2	2,3,4	2,3,4
Sphoeroides maculates Northern puffer									3							
Mustelus canis Smooth dogfish														4		
Raja ocellata Big skate																2
Anguilla rostrata American eel															2,4	4
Alosa aestivalis Blueback herring					1,2		2						3			
Alosa pseudoharengus Alewife											4	2			2	2,3,4
Brevoortia tyrannus Atlantic menhaden	2,3,4	2,3	2,3	2,3	2,3	3,4	3	3	3	3		3	4			2,3,4
Clupea harengus Atlantic herring													2		4	2
Anchoa hepsetus Striped anchovy										4						

1=Winter 2=Spring 3=Summer 4=Fall

Table VI cont….

Species	Eggs				Larvae				Juveniles				Adults			
SAMPLE Transects	**Q1**	**Q3**	**Q4**	**Q12**	**Q1**	**Q3**	**Q4**	**Q12**	**Q1**	**Q3**	**Q4**	**Q12**	**Q1**	**Q3**	**Q4**	**Q12**
Anchoa mitchilli Bay anchovy	2,3	2,3	2,3	3	2,3	3	3	3				3,4				
Enchelyopus cimbrius Fourbeard rockling	1,2	1,2	1,2	1,2	2	2,3	2	3								3,4
Merluccius bilinearis Silver hake	2,3	2,3	2,3	3			2	3				3				3
Microgadus tomcod Atlantic tomcod									3	3						
Urophycis chuss Red hake												3				
Urophycis regius Spotted hake									2							
Urophycis tenuis White hake																3
Urophycis spp.	3	3	3	3												
Fundulus heteroclitus Common killifish										4						
Fundulus majalis Striped killifish									2,3,4	1,3,4			3	1,2		
Fundulus spp.					2											
Menidia menidia Atlantic silverside	3		2		2,3		2		1,2, 3,4	1,2, 3,4	4	1,4	2,3,4	2,3		
Syngnathus fuscus Northern pipefish					3,4	3	3	3		3			3	2		
Morone americana White perch													1			
Morone saxatilis Striped bass									3,4	2,3	2,3					
Pomatomus saltatrix Bluefish									3	3						4
Stenotomus chrysops Scup	3	2	2,3		3	3	2,3	3			3,4	3,4	3	3	3	3,4

Table VI cont….

Species	Eggs				Larvae				Juveniles				Adults			
SAMPLE Transects	**Q1**	**Q3**	**Q4**	**Q12**	**Q1**	**Q3**	**Q4**	**Q12**	**Q1**	**Q3**	**Q4**	**Q12**	**Q1**	**Q3**	**Q4**	**Q12**
Cynoscion regalis Weakfish	2,3,4	2,3,4	2,3,4	3	3	3	3	3				3,4			3	3
Menticirrhus saxatilis Northern kingfish									3	3		4	3	3,4		
Tautoga onitis Tautog	2,3	2,3	2,3	3	3	3	3	3		3,4	4	3	3	2,3,4	3	2,3,4
Tautogolabrus adspersus Cunner	2,3	2,3	2,3	3	2,3	3	3	3		3		1,3		3	3,4	3
Mugil cephalus Striped mullet									4					4		
Pholis gunnellus Rock gunnel						2	1,2	1								
Ammodytes americanus American sand lance					1,2,4	1,2	1	1,4		2				2	2	
Scomber scombrus Atlantic mackerel		2			2										3	
Peprilus triacanthus Butterfish	2,3	2,3	2,3	3								3,4				3,4
Prionotus carolinus Northern searobin														2,3	3	3
Prionotus evolans Striped searobin										3		3,4	3	2,3		3
Prionotus spp.	3	3	2,3	3	3				3							

Key
1=winter
2=spring
3=summer
4=fall

Table VII Nekton collected with 100' Beach Seine at Northport

Density – No./1000 m^2
(Sample transect)
Refer to Figure C-1

Species	Feb.	Apr.	June	July	Aug.	Oct.	Dec.
Alosa aestivalis Blueback herring		0.3 (Q1) 0.3 (Q1) 1.1 (Q3)					
Ammodytes americanus Sand lace			1032.0 (Q3)				
Anchoa hepsetus Striped anchovy						35.1 (Q3)	
Anguilla rostrata American eel			6.6 (Q1) 5.0 (Q1)				
Brevoortia tyrannus Atlantic menhaden				1.6 (Q1) 3.3 (Q1) 1.6 (Q3)	1.7 (Q1) 1.7 (Q1)	1.7 (Q3)	
Clupea harengus Atlantic herring		18.2 (Q1) 1.5 (Q1)					
Fundulus heteroclitus Common killifish						1.7 (Q3)	
Fundulus majalis Striped killifish	10 (Q3)	0.2 (Q1)	46.6 (Q1) 5.0 (Q1) 1.6 (Q3)	16.6 (Q1) 3.3 (Q3)		11.7 (Q1) 3.3 (Q3)	
Menidia menidia Atlantic silverside	20 (Q1) 10 (Q3)	66.0 (Q1) 17.8 (Q1) 240.3 (Q3)	133.0 (Q1) 35.0 (Q1) 18.3 (Q3)	1356.0 (Q1) 1883.3 (Q1) 270.0 (Q3) 8.3 (Q3) 1398.3 (Q3) 23.3 (Q3)	768.2 (Q1) 1205.7 (Q1) 818.3 (Q1) 3528.7 (Q3)	2262.0 (Q1) 430.9 (Q3)	616.1 (Q1)
Menticirrhus saxatilis Northern kingfish			1.6 (Q1)		5.0 (Q1) 35.1 (Q3)	5.0 (Q3)	

Microgadus tomcod Atlantic tomcod			5.0 (Q1) 8.3 (Q1)	1.6 (Q3)			
Morone americanus White perch	10 (Q1)						
Morone saxatilis Striped bass			3.3 (Q1) 1.6 (Q3)		1.7 (Q1)		
Mugil cephalus Striped mullet						31.7 (Q1)	
Myoxocephalus aenaeus Grubby			6.6 (Q1) 21.6 (Q1)				
Myoxocephalus octodecemspinosus Longhorn sculpin					13.4 (Q1)		
Paralichthys dentatus Fluke			1.6 (Q1)				
Pomatomus saltatrix Bluefish				215.0 (Q1) 13.3 (Q1) 38.3 (Q3)	40.1 (Q1) 41.8 (Q1) 15.0 (Q3)		
Prionotus evolans Striped sea robin				1.6 (Q1)	1.7 (Q3)		
Prionotus sp. Sea robin					16.7 (Q1)		
Pseudopleuronectes americanus Blackback flounder		0.2 (Q1) 1.5 (Q1) 0.5 (Q3)	95.0 (Q1) 18.3 (Q1) 1.6 (Q3)	21.6 (Q1) 15.0 (Q1) 8.3 (Q3) 36.6 (Q3) 10.0 (Q3) 26.6 (Q3)	121.9 (Q1) 5.0 (Q1) 41.8 (Q1) 6.7 (Q3)	1.7 (Q1)	
Scophthalmus aquosus Windowpane flounder		0.1 (Q1)	3.3 (Q1) 5.0 (Q3)	6.6 (Q1) 8.3 (Q1) 1.6 (Q3) 8.3 (Q3)	8.4 (Q1) 3.3 (Q1)	1.7 (Q1) 1.7 (Q3)	6.7 (Q1)
Sphoeroides maculates Northern puffer				1.6 (Q1)	6.7 (Q1)		
Stenotomus chrysops Scup					23.4 (Q1) 5.0 (Q1) 5.0 (Q1)		

Sygnathus fuscus Northern pipefish		0.2 (Q3)	13.3 (Q1) 21.6 (Q1)		1.7 (Q1) 1.7 (Q3)		
Tautoga onitis Tautog					1.7 (Q3)		
Urophycis regius Spotted hake			1.6 (Q3)				