Appendix E

Environmental Compliance

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Appendix E: Environmental Compliance

During the feasibility phase, a variety of regulations and statutes need to be met as part of the feasibility study process. Those that were considered and reviewed to determine if they are applicable to the study are listed below. As this report is an integrated feasibility report/environmental impact statement, detailed information to meet the NEPA process is included throughout the report. This appendix includes specific documentation to fulfill environmental compliance requirements. Additional compliance documentation is provided in the following attachments:

- Attachment A: Essential Fish Habitat Evaluation
- Attachment B: Clean Water Act Section 404(b)(1) Evaluation
- Attachment C: Endangered Species Act Section 7 Evaluation
- Attachment D: Agency Coordination

E.1 The National Environmental Policy Act of 1969

Public Law 91-190 establishes a broad national policy to improve the relationship between humans and their environment, and sets out policies and goals to ensure that environmental considerations are given careful attention and appropriate weight in all decisions of the Federal Government.

NEPA requires Federal agencies to analyze and consider the direct and indirect environmental and socioeconomic impacts associated with proposed Federal projects, including when a Federal agency takes an action, when a Federal permit or authorization is needed, and/or when Federal funding is used. Compliance with NEPA requires that projects undergo a rigorous process of stakeholder input, alternatives and impact analysis, and review by Federal and State agencies– this process is generally termed the "NEPA Process." For larger projects with anticipated significant impacts, the NEPA process is documented in the form of an EIS or SEIS.

E.2 Federal Statutes

- The American Indian Religious Freedom Act
- Antiquities Act of 1906, as amended
- Archaeological and Historic Preservation Act of 1974, as amended
- Archaeological Resource Protection Act of 1979, as amended
- Bald Eagle Act of 1972
- Barrier Resources Act of 1982
- Clean Air Act of 1972, as amended
- Clean Water Act of 1972, as amended
- Coastal Zone Management Act of 1972, as amended
- Comprehensive Environmental Response, Compensation, and Liability Act of 1980
- Endangered Species Act of 1973
- Estuary Protection Act of 1968
- Farmland Protection Policy Act
- Federal Environmental Pesticide Act of 1972

- Federal Water Project Recreation Act of 1965, as amended
- Fish and Wildlife Coordination Act of 1958, as amended
- Fishery Conservation and Management Act
- Historic Sites Act of 1935
- Land and Water Conservation Fund Act of 1965
- Magnuson-Stevens Fishery Conservation and Management Act
- Marine Mammal Protection Act of 1972, as amended
- Marine Protection, Research, and Sanctuaries Act of 1972
- Migratory Bird Conservation Act of 1928, as amended
- Migratory Bird Treaty Act of 1918, as amended
- National Historic Preservation Act of 1966, as amended
- National Historic Preservation Act Amendments of 1980
- Native American Graves Protection and Repatriation Act
- Noise Control Act of 1972, as amended
- North American Wetlands Conservation Act
- Occupational Health and Safety Act
- Resource Conservation and Recovery Act of 1976
- River and Harbor Act of 1899
- River and Harbor and Flood Control Act of 1962, Section 207
- Safe Drinking Water Act of 1974, as amended
- Solid Waste Disposal
- Superfund Amendments and Reauthorization Act of 1986
- Toxic Substances Control Act of 1976
- Water Resources Development Acts of 1986, 1988, 1990, 1992, and 1996
- Water Resources Planning Act
- Watershed Protection and Flood Prevention Act of 1954, as amended
- Wild and Scenic Rivers Act of 1968, as amended
- Wilderness Act

E.2.1 Executive Orders (EO)

- Protection and Enhancement of Environmental Quality (EO 11514)
- Protection and Enhancement of Cultural Environment (EO 11593)
- Floodplain Management (EO 11988)
- Protection of Wetlands (EO 11990)
- Compliance with Pollution Control Standards (EO 12088)
- Prime and Unique Farmlands (Memorandum, Council on Environmental Quality, 11 August 1980)
- Environmental Justice (EO 12898)
- Protection of Children from Health and Safety Risks (EO 13045)
- Recreational Fisheries (EO 12962)
- Environmental Effects of Major Federal Actions (EO 12114)
- Responsibilities of Federal Agencies to Protect Migratory Birds (EO 13186)
- Facilitation of Cooperative Conservation (EO 13352)

E.2.2 Other Federal Policies

- Council on Environmental Quality Memorandum of August 11, 1980: Analysis of Impacts on Prime and Unique Agricultural Lands in Implementing the National Environmental Policy Act

- Council on Environmental Quality Memorandum of August 10, 1980: Interagency Consultation to Avoid or Mitigate Adverse Effects on Rivers in the Nationwide Inventory

- Migratory Bird Act Treaties and other international agreements listed in the Endangered Species Act of 1973, as amended, Section 2 (a)(4)

E.3 United States Army Corps of Engineers Regulations and Guidance

- Engineering Regulation 1105-2-100 *Planning Guidance Notebook* (22 April 2000)
- Engineering Regulation 200-2-2 *Procedures for Implementing NEPA* (33 CFR 230)
- Engineering Regulation 1110-2-1302 *Engineering and Design - Civil Works Cost Engineering* (31 March 1994)
- Engineering Regulation 1110-2-1806 *Engineering and Design - Earthquake Design and Evaluation for Civil Works Projects* (1995)
- USACE Policy Guidance Letter No. 40 *Development and Financing of Dredged Material Management Studies*
- USACE Policy Guidance Letter No. 56 *Section 207 of the Water Resources Development Act of 1996, Beneficial Use of Dredged Material*
- USACE Policy Guidance Letter No. 59 *Recreational Development at Ecosystem Restoration Projects*
- Engineering Manual 1110-2-1100 *Coastal Engineering Manual – Part 1 through Part V* (30 April 2002)
- Engineering Manual 1110-2-5027 *Engineering and Design - Confined Disposal of Dredged Material* (1987)
- Engineering Manual 1110-2-1902 *Slope Stability* (2003)
- Engineering Manual 1110-1-1904 *Settlement Analysis* (1990)
- Engineering Manual 1110-2-1906 *Laboratory Soils Testing* (1986)
- Engineering Circular 1105-2-210 *Ecosystem Restoration in Civil Works Programs*

E.4 State of Maryland Compliance

- Maryland Environment Act
- Water Quality Certification (COMAR 26.08.02.10)
- Tidal Wetlands License (COMAR 26.24)
- Sediment and Erosion Control (COMAR 26.17.01)
- Stormwater Management (COMAR 26.17.02)
- Water Appropriation and Use (COMAR 26.17.06)
- Oil Control Program (COMAR 26.10)
- Maryland Coastal Zone Management Program

- Critical Area Act
- Chesapeake Bay Critical Area Program (COMAR 27.02)
- Nongame and Endangered Species Conservation Act
- Natural Heritage Program (COMAR 08.02.12, 08.03.08)
- Maryland Historical Trust (MHT) / State Historic Preservation Officer (SHPO) (COMAR 05.08)
- Water Quality Improvement Act of 1998
- Maryland's Conservation Reserve Enhancement Program
- Economic Growth, Resource Protection, and Planning Act
- Maryland Environmental Policy Act
- Maryland Environmental Trust
- Dredged Material Management Act of 2001

Attachment B: Clean Water Act Section 404(b)(1) Evaluation

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Attachment A: Essential Fish Habitat Evaluation

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Mid-Chesapeake Bay Islands Restoration Project

Dorchester County, Maryland

Essential Fish Habitat Assessment
April 2005

Prepared by U.S. Army Corps of Engineers

Pursuant to Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation & Management Act, the Corps of Engineers is required to prepare an Essential Fish Habitat [EFH] Assessment for all proposed actions that occur within coastal waters of the United States. Based on the prescribed protocol for preparation of an EFH Assessment, the assessment is comprised of the following components:

1. A description of the proposed action;
2. A listing of the life stages of all species with EFH designated in the project area;
3. An analysis of the effects of the proposed action;
4. The Federal agency's opinions regarding the effects of the proposed action; and,
5. Proposed mitigation, if applicable.

I. DESCRIPTION OF THE PROPOSED ACTION

The Baltimore District, U.S. Army Corps of Engineers (Corps) in partnership with the State of Maryland Department of Transportation, Maryland Port Administration (MPA) has initiated an environmental restoration feasibility study for the restoration of island habitat in the Mid-Chesapeake Bay region. This study focuses on restoring hundreds of acres of aquatic and wildlife island habitat in the Mid-Chesapeake Bay region through the beneficial use of dredged materials from the Port of Baltimore channel system.

The Mid-Chesapeake Bay Islands Restoration Feasibility Study stemmed from the Eastern Shore, MD and DE Section 905(b) Analysis, in accordance with Section 905(b) of the Water Resources Development Act of 1996. The Mid-Chesapeake Bay study area includes the eastern half of the Chesapeake Bay, from the Chester River to the MD/VA state line. This feasibility study addresses the recommendation to replace habitats lost through development and erosion activities within the study area through the beneficial use of dredged material.

The Mid-Chesapeake Islands Restoration Project recommends island restoration at James Island and Barren Island (Figure 1, 2, and 3 enclosed, respectively), both in Dorchester County, MD. James Island is 16 miles north of Barren Island on the Eastern Shore of Maryland. James Island is situated at the mouth of the Little Choptank River, 3,100' north of Taylors Island. Once at least 1,350 acres in the 17th century, James Island now amounts to 3 small remnants totaling roughly 100 acres (Maryland, 1949; Kearney, 1991). Presently, James Island is privately owned. Barren Island lies immediately west of Hoopers Island. Barren Island currently totals nearly 200 acres, but was recorded at 754 acres in 1848 (Wray, 1995). Barren Island is federally owned and managed by the U.S. Fish

and Wildlife Service (USFWS) as a satellite refuge area to Blackwater National Wildlife Refuge.

The James Island portion of the project involves constructing armored dikes, breakwaters, and/or other structures approximating the island's historical footprint and filling the enclosed area with clean dredged material from Federal navigation channels in Chesapeake Bay. The 2,072-acre fill area will be subdivided to provide approximately 55% tidal wetland habitats and 45% upland island habitats. Construction at James Island would necessitate the dredging of an access channel on the northwest. The access channel would be approximately 12,720' in length, and 400' in width at base with 3:1 side slopes. Of the total length, 3,070' would lie within the island footprint with 9,650' extending outside the footprint. The total footprint of the access channel is roughly 153.5 ac, with 52.7 ac within and 100.8 acres outside the island footprint. The project limit is highlighted in Figure 2. The project limit identifies the project impact boundaries and provides for minor changes to the location of the proposed island alignment. Approximately 40,000' of perimeter dikes would be constructed. The sand for dike construction would be hydraulically dredged from within the island footprint or from the access channel. The sediment to construct the proposed wetland and upland habitat area at James Island would be dredged from the following Federal navigation channels in the Chesapeake Bay leading to Baltimore Harbor: the Craighill Entrance Channel; the Craighill Channel; the Craighill Angle, the Craighill Upper Range; the Cutoff Angle; the Brewerton Channel Eastern Extension; the Tolchester Channel, the Swan Point Channel, Inland Waterway from Delaware River to Chesapeake Bay, and potentially, other non-federal projects.

Plans for Barren Island incorporate the use of sills to protect the current acreage of the island and the submerged aquatic vegetation (SAV)/shallow water habitat off the eastern shore of Barren Island. Sills constructed along the current shoreline would be backfilled with dredged material to create wetland habitat. Phase I Barren restoration would involve the modification of 4900' of existing rock sill, construction of 3,840' of new rock sill on the north shore, 4,620' along the western shore, and a back-up containment of 1,300'. Sills would be built to an elevation of 4' MLLW. Modification of the existing sill would slightly expand its footprint, consuming an additional 1.1 acre footprint. The near-shore sill would consume 5 acres of shallow water habitat. Approximately, 23 and 49 acres of island habitat (72 acres total) will be created by backfilling on the north and west, respectively. The material that would be used to backfill behind the breakwaters at Barren Island will be from authorized maintenance of local Honga River channels and is characterized as silt and sand. Also, as part of Phase I, monitoring would be carried out to evaluate the need for constructing breakwaters off the southern tip of Barren Island following the historic shoreline in order to protect the SAV habitat to the south and southeast of Barren Island. If it is determined that the SAV habitat to the south and southeast require further protection, a maximum 8,200' of structure is proposed at a maximum height of 6' MLLW. If built to maximum length, the southern breakwater would have a 9.5 acre footprint. In total, preliminary designs identify that Barren Island restoration measures would directly impact 92 acres of near-shore habitat. Therefore, it is projected that with refinement during final design no more than 100 acres of bottom would be impacted at Barren Island. The project limit is identified in Figure 3.

II. PROJECT AREA BACKGROUND

Island habitats are being lost in Chesapeake Bay as a consequence of erosion and inundation accompanying rising sea level occurring at a rate more rapidly than new islands are being created (Wray et al., 1995). Approximately 10,500 acres of island habitat have been lost in the middle eastern portion of the Chesapeake Bay alone. Alternatively, the Chesapeake Bay is growing by up to several hundred acres per year as a consequence of the impacts of rising sea level. This is continuously producing new open water habitat, including shallow water habitat. Land losses occur Bay-wide but are concentrated in the low-lying lower Eastern Shore (USACE, 1990).

Seasonal finfish monitoring including trawl, popnet, gillnet, and beach seine studies, has been conducted in the waters surrounding James and Barren Islands in preparation for this project from summer 2002 through summer 2003. A total of five seasons were sampled. Maps identifying sampling stations are available in Figures 4 to 7. Table 1 and 2 summarize the sampling results at James and Barren Islands, respectively.

Water quality in the vicinity of James and Barren Islands has been monitored by Maryland Department of Natural Resources (MDNR, 2005a) Water Quality Monitoring Program since 1985. The two closest monitoring stations to James Island are a mainstem station, CB4.3C, and a Little Choptank River station, EE2.2. CB4.3C is located over the main channel to the north and west of James Island while EE2.2 is off the northeast corner of James Island. The mainstem station 5.1 is directly west of Barren Island. Table 3 presents water surface water temperature recorded at these stations for the period 1985-2003 (MDNR, 2005).

The pycnocline, the mixing zone at the boundary between the upper fresher layer of the water column and the lower saltier layer of the water column during times when the water column is stratified, occurs at roughly 9.7 to 39.4 ft (6 to 12 m) depth in mid Bay waters (Kemp et al., 1999). Subpycnocline waters are prone to hypoxic and anoxic conditions during warm weather months (Chesapeake Bay Program, 2004).

Surficial sediments surrounding James and Barren Island are characterized as primarily sand with some silt and clay, consistent with the character of much of the middle and lower Bay bottom in Maryland along both the Eastern and Western Shore out to about 30 feet depth (Kerhin et al., 1988). In sediment studies conducted for this study, four of five James Island sediment samples were predominantly sand (Harms 2005; BBL 2005). One sample was largely silt/clay. 80% of sediment samples (n=10) taken surrounding Barren consisted of 57.6 to 98.7% sand. The remaining portion was predominantly silt/clay with a small percentage of gravel. For example, two samples were 86.3 and 84.1% silt/clay with the remainder sand.

Virginia Institute of Marine Science (VIMS) annual surveys from 1994 to 2003 were reviewed to understand the presence of SAV in the James and Barren Island vicinities. SAV beds have made a resurgence since 1999 in the waters on the eastern side of Barren Island. An average of 695 acres of SAV beds was present between 1999-2003, peaking at 1,325 acres in 2001. Minimal beds of SAV were found between 1994 and 1999. No

SAV was documented by the VIMS maps off the western or northern shoreline of Barren where the project would be constructed. James Island had very little SAV compared with Barren Island. Two small beds periodically occur along the eastern shore of the remnants, averaging 10 acres between 1999 and 2003. SAV beds at James Island peaked in 2001 at 22.6 acres. SAV monitoring was additionally conducted as part of the existing conditions evaluation during summer 2002, spring 2003, and August 2003 (Harms, 2005). Widgeon grass (*Ruppia martina*) was the dominant SAV recorded during the Summer 2002 survey. Three separate beds were recorded along the eastern shoreline of each of the island remnants. All SAV found by spring 2003 monitoring was identified as horned pondweed (*Zannichellia palustris*). SAV beds were most dense along the middle remnant. SAV beds along the southern remnant were patchy at best. Weather conditions did not permit sampling at the northern remnant. SAV surveys conducted in the supplemental survey, August 2003, produced one blade of horned pondweed (Harms, 2004c). A diver entered the water to survey the vicinity and confirmed the absence of SAV adjacent to James Island at that time. No SAV was documented within the footprint of the proposed island alignment or impact area. Barren Island SAV investigations were made during summer 2002 and spring and summer 2003 (BBL 2004a,b). Aquatic species observed at Barren Island include eelgrass (*Zostera marina*), horned pondweed, and widgeon grass. The presence of SAV appears to be dependent on the location around the island. SAV crown densities were highest along the eastern shoreline of Barren Island. SAV was also present along the northern shoreline and southeastern island tip. SAV was absent along the western shoreline. The likely reasons for the absence of SAV along the western shorelines are the steep slopes of the shoreline, lower water clarity, and a higher exposure to wave action. The more extensive VIMS monitoring showed no historical SAV within the proposed Barren Island project area. However, the existing conditions evaluation identified recent low density SAV beds along the northern and southern proposed project areas. Additional monitoring would be completed during the Design Phase of the project to avoid impacting viable SAV beds.

The Chesapeake Bay Program has defined Tier I, II, and III SAV recovery zones. The Tier I SAV distribution restoration target is the restoration of SAV to areas currently or previously inhabited by SAV as mapped through regional and baywide aerial surveys from 1971 through 1990 (Batuik *et al.* 1992; Dennison *et al.* 1993). The Tier II and Tier III distribution restoration targets are the restoration of SAV to all shallow water areas identified as existing or potential SAV habitat, down to the 1- and 2-meter (3.3 and 6.6 foot) depth contours, respectively. There is no Tier 1 area in the vicinity of James Island. Tier I areas have been delineated to the northeast, east, and southeast of Barren Island. Tier II and Tier III zones surround both islands. It is estimated that 298.8 acres of bottom less than 2 m in depth exist within the project footprint at James Island. All of the Barren project area, approximately 100 acres, is less than 2 m in depth.

III. SPECIES WITH EFH DESIGNATED IN THE PROJECT AREA

James and Barren Islands lie on the Eastern Shore of Maryland, south of the Choptank River. Coordination with John Nichols, NMFS, identified the Choptank River as the appropriate geographic area upon which to base the Mid-Chesapeake Bay Islands EFH

analysis. With review of EFH designations for the Choptank River estuary, it was determined that the proposed project at Barren and James Island lies within waters designated as EFH for the following species and their life stages: windowpane flounder (*Scopthalmus aquosos*), juvenile and adult stages; bluefish (*Pomatomus saltatrix*), juvenile and adult stages; summer flounder (*Paralicthys dentatus*), juvenile and adult stages; king mackerel (S*comberomorus cavalla*), eggs, larvae juvenile, and adult stages; Spanish mackerel (*Scomberomorus maculatus*), eggs, larvae, juvenile, and adult stages; cobia (*Rachycentron canadum*), eggs, larvae, juvenile, and adult stages; and red drum (*Sciaenops occelatus*), eggs, larvae, juvenile, and adult stages.

Through further District coordination with John Nichols, National Marine Fisheries Service (NMFS), Oxford, Maryland Habitat Office, it was concluded that of species with EFH designated in the Choptank River, only juvenile and adult summer flounder, adult and juvenile bluefish, and juvenile red drum were likely to occur at the proposed expansion site. Windowpane flounder, cobia, and king mackerel are generally restricted to the lower Chesapeake Bay, while Spanish mackerel is restricted to portions of the Bay south of U.S. 50 bridge (Murdy et al., 1997) and is generally transient north of the Choptank River (Nichols, 2003, pers. comm.). Further, bluefish, red drum, and summer flounder were the only species of concern identified in sampling efforts (Table 1 and 2). These species were present in three seasons: spring, summer, and fall, but none were found in winter.

III. IMPACTS TO SPECIES WITH EFH DESIGNATED IN THE PROJECT AREA

The following provides a brief overview of pertinent natural history information of summer flounder, bluefish, and red drum to serve as a basis for assessing impacts of the proposed action to these species. This natural history information is followed with an analysis of impacts to individuals, habitat, and prey of these species of the proposed action as well as cumulative impacts of other dredging and dredged material placement actions.

Discharge from the existing placement site and newly constructed cells during placement operations must comply with state (Maryland Department of the Environment) water quality standards, and should result in only short term, minor perturbations to local water quality, and minimal impacts to individuals of all three species.

A. SUMMER FLOUNDER (juvenile and adult life stages)

1. Natural History

Adult and older juvenile summer flounder enter the Chesapeake Bay during spring and early summer, and exit the Bay in fall (Murdy et al. 1997). Adult summer flounder overwinter in the ocean and only enter the Bay in late spring. Larvae and young juveniles migrate into the Bay in October and prefer shallower waters; they typically overwinter and grow in the southern portion of the Bay. Older juveniles are generally

distributed inshore and in estuarine areas throughout their range during the spring, summer, and fall. During colder months they move into deeper (oceanic) waters and can be found offshore with adults (Murdy et al. 1997, Fahay et al. 1999). Table 4 provides information on general occurrence and habitat preferences of summer flounder in estuaries.

Both adults and juveniles exhibit a marked preference for sandy bottom and/or SAV beds, particularly areas near shorelines (NMFS 2000). SAV has been identified as a Habitat of Particular Concern (HAPC) for both juvenile and adult summer flounder under the tenets of the Magnuson-Stevens Act. Previous consultations with NMFS have indicated that summer flounder are more prevalent in the lower Bay than in the project area (Nichols, pers. communication, 2003).

Summer flounder feed on a variety of small fish, shrimp, and crabs that occur in the Chesapeake Bay. Prey include species such as grass shrimp (*Palaemonetes pugio*), Atlantic silversides (*Menidia menidia*), and bay anchovy (*Anchoa mitchilli*). Grass shrimp prefers sand bottom and/or SAV, similar to summer flounder preferences, while forage finfish are generally widespread in occurrence in shallow waters. Each of these food items occurs in the vicinity of the study area (Harms 2005; BBL 2005).

2. Impacts Assessment

a. Impacts to Individuals

Direct impacts to summer flounder individuals are unlikely, even if construction occurs during warmer months, because flounder are strong swimmers and would be able to avoid dredging and construction disturbances. During cooler weather months no direct physical impacts to individuals are expected because they are unlikely to be present. MDNR monitoring data for the Barren and James Island areas indicate that water temperatures are below the optimum temperature for summer flounder (52°F, Table 3) from November through April (Table 3).

b. Habitat Impacts

The sediments at James and Barren Island are typical of lowland sedimentary deposits and consist primarily of sand, plus silt, and clay, with some gravel. Construction of a restored James Island would thus cause the loss of 2,072 acres of preferred habitat for summer flounder when this area is converted to marsh and upland island habitat. Dredging actions for the northwestern access channel would likely leave the majority of the area retaining a sandy substrate, however clays may be exposed locally. Restoration measures at Barren Island would transform eroding shoreline into 72 acres of wetland habitat. Restoration structures including sills and breakwaters would consume a maximum of 20 acres of bottom (10.5 acres of sill in Phase I plus, if determined necessary, 9.5 acres of breakwaters in Phase II). Sandy substrates are predominant along the shoreline in much of this reach of the Bay, and the proposed actions at James and Barren Islands are negligible relative to the overall acreages of sand bottom in the Bay.

Thus, this loss of preferred habitat is not expected to impact summer flounder populations. Site filling (i.e. dredged material placement operations) would result in no additional alterations to or displacement of summer flounder habitat (post construction).

Project construction is not expected to directly impact SAV at James Island, since SAV is absent from the proposed project area. Therefore, there should be no direct impact to summer flounder HAPC. The proposed restoration at Barren Island is expected to contribute significantly to further protection of SAV beds documented over the last several years in the waters to the east of Barren Island. SAV surveys performed as part of this study identified low density SAV beds within the project footprint that were never recorded in the VIMS surveys. Due to the variability in SAV bed location, additional monitoring would be completed during the Design Phase of the project to minimize impacting viable SAV beds. Phase I monitoring, would provide information to evaluate the need for and the design of breakwaters specifically to protect and benefit SAV habitat to the south and east of Barren Island. Thus, indirect impacts of the project should benefit SAV, and thus increase summer flounder HAPC. The shallow (< 2m) bottom area surrounding James and Barren Islands are Tier II and III SAV recovery zones. Construction of the proposed projects at James and Barren would convert approximately 298.9 and 100 acres, respectively, of shallow water habitat (SWH) less than 2 m deep to marsh or upland island habitat. Thus the project would cause the permanent loss of up to 398.9 acres of Tier III SAV recovery habitat. However, whether SAV would reoccupy this area in the foreseeable future even if no project were constructed is highly uncertain, given trends in the project area since VIMS has been surveying it.

Parts of the northwestern access channel at James Island that are dredged to –25 feet or greater have the potential to become hypoxic or anoxic in warmer months of years when impaired water quality problems are pervasive below the pycnocline in the Bay. Under these conditions, the bottom in the access channel would be unsuitable as habitat for summer flounder and they would be expected to avoid this area. This potential loss of habitat would not be expected to impact summer flounder populations because of the abundance of suitable habitat still remaining elsewhere in the Bay.

Summer flounder utilize salt marsh creeks (Table 4), which will be created as part of the proposed James Island activities. This habitat enhancement is expected to compensate somewhat for proposed conversion of open water and benthic habitats to island habitat.

c. Impacts to Prey

Up to 2,072 acres of open water habitat at James Island and 100 acres of shoreline habitat at Barren Island that supports summer flounder prey would be lost to accommodate the proposed project. Prey individuals will be destroyed or displaced as a result of project expansion and borrow actions in both locations. The reduction of benthic macroinvertebrate communities as a result of island expansion would reduce biomass available for consumption by summer flounder that may use these areas as feeding grounds. However, forage fish and invertebrates consumed by summer flounder occur over a broad area of the Bay. And although the project will cause loss of open water and

benthic habitat for summer flounder prey species, population levels of prey species are expected to remain regionally healthy because of ready availability of these lost habitats elsewhere in region. Restoration of salt marsh at James and Barren plus expected protection of SAV at Barren will support a wide variety of summer flounder forage species and partially compensate for the loss of open water habitat and disturbance to bottom habitats. The James Island access channel will likely recover a benthic community comparable to pre-project conditions within several years following cessation of dredging, as is typical of benthos occurring on sands and fine mobile estuarine deposits (Newel et al. 1998). However, channel depths below the pycnocline following dredging have the potential to lose their benthic macroinvertebrate communities in the future if hypoxic or anoxic conditions occur for prolonged periods of time.

d. Cumulative Impacts

Other dredging and placement actions occur in the immediate vicinity of the project area. Periodic maintenance dredging is conducted in small navigation channels including: Knapps Narrows, the Honga River, and the Chester River. Maintenance dredging of the federal channels in these locations would result in displacement of flounder and forage resources immediately after dredging. Knapps Narrows was last dredged 4 to 5 years ago, and it is expected that maintenance dredging will occur in either 2005 or 2006. The Chester River has been maintained within the past 3 years and would not require dredging for several years. The Honga River dredging and channel realignment was conducted and completed earlier in 2004. However, Honga River channels will require periodic future dredging that will provide material for the proposed wetland creation at Barren Island. These dredging projects will cause only temporary bottom disturbance and loss of benthos that could serve as forage for summer flounder. There is also periodic maintenance dredging and placement activities associated with other portions of the Baltimore Harbor and Channels federal project in the Patapsco River, the Swan Point Channel, Tolchester Channel, and the approach channels to the Chesapeake & Delaware Canal. Activities north of the Bay Bridge, however, should have little additional impact on the species because summer flounder are typically very rare or absent in these regions.

Privately-owned commercial fishing gear, such as hydraulic escalator dredges used to harvest soft clams (*Mya arenaria*), can also impact bottom habitat used by summer flounder. Escalator dredges produce short-term modifications to bottom topography, which are generally not detrimental to flounder if occurring on non-vegetated bottoms. Operation of escalator dredges in SAV beds has been restricted within Maryland waters so minimal impact to SAV is occurring from these clamming activities.

The State of Maryland and Baltimore District are presently evaluating expansion of the Poplar Island Environmental Restoration Project (PIERP). PIERP is currently restoring 1,100 acres of open water to island habitat, half uplands and half tidal wetlands. If Poplar Island Expansion moves forward, up to approximately 600 acres of additional EFH may be converted to uplands/wetlands within 16 to 26 nautical miles of James and Barren Islands in areas that are known to support summer flounder. The expansion also

proposes dredging sand for dike construction from an open water area west/southwest of the current project, potentially impacting between 49 and 230 acres.

The largest direct impact to summer flounder populations regionally is recreational and commercial fishing pressure (Murdy 1997). Proper management of fishing is the most critical measure to ensure stable summer flounder populations at this time, unless other environmental conditions change substantially.

B. BLUEFISH

1. Natural History

Juvenile and adult bluefish enter the Chesapeake Bay during spring through summer, leaving the Bay in late fall. Adults are uncommon north of Annapolis, and generally do not occur above the U.S. 50 bridge, except during years of greater up-Bay salt wedge encroachment. Juveniles tolerate lower salinities than adults, and are therefore common in the upper Bay above the U.S. 50 Bridge, occurring as far north of Susquehanna Flats and the lower Elk River (Lippson, 1973). MDNR monitoring data for the James and Barren Island areas (Table 3) indicate that the area reaches the optimum temperature for bluefish immigration (>68°F, Table 3) in late May/early June and falls to the out migration temperature (<59°F, Table 3) in late October/early November. Both adult and juvenile bluefish were collected in the vicinity of Barren Island during summer sampling in Summer 2002 and Spring 2003 (BBL 2005). Bluefish were identified in sampling at James Island in Fall 2003, and Spring and Summer 2003 (Harms, 2005). No length measurements were provided with the James Island monitoring to allow a life stage determination. Bluefish do not begin their migration into the mesohaline reaches of the Bay until May in most years. Previous consultations with NMFS have indicated that bluefish are ubiquitous within the Bay and transients to the site (Nichols, pers. comm., 2003) therefore they are not expected to be more prevalent within the project area than elsewhere within the Bay.

Adults are pelagic and not typically bottom feeders and are strong swimmers that can easily avoid turbid conditions. Juveniles prefer shallower waters but are expected to be able to avoid dredging and construction activities. Juveniles tend to concentrate in shoal waters, and are opportunistic feeders, foraging on a wide variety of estuarine life in the pelagic zone and over a variety of bottom types (Lippson, 1973). Table 4 provides information on general occurrence and habitat preferences of bluefish in estuaries.

2. Impacts Assessment

a. Impacts to Individuals

Any adults or young that may be in the area during construction would be displaced. However because of the comparatively small size of the project area in comparison with open waters of the Bay suitable for bluefish, no detrimental impacts to bluefish are expected. Direct impacts to bluefish are unlikely, even if construction occurs during

warmer months, because bluefish are good swimmers and can easily avoid construction activities. During cooler weather months no direct physical impacts to individuals are expected because they are unlikely to be present. Bluefish are unlikely to be present around the project from late October through early May due to their temperature preferences (Packer et al. 1999; Table 3).

b. Habitat Impacts

Island restoration at James Island would lead to the transformation of 2,072 acres of shallow water habitat to island habitat. Restoration at Barren Island would transform a maximum of 100 acres (92 ac defined by preliminary designs) of eroding shoreline into wetland habitat. Restoration structures including sills and breakwaters would consume 20 acres of bottom, as determined by preliminary designs (10.5 acres of sill in Phase I plus, if determined necessary, 9.5 acres of breakwaters in Phase II). These areas would be lost to bluefish. However, because of the great abundance of this habitat type in the Bay, no detrimental impacts to bluefish populations are expected. Although dredging activities for the northwest access channel at James Island would disturb bottom, open water habitat would remain, thus no long-term impacts to bluefish habitat are expected. The marshes and tidal creeks created as part of island restoration at James and Barren and protection of SAV at Barren will support juvenile bluefish (Table 4). These changes would compensate somewhat for loss of open water habitat.

c. Impacts to Prey

The permanent reduction of open water and benthic communities as a result of island restoration at James and Barren plus temporary loss of benthic communities in the James access channel would reduce biomass available for consumption by finfish. However, due to bluefish being opportunistic feeders, their prey can be found over a broad area of the Bay and impacts to individual prey species is expected to be minimal. Further, development of open water habitat regionally in association with erosion and rising sea level would be expected to contribute habitat that supports benthic biomass in the Bay. The marshes and tidal creeks created as part of the expansion project will support a wide variety of forage species consumed by bluefish. This would be expected to compensate somewhat for conversion of open water and benthic habitats and ultimately be a habitat enhancement for this species.

d. Cumulative Impacts

Cumulative effects from other projects discussed in the section on summer flounder impacts should not be significant relative to juvenile or adult bluefish because of the ubiquitous distribution and opportunistic feeding habits of this species within the Bay.

C. RED DRUM

1. Natural History

Red Drum occur over a wide range of water depths and variety of bottom types, consequently the EFH designation for this species is broad including most benthic habitats less than 50 m ranging from tidal freshwater to high salinity surf zones (Table 4). Juvenile red drum utilize the shallow backwaters of estuaries as nursery areas. Seagrass beds (SAV) have been identified as HAPC for the species within Chesapeake Bay. Within estuaries, juveniles utilize a variety of habitats including: inlet mouths, tidal creeks/channels, inter- and subtidal flats, river mouths, oyster reefs and SAV beds over a variety of substrates (Table 4). Of the preferred habitat types, the project area includes intertidal flats and tidal creeks/channels. Table 4 provides information on general occurrence and habitat preferences of red drum in estuaries.

Red drum spawn offshore in late summer through early fall and the juveniles enter the Bay in August or September (Murdy et al.1997). Although their temperature preferences are fairly broad (32°F to 86°F, Table 3), they generally do not occur in the Bay after November, when they move into deeper areas of estuaries or the ocean in late fall and winter (Murdy 1997). Red drum were recorded in beach seine sampling at James and Barren Island in summer and fall 2002 (Harms 2005; BBL 2005). Red drum prey varies with life stage. Small individuals consume small crustaceans. Juveniles eat mostly fish, although larger juveniles and adults consume fish, crustaceans, and plant material. Commercial red drum landings have declined along the mid-Atlantic coast, with none being reported north of Chesapeake Bay since 1950 (South Atlantic Fishery Management Council, 1998).

The commercial red drum fishery is not important in the Chesapeake Bay, but a modest recreational fishery does exist (NOAA, 2005). The recreational fishery for red drum is a near-shore fishery, targeting small, "puppy drum" and large trophy fish. Trophy size fish are caught along the Mid- and South Atlantic barrier islands while smaller red drum are taken in shallow estuarine waters (NOAA, 2005). Maryland regulations limit commercial taking to a maximum of 25’’(635 mm) while recreational takes span 18’’ (457 mm) to 27’’(656 mm) (DNR, 2005b). Barren Island monitoring identified red drum ranging from 22 to 86 mm, suggesting a juvenile life stage. Length information was not provided for samples taken at James Island.

2. Impacts Assessment

a. Impacts to Individuals

Juveniles are strong swimmers and should easily be able to avoid dredging and construction activities. Therefore, direct impacts are not expected. Construction taking place during colder weather months would be unlikely to impact juveniles because they would be absent from the project area. No red drum were identified during fall or winter sampling periods.

b. Habitat Impacts

Because the project is expected to create wetlands and tidal creeks and protect SAV habitat, the indirect impacts are expected to be largely beneficial. Most red drum taken at Barren Island during recent surveys were collected by beach seine in near-shore areas. Similarly, red drum were captured in beach seine sampling along the eastern edge of James Island. Loss of open shallow water habitat within the project site is in itself expected to have little direct impact on the red drum population due to the abundance of this habitat within the region. The marshes and tidal creeks created as part of the project will likely support juvenile red drum (Table 4). These habitat enhancements are expected to compensate somewhat for conversion of open water and benthic habitats and ultimately be a habitat enhancement for this species.

c. Impacts to Prey

The reduction of benthic macroinvertebrate communities as a result of the project would reduce biomass available for consumption by finfish. However, red drum are not obligate bottom feeders and the forage fish and invertebrates they consume occur over a broad area of the Bay so impact is expected to be minimal. Further, development of open water habitat regionally in association with erosion and rising sea level would be expected to aid in replacing benthic habitat and biomass in the Bay. The marshes and tidal creeks created as part of the expansion project would support a wide variety of forage species consumed by red drum. This would be expected to compensate somewhat for conversion of open water and benthic habitats and ultimately be a habitat enhancement for this species.

d. Cumulative Impacts

Cumulative effects from other projects discussed in the section on summer flounder impacts should not be substantial relative to juvenile red drum because red drum are mobile relative to these dredging activities and have opportunistic feeding habits. Red drum are present within the Bay for only a short period of the year, so interactions with any dredging activities would be relatively low.

IV. FEDERAL AGENCY'S OPINION ON PROJECT IMPACTS TO EFH

In summary:

1. Adult and juvenile bluefish and summer flounder and juvenile red drum are known to occur near the project area and to utilize the SWH around James and Barren Islands. The proposed project would convert up to 2,072 acres of EFH at James Island (including 298.9 acres maximum of SWH) and 100 acres of EFH at Barren Island (entire project acre is SWH) to tidal wetlands and uplands island habitat, which would result in a net loss of EFH for summer flounder, red drum and bluefish. Up to an additional 110.8 acres of bottom will be disturbed in the dredging of the proposed James Island access channel.

This will result in a temporary loss of benthic habitat for summer flounder until such time as bottom conditions recover.

2. The marshes and tidal creeks created as part of island restoration at James and Barren will support juveniles of summer flounder, bluefish, red drum as well as a wide variety of their forage species. The creation of this habitat is expected to compensate somewhat for loss of open water and benthic habitats.

3. No HAPC (designated for summer flounder and red drum) will be negatively impacted because SAV is rare adjacent to the project area at James Island and the proposed alignments would avoid known SAV beds to the extent practicable. Proposed activities at Barren Island are intended to protect or enhance potential SAV habitat east of Barren.

4. Discharges from the new placement cells will be subject to compliance with state water quality standards, resulting in only short term, minor perturbation to water quality.

5. Although other federal, state and private sponsored projects occur in the project vicinity that cause the disturbance of bottom habitat, these projects are periodic and should not significantly affect summer flounder, bluefish, or red drum, and their associated EFH. Proposed large-scale island restoration projects would cause a loss of bottom and open water habitat for these species, however, regionally this habitat is abundant. Therefore, no significant cumulative impacts to habitat or populations of these species are expected to result from this project.

6. Other species with EFH designated in the project area (i.e., cobia, Spanish mackerel, king mackerel, windowpane flounder) are rare and transient to the site (Nichols, pers. comm., 2004 and 2005, Murdy 1997) and have not been documented in the project area in site-specific studies (Harms 2005; BBL 2005).

In conclusion, the Baltimore District, after reviewing relevant fisheries information and analyzing potential project impacts, has determined that the proposed action will not have a substantial adverse affect on EFH, or on species with designated EFH in the project area. Overall, direct, secondary, and cumulative impacts to EFH and associated species will be minimal and, in the long term, the current project and proposed expansion will enhance some habitat features for species managed under the Magnuson-Stevens Act.

V. MITIGATION

Because this proposal will result in minimal impacts to summer flounder, red drum and bluefish and is designed to protect and enhance EFH and HAPC, no mitigation specific to protection of populations of these species or their habitat has been proposed. It should also be noted that the proposed project incorporates numerous mitigation measures designed to maximize the environmental benefits of the project, while minimizing adverse impacts. Dredging activities would be constrained by spatial and temporal restrictions to protect mapped oyster and SAV beds in the project area. Additional

monitoring would be undertaken at Barren Island during Phase I to avoid impacting viable SAV beds.

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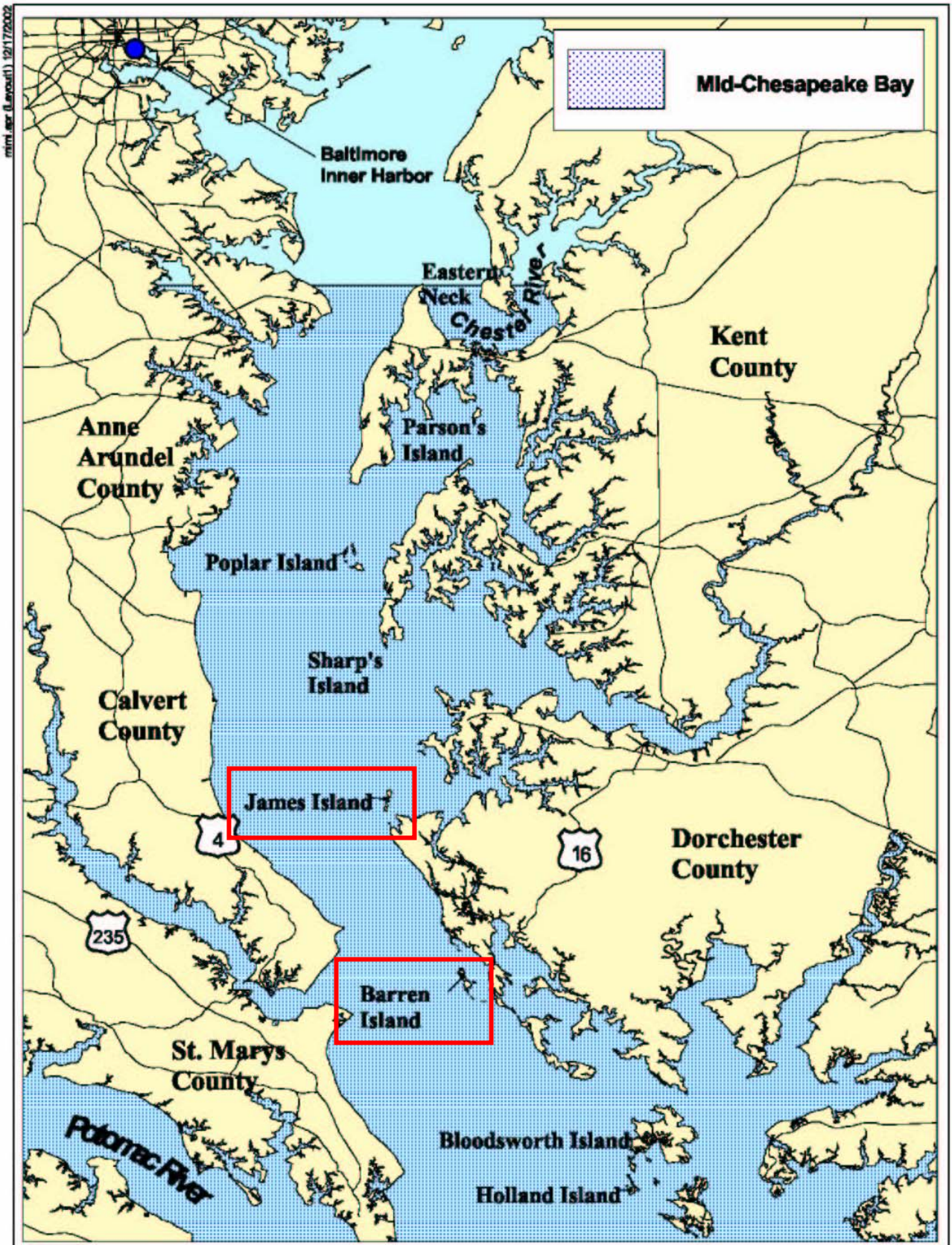

Figure 1: Mid-Chesapeake Bay Island Restoration Feasibility Study Project Area

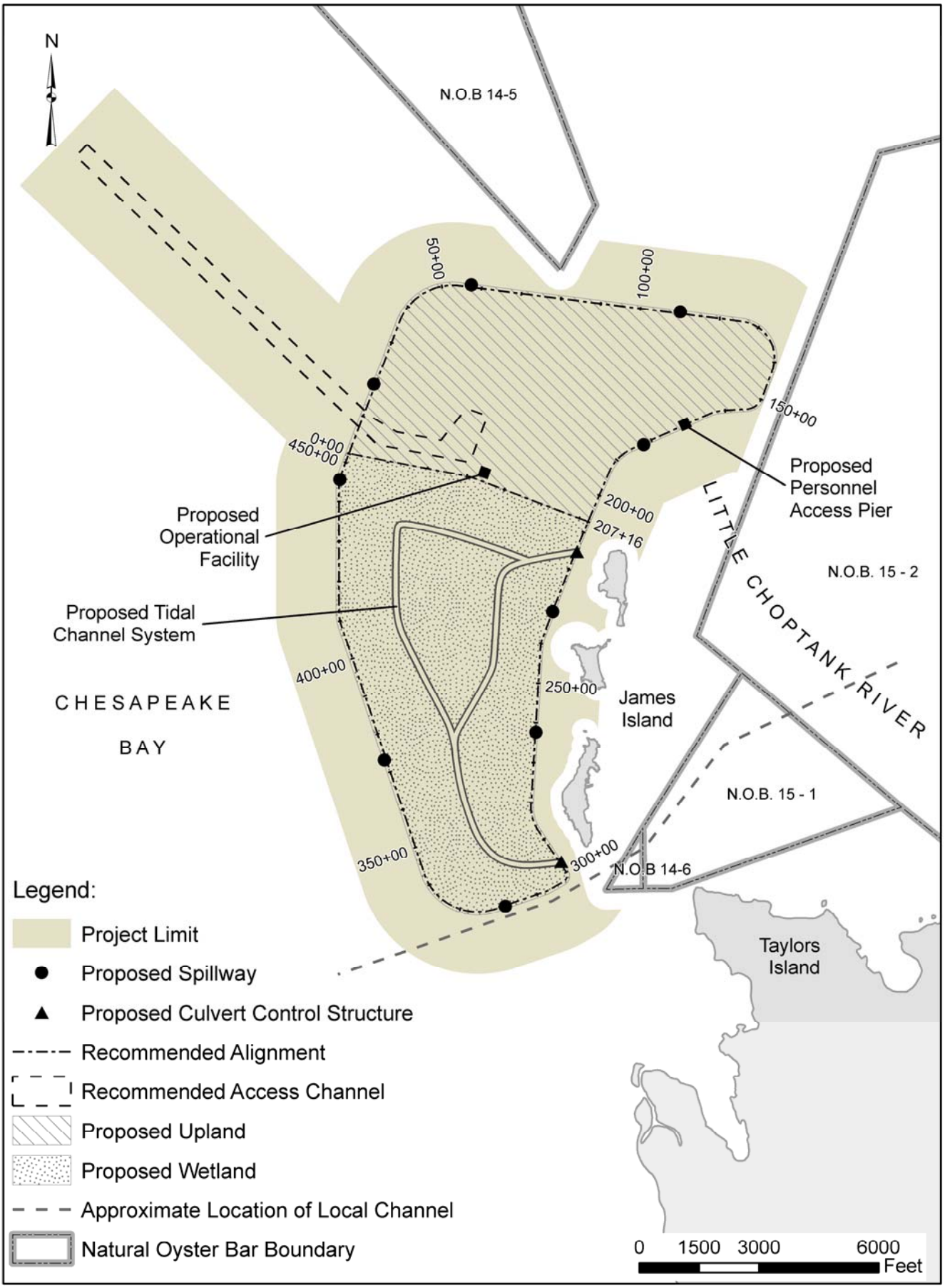

Figure 2: James Island Recommended Plan.

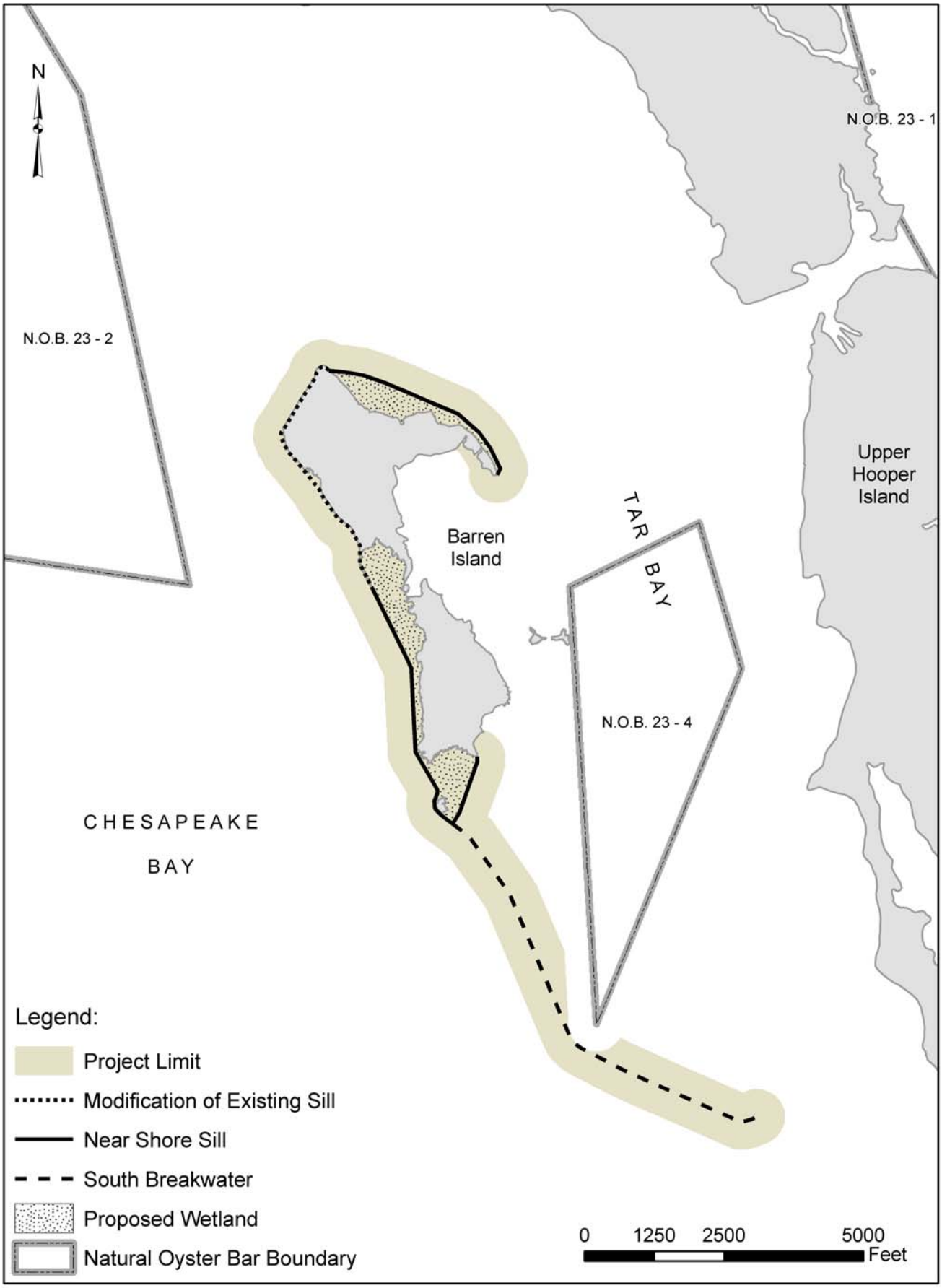

Figure 3: Barren Island Recommended Plan.

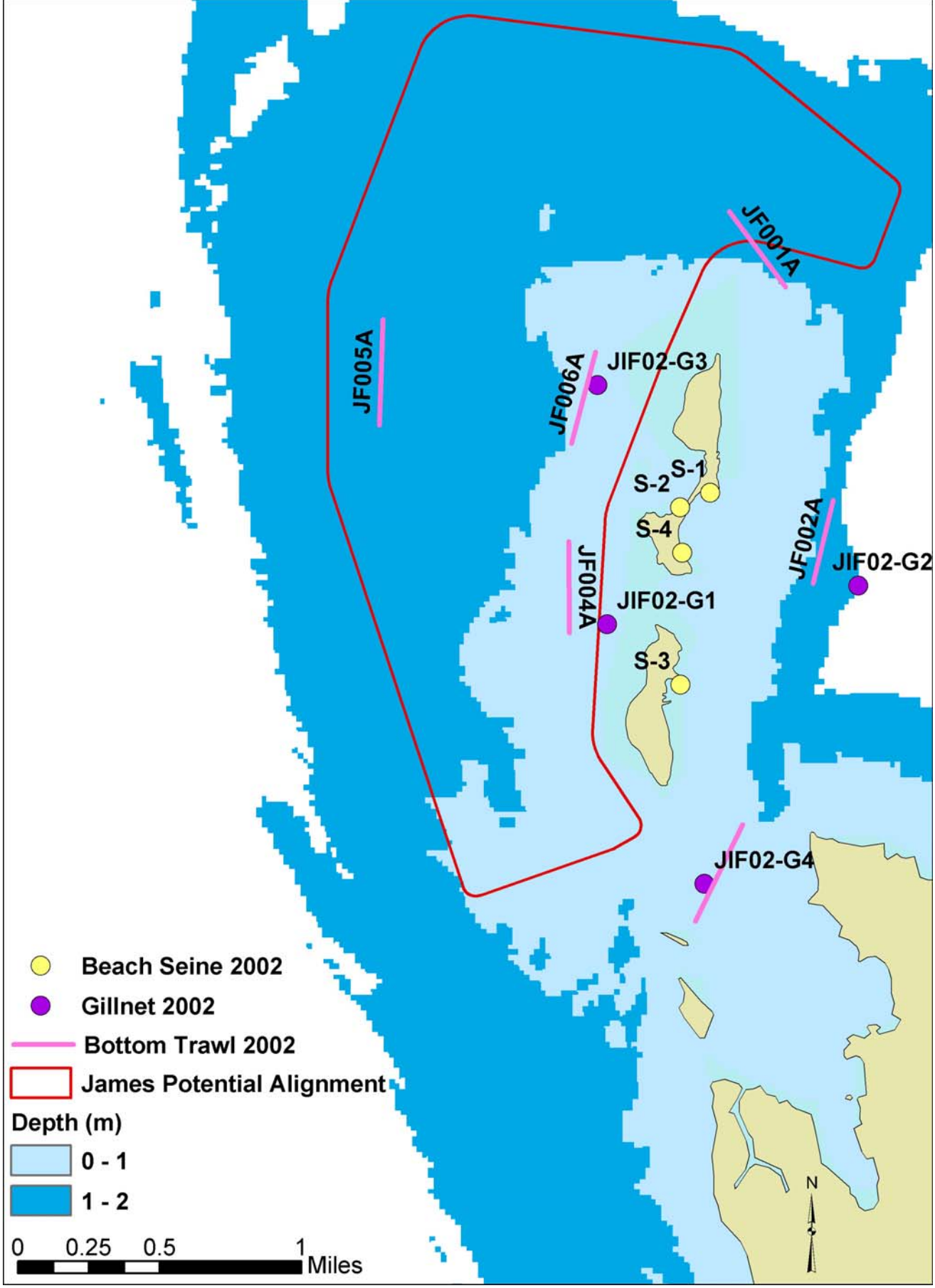

Figure 4: 2002 James Island Finfish Sampling Stations

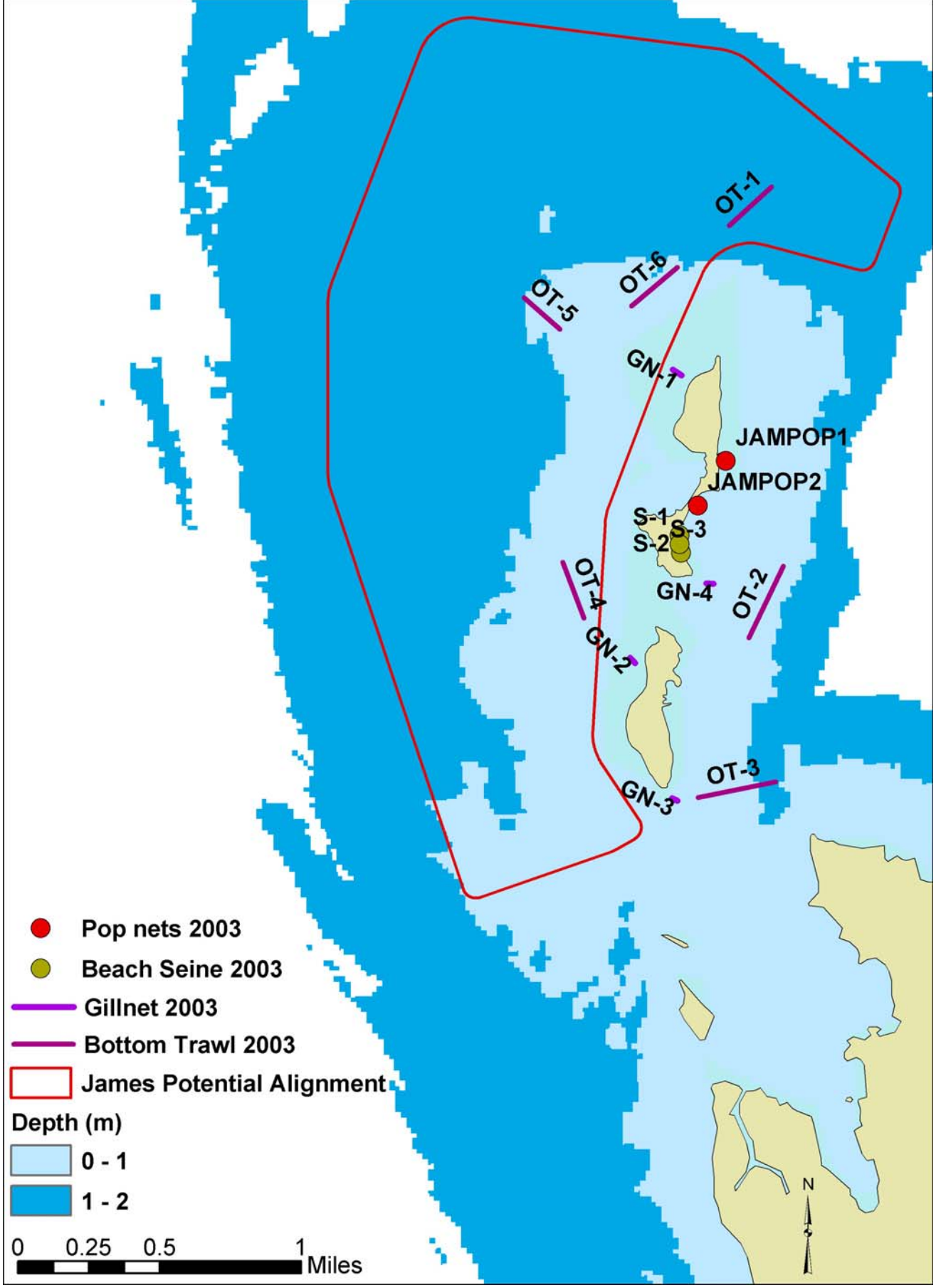

Figure 5: 2003 James Island Finfish Sampling Stations

Table 1: James Island Finfish Monitoring Results (BBL, 2005)

Combined 2002-2003

		Bottom Trawl	Beach Seine													Gillnet				Popnet*			
Species of Concern	**TOTAL**		1	2	3	4	S1	S2	S3	S4	001	002	003	001 night	002 night	003 night	G1	G2	G3	G4	1-1	1-2	2-1	2-2
bluefish	**29**											1	1				3	12	7	5				
windowpane flounder																								
cobia		no specimens found in any bottow trawl sampling																						
red drum	**85**				2		4	23	55	1														
king mackerel																								
spanish mackerel																								
summer flounder	**12**							2	7								1		1	1				

Summer 2002

		Bottom Trawl						Beach Seine				Gillnet*				Popnet*			
Species of Concern	**TOTAL**	JF-001A	JF-002A	JF-003A	JF-004A	JF-005A	JF-006A	S1	S2	S3	S4								
bluefish																			
windowpane flounder																			
cobia																			
red drum	**2**									2									
king mackerel																			
spanish mackerel																			
summer flounder	**7**								2	5									

no eggs or larvae of species of concern were detected in sampling

Fall 2002

		Bottom Trawl						Beach Seine				Gillnet				Popnet*			
Species of Concern	**TOTAL**	JF-001A	JF-002A	JF-003A	JF-004A	JF-005A	JF-006A	S1	S2	S3	S4	G1	G2	G3	G4				
bluefish	**27**											3	12	7	5				
windowpane flounder																			
cobia																			
red drum	**83**							4	23	55	1								
king mackerel																			
spanish mackerel																			
summer flounder	**2**									2									

no eggs or larvae of species of concern were detected in sampling

Winter 2003

		Bottom Trawl						Beach Seine						Gillnet				Popnet*			
Species of Concern	**TOTAL**	OT-1	OT-2	OT-3	OT-4	OT-5	OT-6	S1	S2	S3	S1 night	S2 night	S3 night	GN1	GN2	GN3	GN4				
bluefish																					
windowpane flounder																					
cobia																					
red drum																					
king mackerel																					
spanish mackerel																					
summer flounder																					

--no eggs or larvae found in sampling

Table 1 (con't): James Island Finfish Monitoring Results (MES, 2004)

Summer 2003																					
		Bottom Trawl*						Beach Seine						Gillnet*				Popnet			
Species of Concern	**TOTAL**							S1	S2	S3	S1 night	S2 night	S3 night					1-1	1-2	2-1	2-2
bluefish	**1**								1												
windowpane flounder																					
cobia																					
red drum																					
king mackerel																					
spanish mackerel																					
summer flounder																					

Spring 2003																					
		Bottom Trawl						Beach Seine						Gillnet				Popnet			
Species of Concern	**TOTAL**	OT-1	OT-2	OT-3	OT-4	OT-5	OT-6	S1	S2	S3	S1 night	S2 night	S3 night	GN1	GN2	GN3	GN4	1-1	1-2	2-1	2-2
bluefish	**1**									1											
windowpane flounder																					
cobia																					
red drum																					
king mackerel																					
spanish mackerel																					
summer flounder	**3**													1		1	1				

* No sampling of this type done in sampling period.

Table 2 (con't): Barren Island Finfish Monitoring Results

Spring 2003																								
		Bottom Trawl						Beach Seine										Gillnet				Popnet			
	Total	T-1	T-2	T-3	T-4	T-5	T-6	S1	S2	S3	S4	S5	S1 night	S2 night	S3 night	S4 night	S5 night	G1	G2	G3	G4	2	3	4	5
Species of Concern																									
bluefish	5						1											2		2					
windowpane flounder																									
cobia																									
red drum																									
king mackerel																									
spanish mackerel																									
summer flounder	5							1					2				2								

Summer 2003																								
		Bottom Trawl*						Beach Seine*										Gillnet*				Popnet			
	Total																					2	3	4	5
Species of Concern																									
bluefish																									
windowpane flounder																									
cobia																									
red drum																									
king mackerel																									
spanish mackerel																									
summer flounder																									

* No sampling of this type done in sampling period.

Table 3: Surface water temperature record for monitoring stations in vicinity of James and Barren Island (CBP, 2005)

Surface Water Temperature (°F) Chesapeake Bay Mainstem / Cedar Point				Surface Water Temperature (°F) Choptank River / Little Choptank (EE2.2)				Surface Water Temperature (°F) Chesapeake Bay Mainstem / Dares Beach			
Month	**Minimum**	**Mean**	**Maximum**	**Month**	**Minimum**	**Mean**	**Maximum**	**Month**	**Minimum**	**Mean**	**Maximum**
January	33.08	38.02	43.52	January	31.28	35.94	42.44	January	32.36	37.41	42.26
February	33.08	35.5	41.9	February	31.1	35.04	41.72	February	32	34.74	41.36
March	35.96	40.19	47.84	March	35.24	41.32	47.48	March	35.6	39.34	45.5
April	47.12	50.55	58.46	April	47.66	54.42	60.26	April	46.94	50.11	54.86
May	59	61.24	67.19	May	59.18	61.56	66.83	May	58.46	60.51	65.93
June	65.66	73.84	79.7	June	71.06	73.31	78.26	June	64.76	71.82	77.09
July	77.99	80.83	83.21	July	76.46	81.06	83.57	July	76.64	79.47	81.5
August	78.44	80.61	83.75	August	74.66	79.97	83.48	August	76.28	79.5	81.5
September	72.68	76.03	80.24	September	63.86	73.48	77.99	September	71.78	74.53	79.88
October	63.5	67.25	70.7	October	53.24	61.71	67.1	October	62.78	65.77	69.26
November	48.74	55.42	61.7	November	44.96	51.19	59.72	November	48.92	53.89	60.8
December	40.82	44.91	54.14	December	37.76	42.39	52.16	December	38.3	44.04	53.06

Table 2: Barren Island Finfish Monitoring Results (Harms, 2005)

Combined 2002-2003																								
		Bottom Trawl						Beach Seine										Gillnet				Popnet			
	Total	1	2	3	4	5	6	S1	S2	S3	S4	S5	S1 night	S2 night	S3 night	S4 night	S5 night	G1	G2	G3	G4	2	3	4	5
Species of Concern																									
bluefish	49	1					1											6	15	16	10				
windowpane flounder																									
cobia																									
red drum	195								7	56	125	4							3						
king mackerel																									
spanish mackerel																									
summer flounder	10	1	1					1	1	1			2				2			1					

Summer 2002																								
		Bottom Trawl						Beach Seine										Gillnet				Popnet*			
	Total	001	002	003	004	005	006	S1	S2	S3	S4	S5						G1	G2	G3	G4				
Species of Concern																									
bluefish	44	1																4	15	14	10				
windowpane flounder																									
cobia																									
red drum	140								7	1	125	4							3						
king mackerel																									
spanish mackerel																									
summer flounder	5	1	1						1	1										1					

Fall 2002																								
		Bottom Trawl						Beach Seine										Gillnet				Popnet*			
	Total	001	002	003	004	005	006	S1	S2	S3	S4	S5						G1	G2	G3	G4				
Species of Concern																									
bluefish																									
windowpane flounder																									
cobia																									
red drum	55									55															
king mackerel																									
spanish mackerel																									
summer flounder																									

Winter 2003																								
		Bottom Trawl						Beach Seine										Gillnet				Popnet*			
	Total	T-1	T-2	T-3	T-4	T-5	T-6	S1	S2	S3	S4	S5						G1	G2	G3	G4				
Species of Concern																									
bluefish																									
windowpane flounder																									
cobia																									
red drum																									
king mackerel																									
spanish mackerel																									
summer flounder																									

Table 4: Occurrence and habitat preferences of bony fish with EFH designated for region by life-stage in the mid-Atlantic, with focus on preferences applicable or potentially applicable to estuaries.

Species Common Name	Regulated EFH Life Stages	Geomorphic Features	Substrate	Depth (m)	Depth (ft)	Water Temperature (C)	Water Temperature (F)	Time of Year	Reference
Bluefish	juvenile	Day: shorelines, tidal creeks; night: open waters, channels	Sand, mud, sea lettuce patches, eelgrass beds, salt marshes			>20 immigrate into estuaries; 15 emigrate from estuaries	>68 immigrate into estuaries; 59 emigrate from estuaries	May - October	Fahay et al., 1999
	adult					>14 to 16	>57 to 61		"
Red drum	larvae	Inter- and subtidal flats, estuarine wetlands, tidal creeks, SAV	Mud, sand, SAV	0 to 10	0 to 30	16 to > 30	61 to >86		South Atlantic Fishery Management Council, 1998; NMFS 2000 (Summary Tables)
	juvenile	Inlet mouth, tidal creeks/channels, inter- and subtidal flats, river mouths, oyster reefs	Mud, sand, shell, SAV	0 to 10	0 to 30	0 to > 30	32 to >86		"
	adult	Inlet mouth, channels, inter- and subtidal flats, oyster reefs	Mud, sand, shell	1 to 100	3 to 330	0 to >30	32 to >86		"
Summer flounder	juvenile	Lower estuary flats, channels, salt marsh creeks, eelgrass beds.	Mud and sand	0.5 to 5	1.5 to 15	>11	>52		NMFS 2000 (Summary Tables); Packer et al., 1999
	adult			0 to 25	0 to 80			Warmer months	"

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Attachment B: Clean Water Act Section 404(b)(1) Evaluation

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Mid-Bay Chesapeake Islands Environmental Restoration Project
Chesapeake Bay and Dorchester County, Maryland

Clean Water Act
Section 404(b)(1) Evaluation

Prepared By: Baltimore District, U.S. Army Corps of Engineers

2008

I. INTRODUCTION

Dredged or fill material should not be discharged into the aquatic ecosystem unless it can be demonstrated that such a discharge would not have an unacceptable adverse impact, either individually or in combination with known and/or probable impacts of other activities affecting the ecosystems of concern.

The *Guidelines for Specification of Disposal Sites for Dredged or Fill Material* were developed by the Administrator for the United States Environmental Protection Agency (EPA) in conjunction with the Secretary of the Army acting through the Chief of Engineers under Section 404(b)(1) of the Clean Water Act (33 U.S.C. 1344). The Guidelines are applicable to the specification of disposal sites for discharges of dredged or fill material into waters of the United States (U.S.).

In evaluating whether a particular discharge site may be specified, the following steps should generally be followed: (a) review the restriction on discharge, the measures to minimize adverse impacts, and the required factual determinations; (b) examine practicable alternatives to the proposed discharge; (c) delineate the candidate disposal site; (d) evaluate the various physical and chemical components; (e) identify and evaluate any special or critical characteristics of the candidate disposal site and surrounding areas; (f) review factual determinations to determine whether the information is sufficient to provide the required documentation or to perform pre-testing evaluation; (g) evaluate the material to be discharged to determine the possibility of chemical contamination or physical incompatibility; (h) conduct the appropriate tests if there is a reasonable probability of chemical contamination; (i) identify appropriate and practicable changes in the project plan to minimize the impact; and (j) make and document factual determinations and findings of compliance.

II. PROJECT DESCRIPTION

A. Location

The Mid-Chesapeake Bay Islands Restoration Project focuses on James and Barren Islands, both in Dorchester County in Chesapeake Bay. James Island is 16 miles north of Barren Island on the Eastern Shore of Maryland. James Island is situated at the mouth of the Little Choptank River, north of Taylors Island. Barren Island lies immediately west of Hoopers Island, across the Bay from the mouth of the Patuxent River.

B. General Description

The Mid-Chesapeake Islands Restoration Project recommends island restoration at James

Island and island restoration/ protection at Barren Island. The James Island portion of the project involves constructing 45,000 ft of perimeter dikes, breakwaters, and/or other structures approximating the island's historical footprint and filling the enclosed area with clean dredged material from Federal navigation channels in Chesapeake Bay (Figure 1). The 2,072-acre fill area would be subdivided to provide approximately 55% tidal wetland habitats and 45% upland island habitats. Construction at James Island would necessitate the dredging of an access channel on the northwest. Dredging the access channel would provide sand for dike construction. The access channel would be approximately 12,720 ft in length, 400 ft in width at base with 3:1 side slopes. Of the total length, 3,070 ft would lie within the island footprint with 9,650 ft extending outside the footprint. The total footprint of the access channel is roughly 153.5 ac, with 52.7 acres within and 100.8 acres outside the island footprint. The potential impact area highlighted on Figure 1 is 4,100 acres.

Barren Island recommendations are for a phased construction of sills and breakwaters (Figure 2). Phase I incorporates the use of sills to protect the current acreage of the island and the SAV/shallow water habitat off the eastern shore of Barren Island. Phase I Barren restoration/protection would involve the modification of 4,900 ft of existing sill, construction of 3,840 ft on the north shore, 4,620' along the western shore, and a southern shore sill of 1,300 ft. Sills would be built to an elevation of 4 ft MLLW (mean low low water). Modification of the existing sill would require a 1.1 acre footprint. The near-shore sill would consume 5 acres of shallow water habitat. Approximately, 23 and 49 acres of island habitat (72 acres total) will be created by backfilling on the north and west, respectively. Monitoring of the SAV habitat to the south and southeast of Barren is also included in the Phase I plans and would be used to determine if a breakwater extending off the southern tip of Barren is needed. The purpose of the breakwaters would be to protect SAV habitat in the waters to the south and southeast of Barren and provide suitable conditions for these SAV beds. If it is determined that the SAV habitat to the south and southeast require further protection, a maximum 8,200 ft of structure is proposed at a maximum of 6 ft MLLW. If built to maximum length, the southern breakwater would have a 9.5 acre footprint. In total, preliminary designs have identified that Barren Island restoration and protection measures would impact 92 acres of near-shore habitat. However, given refinements with final designs, it is projected that a maximum of 100 ac of near-shore habitat would be impacted by the project at Barren Island. A more detailed description of the project is provided in the *Mid-Chesapeake Bay Islands Environmental Restoration Project Draft Feasibility Report and Environmental Impact Statement.*

C. Purpose

The purpose of the proposed project is to recreate and restore important regional island habitat that has been lost to land subsidence, rising sea level, and erosion in the Chesapeake Bay, plus provide protection to prevent future loss. At the same time, the project would provide for the beneficial use of sediments that are dredged from Bay channels.

D. Authority

The Baltimore District received the authority to pursue the study under the resolution of the Senate Committee on Environment and Public Works on June 5, 1997. Using the criteria defined by this resolution, the Eastern Shore, Maryland and Delaware Section 905(b) Analysis identified and recommended for further detailed feasibility-level study several projects that were within the Federal interest such as the beneficial use of dredged material to replace habitats lost from development and erosion activities and the restoration and creation of hundreds to thousands of acres of wetlands, terrestrial and riparian habitat.

E. General Description of Dredged Material

1. Characteristics of Fill Material

The sediment to construct the dikes at James Island would be excavated from borrow areas within the project site and/or dredged from the proposed access channel. These sediments are expected to consist of sand with some silt and clay lenses. Most project sediments would be excavated during periodic episodes of maintenance dredging. Accordingly, the fill sediment is expected to consist of relatively low cohesion silts and clays with some fine sands. Armor stone would be placed to stabilize 45,000 ft of perimeter dikes at James Island. The material to be placed at Barren Island is characterized as silts and sands. Barren Island sill construction would incorporate modification to the existing 4,900 ft of existing sill, and construction of 9,760 ft of new sills, plus 8,200 ft of breakwaters (Phase II). Because the channels are removed from known point sources, anthropogenic contaminant concentrations are likely to be consistent with background levels in the Chesapeake Bay sediments.

2. Fill Material Quantities

78 to 95 million cubic yards (mcy) of dredged material would be placed at James Island over the project life. 13.2 mcy of sand would be dredged from within the project footprint to be used for dike construction. An additional 2.7 mcy of sand would be dredged from the access channel for use in dike construction. 843,800 cy of rock would be needed to construct the perimeter dikes. Approximately, 380,000 cy of dredged material would be placed at Barren Island. 189,150 cy of rock would be placed at Barren Island to construct sills and breakwaters.

3. Source of Material

The sediment to construct the proposed wetland and upland habitat area at James Island would be dredged from the following Federal navigation channels in the Chesapeake Bay leading to Baltimore Harbor: the Craighill Entrance Channel; the Craighill Channel; the Craighill Angle, the Craighill Upper Range; the Cutoff Angle; the Brewerton Channel Eastern Extension; the Tolchester Channel, the Swan Point Channel, Inland Waterway from Delaware River to Chesapeake Bay, and other non-federal projects as determined by the Project Delivery Team (PDT). The sand for dike construction would be hydraulically dredged from within the island footprint or from the access channel. The material that would be used to backfill behind the breakwaters at Barren Island would be from local Honga River channels. All dredging of Federal navigation channels and local Honga River channels are Operations and Maintenance activities that have received authorization and will be carried out regardless of the approval of the Mid-

Chesapeake Bay Islands Restoration Project. Rock would be obtained from commercial quarries.

F. Description of the Proposed Discharge Sites

The James Island and Barren Island Project sites are rapidly eroding islands located in the Chesapeake Bay. James Island lies at latitude 38° 31' 00'' N, and longitude 76° 20' 15'' W. Barren Island, south of James, is at latitude 38° 20' 00'' N, and longitude 76° 15' 30'' W. James Island, once at least 1,350 acres in the 17th century, now amounts to 3 small remnants totaling 100 acres (Maryland, 1949; Kearney, 1991). The closest point of mainland is Taylors Island on the Eastern Shore of Maryland, 3100' south of the site. James Island is privately owned. The proposed containment dikes would enclose approximately 2,072 acres of shallow water habitat and would abut, but not tie directly into the island remnants. (See the attached figure). Barren Island currently totals nearly 200 acres, but was recorded at 754 acres in 1848 (Wray, 1995). Hoopers Island is immediately east of Barren. Two additional island remnants, Opossum Island and an unnamed island, are located due east and south of Barren Island, respectively. Barren Island is federally owned and managed by the U.S. Fish and Wildlife Service (USFWS) as a satellite refuge area to Blackwater National Wildlife Refuge. 19.7 acres of fringe wetlands have been created behind containment structures using dredged material along the northwestern shoreline of Barren Island between 1998 and 2004.

G. Description of Discharge Method

James Island: It is expected that fine grained sand to be used in constructing the proposed dikes would be dredged hydraulically from either within the alignment footprint or the access channel and pumped to the dike alignment. Some mechanical shaping of the sand would be required before armor stone can be placed on the exterior slopes. Some small amount of fine grained sediment unsuitable for dike construction may be sidecast near the borrow site within the proposed dike alignment. Rock to construct sills and breakwaters would be placed first using a crane from a barge. The material from the Federal channels would most likely be dredged mechanically and placed in barges. The barges would be towed or pushed to the proposed placement sites where the sediments would be pumped into the containment cells. The dredged material would be allowed to settle and consolidate. Supernatant water would be returned to the Bay through weirs or similar control structures in the eastern perimeter dike.

Barren Island: Rock to construct sills and breakwaters would be placed first using a crane from a barge. Dredged material would be hydraulically pumped directly from local channels to create habitat behind the sills.

III. ALTERNATIVES CONSIDERED

Large island restoration addresses two problems plaguing Chesapeake Bay: 1) the rapid loss of island habitat over the past 200 years and 2) the need to accommodate large amounts of dredged material. Large island restoration is inherently water-dependent because of their dependency upon isolation by open Bay waters. Support for large island restoration stems from the recommendations of the Baltimore Harbor and Channels Dredged Material Management Plan (DMMP) and Tiered Environmental Impact Statement (EIS) that was completed in December 2005.

Initially 105 islands were considered for restoration. The initial screening eliminated 84 islands, leaving 21 islands to be carried into the plan formulation process. These 21

islands were grouped into island complexes based on their vicinity and functioning as an island ecosystem. The resulting 8 island/island complexes were evaluated and ranked using 10 engineering criteria including possible restoration size, capacity, and foundation material plus an environmental suitability analysis from the State Bay Enhancement Work Group (BEWG). Public scoping meetings identified that there was public support for selecting the two highest ranking islands, Barren and James, for concept plan formulation.

A range of alternatives were developed for James and Barren Islands by the PDT. Four alignments for Barren and five alignments for James were delineated. For these alignments, a variety of wetland to upland ratios was considered ranging from all upland to all wetland configurations. A total of 20 different alignment combinations were considered that resulted in 170 alternatives.

The 170 alternatives were screened down to 14 alternatives using engineering suitability criteria and environmental considerations. Benefits and costs were developed for the 14 alternatives and a cost effective/incremental cost analysis was performed. The cost effective alternatives were evaluated against the 11 objectives identified by the PDT. From this final, screening, the recommended plan was determined.

The island restoration sites were carefully selected and projects were configured to minimize detrimental environmental impacts and maximize benefits to the aquatic ecosystem. A more detailed description of the plan formulation and alternative analysis process including figures of all alignments considered is in the *Mid-Chesapeake Bay Islands Environmental Restoration Project Draft Feasibility Report and Environmental Impact Statement*.

IV. Factual Determinations

A. Physical Substrate Determinations

1. Substrate Elevation and Slope

James Island: Upland dike elevations along the proposed eastern, northern, and western perimeter would initially be 25’ MLLW. Once habitat development is complete these dikes would be reduced to 20’ MLLW. Substrate elevation would be 20’ MLLW. Wetland dike elevations along the proposed western and southern perimeter dikes are 10’MLLW. Wetland dike elevations along the proposed eastern perimeter dikes are 8’ MLLW. The average depth of water within the project area is approximately 8.5’ MLLW, with depths ranging from 4’ to 13.2’ MLLW. The depth of sand mining within the island footprint would range between 5 and 30’, with a mean of 12’. The depth of sand mining for the access channel would extend to 25’. The water depth where the access channel would be dredged is currently 8.7’ to 26.5’, with a mean of 14.8’.

Barren Island: Elevations along the proposed western sills would be 4’ MLLW. Elevations of the breakwaters that would be constructed in Phase II are a maximum of 6’ MLLW. The average depth of water within the project area is approximately 3.5’.

2. Sediment Type

The sediments at James and Barren Island are typical of lowland sedimentary deposits and consist mainly of sand, silt, and clay, with some gravel. Four of five James Island sediment samples were predominantly sand. One sample was largely silt/clay. 80% of sediment samples (n=10) taken surrounding Barren consisted of 57.6 to 98.7% sand. The remaining portion was predominantly silt/clay with a small percentage of gravel. Two samples were 86.3 and 84.1% silt/clay with the remainder sand. The sediment to be used to construct the containment dikes at James Island is fine grained sand with some silt and clay lenses. The dredged materials proposed for filling at James Island are likely to be silt, with some clay and some fine sand. Barren Island would likely receive dredge materials consisting of silts and sand.

3. Discharge Material Movement

James Island: The fine-grained sand used to construct the perimeter dikes would be excavated, placed, and shaped to avoid unnecessary loss of materials. When completed, the containment dikes would control movement of the dredged material placed in the site. Discharge spillways would be managed to minimize movement of dredged material beyond the containment dikes.

Barren Island: Dredged material would be placed behind sills to avoid unnecessary loss of materials. Sills would control the movement of dredged material placed in the site.

4. Physical Effects on Benthos

Benthos in the alignment of the containment dike at James and sills and breakwaters at Barren would be buried permanently. Benthos in the containment cells at James Island and along the Barren shoreline that would be converted to wetlands would be buried permanently with dredged material as the cells are filled. Shallow water habitat that will be converted to upland or dikes will be permanently lost to the current benthic assemblages. Benthic species, although different from the original shallow water assemblage, are expected to recolonize the wetland cells at both islands and the tidal gut at James Island. Epibenthic communities are expected to colonize the exterior perimeter dike face once construction is complete. The long term, overall impact on regional benthic populations is not expected to be significant.

5. Other Effects

None expected.

6. Actions Taken to Minimize Impacts

During perimeter dike construction at James, the toe dike would be constructed first to minimize turbidity plumes resulting from dredging associated with the sand borrow activities and placement of sand to construct the dikes. Dredged material transported to the James Island site would be contained within the armored dikes. Discharges through the spillways would be monitored, and must meet State water quality standards. A Water Quality Certification and Wetlands License would be obtained.

Turbidity and TSS limits would be prescribed in these documents. Dredged material transported to the Barren Island site would be contained behind sills.

B. Suspended Particulate/Turbidity Determinations

1. Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Placement Site

Minor and temporary increase of suspended sediment and turbidity is expected in the immediate vicinity of the dredging operations and in the immediate vicinity of dike, sill, and breakwater construction operations. Suspended sediment and turbidity in the vicinity of James and Barren Island are likely to be reduced after the proposed construction compared to current conditions.

2. Effects (degree and duration) on Chemical and Physical Properties of the Water Column

(a) Light Penetration - Minor, temporary, and localized reduction in light penetration due to turbidity would occur in the immediate vicinity of the dredge plant during dredging and in the vicinity of sand placement during the construction of the proposed containment dike.

(b) Dissolved Oxygen – Minor, temporary, and localized reduction in dissolved oxygen in conjunction with elevated turbidity levels may occur in the immediate vicinity of dredging and construction operations. Parts of the northwestern access channel at James Island that are dredged to -25 feet or greater have the potential to become hypoxic or anoxic in warmer months of years when impaired water quality problems are pervasive below the pycnocline in the Bay. Under these conditions, the bottom in the access channel would be unsuitable as habitat for benthic dwelling organisms such as summer flounder. These species would be expected to avoid this area during low oxygen periods. This temporary loss of habitat would not be expected to impact species populations because of the abundance of suitable habitat still remaining elsewhere in the Bay.

(c) Toxic Metals and Organics – Dredging operations and construction operations are not expected to result in the release of any measurable amounts of contaminants into the water column. Dredged materials that are placed in containment cells at the James Island Project site at elevations above mean high water would be exposed to the atmosphere and weathering. Exposure of sulfitic marine sediments sets off a chemical reaction that tends to lower sediment/soil pH. This reaction and the exposure to rainfall (which also has a low pH) will cause some naturally occurring metals that are bound to the sediment to dissolve into the water. If present in sufficient concentrations, dissolved metals can be toxic to aquatic organisms, and could constitute a negative impact to the local biota in the immediate vicinity of the discharge of runoff water into the waters surrounding the restored island mass. After high marsh and upland soils have been conditioned, amended, and planted, the potential release of metals would abate and the pH of runoff water would increase.

The channels that would provide the material for placement at Barren Island are removed from known point sources. Therefore, anthropogenic contaminant concentrations are likely to be consistent with background levels in the Chesapeake Bay sediments.

(d) *Pathogens* – No pathogens are expected to be released into the water column.

(e) *Aesthetics – James Island*: Temporary changes during construction would constitute a decrease in aesthetic values that would exist throughout the 50 year construction period, but would be reduced after all cells have been planted in year 30. Upon completion of the project, aesthetic values are expected to increase above current values.
Barren Island: Temporary changes during construction may constitute a short-term decrease in aesthetic values. Upon completion of the project, aesthetic values are expected to increase above current values.

(f) *Temperature* – No change expected.

3. Actions Taken to Minimize Impacts

Dredged material transported to the James Island site would be contained within armored dikes. Dredged material transported to the Barren Island site would be contained behind sills. To address the potential for toxic metal production upland soil/sediment at James and Barren Island project sites would be managed and conditioned periodically if necessary to maintain the pH near neutral. Where determined necessary, time of year restrictions, best management practices (BMPs), turbidity curtains, and silt fences would be used to minimize impacts. To minimize the potential for development of toxic concentrations of dissolved metals, upland soil or sediment at the site would be managed and conditioned periodically to maintain the pH near neutral. This would keep the naturally occurring metals bound to the soil or sediment. Water quality at the weirs would also be monitored so incidence of low pH and high metals can be identified and controlled to minimize impacts to local water quality. An extensive monitoring plan, such as the one used at Poplar Island Environmental Restoration Project (PIERP), would be followed. It is expected that a State of Maryland water quality certification would be obtained.

C. Water Circulation, Fluctuation, and Salinity Determinations

1. Water Quality

Temporary, localized changes are expected in clarity, color, and quality of Bay waters in the immediate vicinity during perimeter dike construction. Turbidity monitoring of similar construction activities at Poplar Island (Phase I and Phase II construction of Poplar Island Environmental Restoration Project) indicated the turbidity levels quickly diminished to background levels. Turbidity monitoring would be conducted during James and Barren Island construction. Water discharged through the spillways during dredged material placement may have slightly elevated turbidity, but would be monitored to ensure compliance with State water quality standards.

(a) *Salinity* – No change expected in existing tidal waters.

(b) *Chemistry* – Very slight and temporary changes are possible in the immediate vicinity of sand dredging and placement activities necessary for dike construction at James Island, dredged material placement at James and Barren Islands, and rock placement at Barren. Minor and temporary fluctuations in nutrient, pH, and some metal concentrations are possible in the immediate vicinity of the placement site spillways during dewatering operations at James Island. Discharges from the existing PIERP have been monitored, and no significant changes to the water quality have been identified (EA, 2004a; 2002d).

(c) *Clarity* – Minor and temporary changes are possible in the immediate vicinity of sand dredging and placement activities necessary for dike construction at James Island, dredged material placement at James and Barren Islands, rock placement at Barren Island, and in the vicinity of the placement site spillways at James Island due to elevated turbidity.

(d) *Color* – Very slight and temporary changes are possible in the immediate vicinity of sand dredging and placement activities necessary for dike construction at James Island, dredged material placement at James and Barren Islands, rock placement at Barren Island, and in the vicinity of the placement site spillways at James Island due to elevated turbidity.

(e) *Odor* – No change expected.

(f) *Taste* – Not applicable.

(g) *Dissolved Gas Levels* – Localized reductions may occur in the immediate vicinity of the dredging operations, in the immediate vicinity of perimeter dike construction operations at James Island, and sill and breakwater construction at Barren Island. Due to mixing at the study area, the impact is not expected to be significant. DO levels may be negatively impacted in areas of the constructed access channel at James Island. Parts of the northwestern access channel that are dredged to depths of 25 feet or greater have the potential to become hypoxic or anoxic in warmer months of years when impaired water quality problems are pervasive below the pycnocline in the Chesapeake Bay.

(h) *Eutrophication (Nutrients)* – The release of nutrients from the sediments during dredging is expected to be short term, temporary, and localized during the construction of island habitat at James Island, dredging of the northern access channel, and placement of rock and dredged material at Barren Island. Minimal releases of phosphorus and nitrogen (ammonium) are expected during construction and dredging, but are not expected to be significant. Discharges from the existing PIERP, including nutrient concentrations, have been monitored. No significant changes to the water quality have been identified (MES, 2005; 2003; 2002). Discharges from the dredged material

2. Current Patterns and Water Circulation

(a) *Current Patterns and Flow*- It is anticipated that the proposed restoration at James Island would have minimal impacts on local tidal elevations in areas adjacent to James and Barren Island projects. Following construction (long-term impacts), current velocities would be impacted with maximum increase or decrease in current velocity of about 0.4 ft/sec with a lesser change (0.1 ft/sec) predicted in the Little Choptank River. Peak ebb and flood currents in the main Bay are not predicted to change with the proposed restoration. Flow is expected to be displaced northward and southward and current velocity is expected to increase north and south of James Island. Current velocity is predicted to decrease primarily around the existing James Island to the east where flow is impeded by the proposed project. Velocity decreases are also expected to the west of the restoration project but to a lesser extent. The greatest velocity increases are forecast at the southeast dike between the restoration project and the existing southern part of the Island, and where flow is trained along the northwest dike as it enters the Little Choptank River (MNE, 2002b). Open water areas converted to upland at James Island would experience a complete cessation of tides and currents.

For Barren Island, it is expected that there would be no impacts on local tidal elevations. Following construction (long-term impacts), local current velocities would be impacted with typical maximum changes in current velocity of about 0.6 ft/sec, which occurs in the channel north of the project. Peak ebb currents are predicted to be trained along the western edge of the proposed project which would cause a slight shifting and focusing of current to the west of Barren Island. To the east of the island, ebb current velocity is expected to be reduced following construction because the southern tip of the protective breakwater is in close proximity to Upper Hooper Island. This is projected to act as a constriction and reduce overall flow between Barren Island and Hooper Island. In addition, the gap between the proposed breakwater and the existing Barren Island would also create an increase in velocity. The long length of the breakwater would also provide shoreline protection to Upper Hooper Island (MNE, 2004).

No effects are expected from the required maintenance dredging of the channels or from the placement of dredged material in the proposed site.

(b) *Velocity*- See preceding discussion of flow.

(c) *Stratification*- No change expected.

(d) *Hydrologic Regime*- No significant changes are expected.

3. Normal Water Level Fluctuation

Water level fluctuations would cease in open water areas converted to upland island habitat. No change expected in remainder of project area.

4. Salinity Gradients

Open water areas converted to upland island habitat would cease to have salinity gradients. No change expected in remainder of project area.

5. Actions That Will Be Taken to Minimize Impacts

Hydrodynamic modeling will be completed to understand and minimize the impacts island restoration at James Island and protection measures at Barren Island would have on currents, flows, and sediment transport in the vicinity of the project.

D. Contaminant Determinations

Fine grained sand used to construct the proposed containment dikes would be taken from within the project site itself. The site is far removed from known sources of anthropogenic contamination and there is no logical reason to believe that fine grained sand could contain higher level of contaminants than the surface sediment on which it would be placed. Therefore, the fine grained sand is determined to satisfy the contaminant determination requirements of 40 CFR 230.11. The rock used to construct the breakwaters is not expected to contain contaminants.

Similarly, the sediments likely to be dredged from the Federal channels in the Chesapeake Bay leading to Baltimore Harbor are removed from known sources of anthropogenic contaminants (EA, 2003; 2000a; 2000b). Sediments from the Federal navigation channels are currently tested for priority pollutant concentrations every three years according to Inland Testing Manual (USEPA/USACE, 1998) methods and guidance. Overall, tested analytes were detected at low concentrations. Because the material will be contained in a placement site, and the spillways are monitored and managed, the release of significant contaminants is unlikely. Therefore, the placement of the dredged material from the Bay channels at the James Island site cannot be expected to result in a measurable release of contaminants. Testing of channel material is underway and would be repeated at intervals not exceeding 3 years during the life of the project.

The channels that would provide the material for placement at Barren Island are removed from known point sources. As a result, anthropogenic contaminant concentrations are likely to be consistent with background levels in the Chesapeake Bay sediments.

E. Aquatic Ecosystem and Organism Determinations

1. Effects on Plankton

Open water areas converted to upland island habitat at James Island would be permanently lost as plankton habitat. This impact is expected to be minor as there is no shortage of plankton habitat in the Mid-Chesapeake Bay. Short-term increases in turbidity associated with perimeter dike construction and dredging in the sand borrow areas could temporarily and locally depress phytoplankton communities. Long-term effects are expected to be negligible. Minor, localized increases in nutrient

concentrations could potentially stimulate phytoplankton growth, but is not expected to be significant because of low concentrations of nutrients released (MES 2002, 2004, 2005).

The winter flounder (3 individuals) identified in the James Island winter 2003 ichthyoplankton survey is the only fish species found solely in the plankton study. That is, winter flounder was not identified in any other fish surveys at James Island except the plankton surveys. Although great numbers were not found, winter flounder presence is not unlikely as the Choptank River is winter spawning ground for this species. It is not anticipated that there would be population level effects to winter flounder as a result of project construction.

There were two fish species identified solely in the Barren Island plankton surveys, but no other fisheries surveys: rough silverside (*Membras martinica)* and Northern pipefish (Sygnathus fuscus). Both species were limited to the spring 2003 ichthyoplankton survey at low densities. Rough silverside eggs were identified in the surface (1/100m^3) and combined samples (0.5/100m^3). Rough silverside post yolk sac larvae were present in bottom (0.3/100m^3), surface (3.8/100 m^3), and combined samples (2.1/100m^3). Northern pipefish post yolk sac larvae were identified in bottom (0.5/100m^3), surface (0.2/100 m^3), and combined samples (0.3/100m^3). Northern pipefish juveniles were identified in bottom (6.2/100m^3), surface (1.3/100 m^3), and combined samples (3.8/100m^3). The numbers of these ichthyoplankton are low. No population level effects to these species are expected as a result of project construction.

There are members of the macrozooplankton community, such as copepods and some amphipods, that have entirely planktonic lifecycles. These organisms are important food sources for higher trophic level species. Project construction impacts, such as increased turbidity, may produce localized depressions in the populations of these macrozooplankton. Impacts are expected to be temporary and are not expected to have a Chesapeake-wide affect on the populations of these organisms.

2. Effects on Benthos

Benthos in the immediate vicinity of the borrow sites would be displaced and/or entrained with the fine grained sand used for containment dike construction. Benthos in the path of dike, sill, and breakwater construction would be permanently buried as would the benthos within the placement sites. Sessile benthic dwellers may be able to avoid burial, but non-sessile species could be buried. Benthic recolonization of disturbed areas outside the containment dikes, sills, and breakwaters should occur within a few months. Benthos are expected to recolonize within the tidal gut and wetland cells, and epibenthic communities are expected to colonize the exterior perimeter dike face once construction is completed. In years when anoxia is extensive in the Bay, the benthos that recolonize the access channel may experience depressed oxygen which could further limit benthic utilization. Monitoring of the benthic and epibenthic communities in the vicinity of PIERP have not indicated any significant effects (EA, 2004b,c; 2002a, b). The loss of this bottom habitat is not expected to have a major, long term, overall impact on regional benthic communities.

3. Effects on Nekton

Short-term and indirect effects on the early life stages of some species, specifically during egg and larval stages, are expected as a result of the increased turbidity associated with perimeter dike construction and dredging in the access channel. Suspended particles readily adhere to many of the fish eggs, making them less buoyant (in the case of pelagic eggs) or smothering them (in the case of demersal eggs). Short-term, localized impacts could also result from the entrainment of fish eggs and larvae during hydraulic dredging. Nekton in the immediate vicinity of the borrow site may be displaced or entrained with the dredged and/or borrow material. Suspended sediments could also indirectly affect finfish by impairing the ability to feed (by limiting sight and ability to detect prey) of some larval and juvenile fish. Striped bass and other sight predators may be particularly affected due to their dependence on vision to detect prey. Short-term increases in turbidity are expected to have a negligible effect on larger, more mobile members of the fish community that would likely avoid the areas of highest turbidity. Nekton would permanently lose access to 2,072-acres of shallow water habitat at James Island. Impacts to displaced species are expected to be temporary as similar habitat is plentiful in the adjacent area. Part of this loss would be compensated for by the creation of 1,043 acres of wetland at James Island. Nekton would have access to the created wetlands via a tidal gut. Construction of all project phases, including wetlands, sills, and breakwaters would result in the permanent loss of a maximum of 100 ac (92 acres with preliminary designs) of shallow water habitat at Barren Island. However, 72 acres of wetlands would be created behind the sills.

4. Effects on Food Web

No adverse, long term effects are expected. The long-term project effects are expected to be positive by providing habitat for a wider variety of organisms than is currently available at the site. In the short term, the removal of benthic forage could limit food availability for some species, particularly obligate bottom feeders, in the local area. Although many will be able to utilize similar food sources in adjacent areas, there would be a temporary net loss of this food source. Once benthos recover and the epibenthic community is established on the dikes, adverse food web effects are expected to be negligible.

5. Effects on Special Aquatic Sites

Limited wetlands can be found on the smaller remnant islands of James Island. Without the proposed project or other intervention, these wetlands are expected to completely disappear in a few years. The project would create 1,043 acres of wetland habitat in the vicinity of the remnant islands. Hence, short term without project effects would be local and severe due to expected further loss of island remnants. With the project, long-term effects would be positive and encompass a larger area. Similar impacts are expected for the fringing wetlands along the western and southern shoreline of Barren Island.

SAV was not found on the western side of James Island and therefore will not be impacted by construction of the preferred alignment. The James Island alignment is expected to protect the existing SAV beds by reducing high wave energy on the eastern side of the Island and potentially promote SAV bed expansion. Tier I, II, and III acreage (as defined by the Chesapeake Bay Program) surrounds all James Island

remnants. It is estimated that 298.8 ac of bottom less than 2 m in depth (Tier III) exist within the project footprint at James Island. This area will be permanently lost as potential SAV habitat by Island construction activities. Restoration of James Island is expected to positively benefit 10s to a few 100s of acres of potential SAV habitat (based on a historical picture from 1952 provided by Maryland DNR).

No impacts to SAV are expected with the construction of the western breakwater/sill. The northern breakwater/sill plans will be adjusted to minimize and if possible avoid SAV impacts. Additionally, restoration efforts on the south end of Barren are not expected to impact SAV resources. There could be potential beneficial impacts to construction of shoreline restoration/protection at Barren Island, as the wave protection shadow created by the reconstruction of the island promotes additional SAV growth in the quiescent conditions created in the lee of the island. This has been observed at Poplar Island. Tier I areas have been delineated to the northeast, east, and southeast of Barren Island. Tier II and Tier III zones surround Barren. All of the Barren project area; approximately 100 ac is less than 2 m in depth. Consequently, at most 100 acres of otherwise Tier II/III SAV habitat would permanently be lost as potential SAV habitat by island construction activities if all phases are constructed. Restoration measures at Barren Island can be projected to benefit over 1000 ac of current SAV beds and add the potential for 100s more acres.

6. Threatened and Endangered Species

The presence of RTE species was coordinated with MDNR, USFWS, and NMFS. Initial coordination letters describing the presences of Federally listed species were received from USFWS on 1 December 2004 and from NMFS on 20 July 2004; and a letter describing the presence of State listed species from MDNR on 26 November 2004.

The response letter from NMFS (Colligan, 2004; Appendix E) provided a list of endangered and threatened aquatic species within this agency's purview. The list included the shortnose sturgeon (SNS) *(Acipenser brevirostrum)* and several species of sea turtles including leatherback (*Dermochelys coriacea*), loggerhead (*Caretta caretta*), Kemp's ridley (*Lepidochelys kempi*), and green sea turtles (*Chelonia mydas*). The letter (Colligan, 2004) pointed out that these species are likely to be present in the vicinity of the project area, and may be affected by the project. Consequently, the project must undergo Section 7 consultation and USACE is responsible for initiating this consultation when the project details are developed.

The response letter from USFWS (Moser, 2004; Appendix E) provided information regarding Federally listed endangered or threatened species within the project areas at James and Barren Islands. This information includes reference to the Federally listed threatened American bald eagle nesting on the northern remnant of James Island and the southern end of Barren Island near Whitewood Cove. The USFWS letter (Moser, 2004) stated that any construction or forest clearing activities within one-quarter mile of an active nest may impact American bald eagles, and if such impacts may occur, further Section 7 consultation with USFWS may be required. The summary statement provided by the USFWS indicates that, except for occasional transient

individuals, James and Barren Islands are not known to support any other Federally proposed or listed threatened or endangered species.

Additional communication with Glenn Therres of MDNR Heritage Program in March 2005 provided further information on the status of the American bald eagle nests on James Island and Barren Island. Mr. Therres stated that one active nest remained on James Island, located on the middle remnant. Mr. Therres also noted that the American bald eagle nest formerly located on the southern end of Barren Island was blown down in 2004, and it is not known whether the nest will be rebuilt in 2005.

The response letter from MDNR (Byrne, 2004; Appendix E) referenced the American bald eagle nests on James and Barren Islands. There is also a record of the state-listed endangered eastern narrow-mouthed toad occurring on Barren Island.

Following receipt of the coordination letter from USFWS, the American bald eagle was delisted from the endangered species list in 2007. Although recently delisted in 2007, the American bald eagle was listed as Federally threatened throughout nearly all of this study period. It remains in a five year monitoring phase to ensure the population is indeed not slipping backwards. There are currently no plant or animal species observed during field investigations at James or Barren Island listed on the Federal RTE list.

A full list of Federally and State listed species observed during seasonal surveys at James and Barren Island is provided in Tables 3-41 and 3-42 of the Mid-Chesapeake Bay Island Ecosystem Restoration Study- Integrated Feasibility Report and EIS. No State or Federal threatened or endangered species are expected to be adversely impacted by the restoration at James Island or the protection at Barren Island. Although endangered species are present on the James Island remnants, negative impacts are not expected since no encroachment to the existing remnants is anticipated. The recommended plan for Barren Island involves encroachment to the shoreline though encroachment to the interior of the island is not expected. The single nesting pair of bald eagles on the northern remnant of James Island, and the potential nesting site at the southern end of Barren Island is not likely to be adversely impacted by the proposed action. Any effects on the eagles would be manifested by localized short-term disturbances during construction of the dike segments closest to the nests. Precautions may need to be taken during construction and dredged material placement to avoid working within the area one-quarter mile from the eagle's nest during the restricted periods. This distance would be expected to provide sufficient buffer to prevent abandonment of the nest. Coordination with USFWS has indicated that as long as time-of-year restrictions are observed, no impacts to the American bald eagle are likely to occur (Appendix E).

In addition, there is record of the state-listed endangered Eastern narrow-mouthed toad (*Gastrophryne carolinensis*) known to occur on Barren Island. This species was observed on Barren Island during the spring 2003 existing conditions survey. Consultation with MDNR is ongoing to determine how to avoid potential impacts to

the Eastern narrow-mouthed toad. The island that currently provides habitat for the Eastern narrow-mouthed toad will be protected by the proposed project.

Short-nose sturgeon are suspected to be transient to the project area surrounding James Island and Barren Island. The closest short-nose sturgeon catches were documented from pound nets set eight miles from James and Barren Islands. Seasonal fisheries surveys conducted to characterize the existing finfish communities surrounding the James and Barren Islands during 2002 and 2003 did not identify any short-nose sturgeon within the study area. Because short-nose sturgeon are expected to be transient to the project area, coordination with NMFS indicate that adverse impacts are not anticipated (Appendix E).

Leatherback sea turtles, green sea turtles, Kemp's ridley turtles, and loggerhead turtles are State and Federally listed endangered species and have been recognized as being transient to areas surrounding James Island and Barren Island. Based on collected data, Kemp's ridley and loggerhead turtles are the most frequent visitors to the Chesapeake Bay. Leatherback sea turtles typically continue migrating north past the Chesapeake Bay and prefer nesting on the high wave energy beaches of the eastern seaboard. No nesting by sea turtle species has yet been recorded in the Chesapeake Bay (Evans et al. 1997).

Although direct monitoring was not performed as part of the feasibility study, there were no sea turtles identified in any of the finfish surveys or wildlife monitoring at James or Barren Island (Harms 2004, BBL 2005). Sea turtles are migratory individuals that are seasonal transients to the project area and NMFS expects no impacts to these turtles (Appendix E). During cooler weather months, particularly, sea turtles are unlikely to be present.

An Endangered Species Act Section 7 Evaluation was prepared by USACE and submitted to NMFS and USFWS on 17 May 2005 (available in Appendix E, Attachment C). A letter dated 17 June 2005 communicates that USFWS concurs with USACE's determination that the proposed actions will have no adverse effect on Federally listed RTE. A similar letter was received from NMFS on 22 August 2005. Further, a Fish and Wildlife Coordination Act report was received from USFWS on 24 May 2005. The report summarizes the main environmental issues on the project and states that the USFWS enthusiastically supports the proposed plans for James and Barren Islands. A full record of all RTE agency correspondence is listed in Section 9.5 of the Mid-Chesapeake Bay Island Ecosystem Restoration Study- Integrated Feasibility Report and EIS.

USACE-Baltimore and MPA will continue consultation with the Federal and State resource agencies regarding time of year restrictions for construction and operations at James and Barren Islands as needed, since conditions could change prior to the start of construction.

7. Other Wildlife

No negative, long term impacts are expected. Negative impacts to wildlife are not expected to be significant during perimeter dike and sill construction, and dredging of the access channel, although temporary displacement of some wildlife will occur. Completed project would increase island and beach/shoreline habitat that will benefit a wide range of terrestrial and aquatic species, particularly diamondback terrapins (*Malaclemys terrapin*) and horseshoe crabs (*Limulus polyphemus*). Diamondback terrapins and horseshoe crabs have experienced a significant decrease in beach habitat necessary for nesting and spawning.

8. Actions to Minimize Impacts

The dredged material placed at James and Barren Islands would be confined by perimeter dikes and sills, respectively. At James Island, the stone toe of the armored section of the dike will be constructed before the sand dike section to minimize turbidity impacts and turbidity monitoring will be conducted during construction. Discharges through the spillways would be monitored, and must meet State water quality standards. A Water Quality Certification and Wetlands License would be obtained. Turbidity and TSS limits would be prescribed in these documents. Best management practices would be employed to manage the sites, to maximize environmental benefits, and to minimize potential adverse impacts. Necessary time of year restrictions would be upheld to further minimize impacts to nesting birds and terrapins.

Adaptive management will be a large part of project management. The project partners will manage the proposed projects at James and Barren Island to achieve their island restoration and protection goals by utilizing adaptive management and traditional task management methods. Recurring environmental monitoring studies will also be conducted to measure the achievement of the project goals and to assure that the project is complying with environmental standards. Tasks related to island restoration or island restoration and protection goals will be managed using adaptive management methods. Tasks such as general design, construction, and maintenance will be managed using more traditional task management methods. An Adaptive Management Plan (AMP), based on that developed for PIERP, is provided in Section 8 and Appendix F of the Mid-Chesapeake Bay Island Ecosystem Restoration Study-Integrated Feasibility Report and EIS.

F. Proposed Placement Site Determinations

1. Mixing Zone Determinations

None.

2. Determination of Compliance with Applicable Water Quality Standards

The proposed work would be performed in accordance with all applicable State of Maryland water quality standards.

3. Potential Effects on Human Use Characteristics

(a) *Municipal and Private Water Supply* - No effect is expected.

(b) *Recreational and Commercial Fisheries* – The project is not expected to have a significant effect on the abundance or catch of clams, oysters, or finfish, but a minimal effect on crabbing and soft clam fisheries is expected. The James Island project site would be lost permanently to recreational and commercial fisheries. It is anticipated that the project will not have a significant effect on spawning or critical habitat areas (i.e. SAV beds (HAPC), unique forage areas, or overwintering areas). The armor stone perimeter dikes are expected to provide reef habitat for structure oriented fish species such as striped bass. However, the placement of the rock, an artificial substrate, may have additional ecological consequences associated with it. James and Barren Islands lie in shallow water. The project would not affect any typical commercial boat navigation routes. Some shallow-water recreational fishing areas will be lost, but because the number of recreational fishermen who seek out these soft-bottom areas is small, they should be able to shift to the abundant shallow areas adjacent to or near the site with no significant effect on congestion levels or catch rates. An access channel used by watermen to the south of James Island should remain usable. The location of this channel will be verified during the next phase of the project.

(c) *Water Related Recreation* - The construction site and the project footprint would be lost to recreational boating. Areas near the rock face of the containment dike and sills would attract recreational boaters and recreation fishing when the project is completed. The project should not interfere with typical travel routes used by recreational fisherman and boaters and would not prevent access to popular boating destinations in the area.

(d) *Aesthetics* – A temporary reduction in aesthetic values is expected during construction. Large island restoration at James Island would be a significant element in the landscape for some sensitive viewpoints (i.e., selected residential areas), but from the majority of vantage points, it is anticipated that the island, once completed, would blend into the existing landscape.

(e) *Parks, National and Historical Monuments, National Seashore, Wilderness Areas, Research Sites, and Similar Preserves* – As a satellite refuge area to Blackwater National Wildlife Refuge, the proposed wetland restoration and island protection actions would have a significant positive and long-term impact on a Federally managed refuge. If no actions are taken to stabilize Barren Island, the resources of the refuge and the SAV habitat in the eastern shadow of Barren would be permanently lost.

G. Determination of Cumulative Effects on the Aquatic Ecosystem

2,072 acres of shallow water habitat in the vicinity of James Island and 100 acres bordering Barren Island would be transformed to island habitat. Protection of the remaining 100 acres of James Island and 200 acres of Barren Island would be a long term, beneficial cumulative impact. Additional benefits would be realized by providing for the protection of the productive SAV beds to the east of Barren Island. It is anticipated that the adjacent shorelines to the east of the James and Barren Islands would

receive some protection from erosion as a result of project. The long term cumulative effect of creating more remote island habitat including wetlands, bird islands, and upland using dredged material is beneficial.

Impacts of the proposed James and Barren projects would act cumulatively with the existing 1,140 acre PIERP, proposed 575 acre expansion of Poplar Island, and proposed SAV and wetlands protection and restoration measures at Smith, Tangier, and Taylors Islands that would collectively, fill approximately 500 acres of Chesapeake Bay shallow water habitat. The tidal wetlands, SAV beds, and upland island habitat that these projects will restore is anticipated to cause a cumulative positive impact on the aquatic ecosystem that outweighs the consequences of open water habitat losses.

H. Determination of Secondary Effects on the Aquatic Ecosystem

The secondary impacts of the project would be largely beneficial. Wetlands creation in the area would have secondary positive impacts by increasing the net ecosystem energy output available in the immediate area. This is expected to have positive impacts throughout the food chain and to recreational and commercial landings.

The only secondary negative impacts identified are associated with displaced harvesting pressure to adjacent areas. Because most of the associated resources (crabs, finfish, etc.) would also be displaced, these secondary impacts are not expected to be significant on a population level.

V. FINDING OF COMPLIANCE

No adaptations of the Section 404(b)(l) Guidelines were made relative to this evaluation.

A. The proposed construction of containment dikes and the subsequent filling of the dikes with dredged material to form wetland and upland habitats at James Island plus protection of Barren Island using breakwaters and habitat creation behind the portion of dikes adjacent to Barren Island has been selected as the result of an alternatives analysis undertaken in accordance with the Guidelines given at 40 CFR 230.10(a). This alternative would provide the greatest environmental benefit to the Chesapeake Bay Islands system, minimize negative impacts such as those to fisheries, and provide necessary dredged material placement capacity. The DMMP has performed an exhaustive evaluation of dredged material placement sites to meet the dredging needs of the Port of Baltimore into the next century. Large island restoration has been recommended as one alternative. This beneficial project represents the most practical, least environmental impact alternative identified that can accommodate the volume of dredged material needed to maintain navigability of the approach channels to the Port of Baltimore. Accordingly, the alternatives analysis test is passed.

B. The proposed construction and fill with dredged material is not contrary to other state and Federal laws for the protection of water quality, aquatic species, or habitat; as follows:

1. The proposed construction, dredging, and placement of dredged material would be in compliance with State water quality standards.

2. The proposed construction, dredging, and placement of dredged material is not expected to violate the Toxic Effluent Standard of Section 307 of the Clean Water Act.

3. The proposed project would not negatively affect any endangered species.

4. No Marine Sanctuaries, as designated in the Marine Protection, Research, and Sanctuaries Act of 1972, are in the project area.

5. The proposed construction, dredging, and placement of dredged material would not result in permanent, significant, adverse effects on human health and welfare, including municipal and private water supplies, recreation and commercial fishing, plankton, fish, wildlife, and special aquatic sites. No contaminants would be discharged in toxic concentration in violation of Section 307 of the Clean Water Act.

Thus, the proposed construction, dredging, and placement of dredged material satisfy the requirements test at 40 CFR 230.10(b).

C. Parts II and IV of the analysis show that the proposed construction, dredging, and placement of the dredged material do not contribute to the significant degradation of waters of the United States and as such, the proposed project and proposed use of the placement sites comply with the requirements of 40 CFR 230.10(C).

D. Appropriate steps to minimize potential impacts of the placement of the material in aquatic systems would be followed.

The mandatory sequence of the Section 404(b)(l) Guidelines has been applied in evaluation of the proposed action. The proposed construction, dredging, and placement of the dredged material at Poplar Island is in compliance with the Section 404(b)(l) Guidelines.

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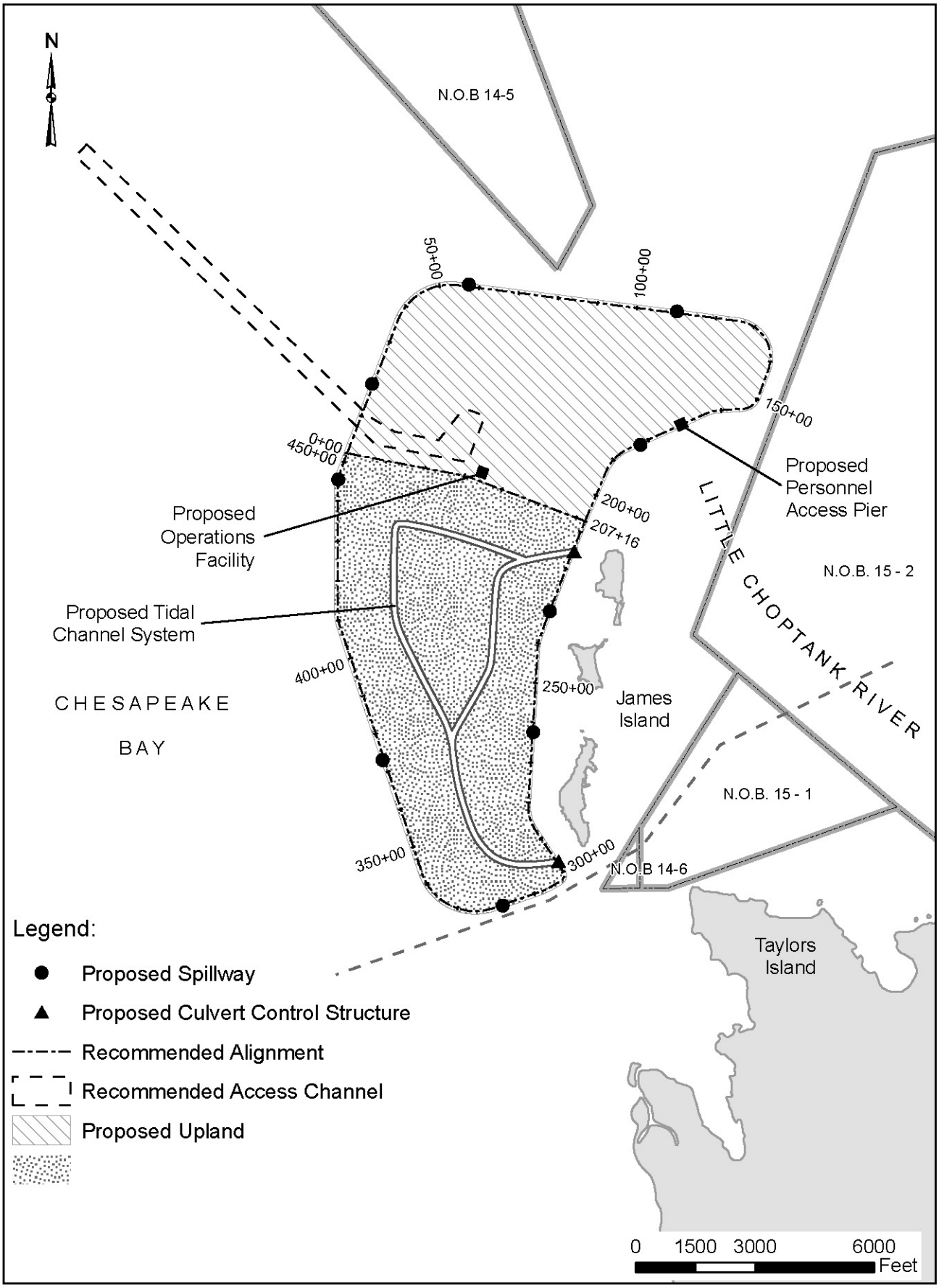

Figure 1: James Island Recommended Plan.

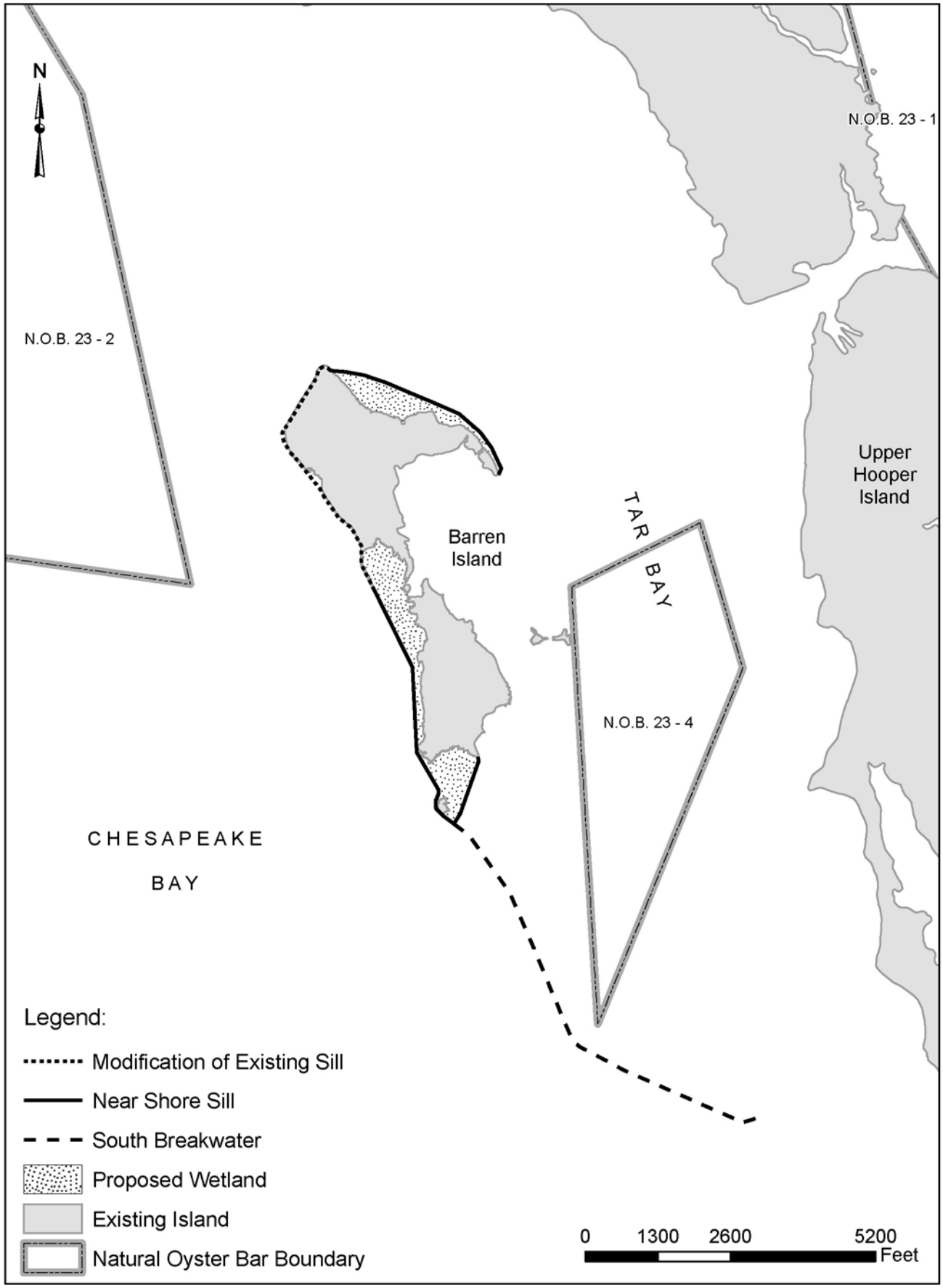

Figure 2: Barren Island Recommended Plan.

Attachment C: Endangered Species Act Section 7 Evaluation

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Mid-Chesapeake Bay Islands Restoration Project
Dorchester County, Maryland

Endangered Species Act- Section 7 Consultation
May 2008

Prepared By U.S. Army Corps of Engineers

Section 7(a)(2) of the Endangered Species Act (ESA) (16 U.S.C. 1531 et. seq.) requires every Federal agency, in consultation with and with the assistance of the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS), to ensure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. In pursuant with Section 7(a)(2), the following information is provided to NMFS and USFWS in order to initiate Section 7(a)(2) consultation. This assessment includes:

1. A description of the proposed action;
2. A listing of the species of concern;
3. An analysis of the effects of the proposed action; and,
4. The Federal agency's opinions regarding the effects of the proposed action.

I. PURPOSE

The purpose of the proposed project is to restore important regional island habitat that has been lost to land subsidence, rising sea level, and erosion in the Chesapeake Bay. In the last 150 years, it has been estimated that 10,500 acres have been lost in the middle-eastern portion of Chesapeake Bay due to erosion and sea-level rise. It is predicted that if no actions are taken most island habitats will be completely eroded and lost to the Bay in the next 10 to 20 years. At the same time, the project will provide for the beneficial use of sediments that are dredged from Bay navigation channels. There currently is a dredged material placement shortfall that will be realized in the next 8 to 10 years. The Baltimore District's Draft Baltimore Harbor and Channels Dredged Material Management Plan (DMMP) identifies, evaluates, screens, prioritizes, and ultimately optimizes placement alternatives resulting in the recommendation of a specific viable plan of action for the placement of dredged materials over the next 20 years. Large island restoration is one of the recommended alternatives of the Draft Baltimore Harbor and Channels Dredged Material Management Plan (DMMP) and Tiered Environmental Impact Statement (EIS).

II. DESCRIPTION OF PROPOSED ACTION

The Baltimore District, U.S. Army Corps of Engineers (Corps) in partnership with the State of Maryland Department of Transportation, Maryland Port Administration (MPA) has initiated an environmental restoration feasibility study for the restoration of island habitat in the Mid-Chesapeake Bay region (Figure 1). This study focuses on restoring hundreds of acres of aquatic and wildlife island habitat in the Mid-Chesapeake Bay

region through the beneficial use of dredged material from the Port of Baltimore channel system.

The Mid-Chesapeake Bay Islands Restoration Feasibility Study stemmed from the Eastern Shore, MD and DE Section 905(b) Analysis, in accordance with Section 905(b) of the Water Resources Development Act of 1996. The Mid-Chesapeake Bay study area includes the eastern half of the Chesapeake Bay, from the Chester River to the MD/VA state line. This feasibility study addresses the recommendation to replace habitats lost through development and erosion activities within the study area through the beneficial use of dredged material.

The Mid-Chesapeake Islands Restoration Project recommends island restoration at James Island and Barren Island (Figures 2 and 3, respectively), both on the Eastern Shore of Maryland and in Dorchester County, MD. James Island is 16 miles north of Barren Island and is situated at the mouth of the Little Choptank River, 3,100' north of Taylors Island. James Island, once at least 1,350 acres in the 17th century, now amounts to 3 small remnants totaling approximately 100 acres (State of Maryland 1949, Kearney 1991). Presently, James Island is privately owned. Barren Island lies immediately west of Hoopers Island. Barren Island currently totals nearly 200 acres, but was recorded at 754 acres in 1848 (Wray 1995). Barren Island is federally owned and managed by the U.S. Fish and Wildlife Service (USFWS) as a satellite refuge area to Blackwater National Wildlife Refuge.

A. Alternatives Considered

Large island restoration addresses two problems plaguing Chesapeake Bay: 1) the rapid loss of island habitat over the past 200 years and 2) the need to accommodate large amounts of dredged material. Additional support for large island restoration stems from the recommendations of the Draft Baltimore Harbor and Channels DMMP and EIS.

Initially 105 islands were considered for restoration. The initial screening eliminated 84 islands, leaving 21 islands to be carried into the plan formulation process. These 21 islands were grouped into island complexes based on their vicinity and functioning as an island ecosystem. The resulting 8 island/island complexes were evaluated and ranked using 10 engineering criteria including potential restoration size, capacity, and foundation material. Public scoping meetings identified that there was public support for selecting the two highest ranking islands, Barren and James, for concept plan formulation.

A range of alternatives were developed for James and Barren Islands by the project delivery team (PDT). Four alignments for Barren and five alignments for James were delineated. For these alignments, a variety of wetland to upland ratios was considered ranging from all upland to all wetland configurations. A total of 20 different alignment combinations were considered that resulted in 170 alternatives.

The 170 alternatives were screened down to 14 alternatives using engineering suitability criteria and environmental considerations. Benefits and costs were developed for the 14 alternatives and a cost effective/incremental cost analysis was performed. The cost

effective alternatives were evaluated against the 11 objectives identified by the PDT. From this final, screening, the recommended plan was determined.

A more detailed description of the plan formulation and alternative analysis process including figures of all alignments considered will be available in the *Mid-Chesapeake Bay Islands Environmental Restoration Project Draft Feasibility Report and Environmental Impact Statement* that is scheduled for public review in the summer of 2005.

B. James Island

The James Island portion of the project involves constructing armored dikes, breakwaters, and/or other structures approximating the island's historical footprint and filling the enclosed area with clean dredged material from Federal navigation channels in Chesapeake Bay. The 2,072-acre fill area would be subdivided to provide approximately 55% tidal wetland habitats and 45% upland island habitats. The proposed alignment would provide capacity for 78 to 90 million cubic yards (Mcy) of dredged material consisting of relatively low cohesion silts and clays with some fine sands. Construction at James Island would necessitate the dredging of an access channel on the northwest. The access channel would be approximately 12,720' in length, and 400' in width at base with 3:1 side slopes. Of the total length, 3,070' would lie within the island footprint, with 9,650' extending outside the footprint. The total footprint of the access channel is roughly 153.5 ac, with 52.7 ac within and 100.8 ac outside the island footprint. The project limit is highlighted in Figure 2. The project limit identifies the project impact boundaries and provides for minor adjustments to the location of the proposed island alignment.

Approximately 40,000' of perimeter dikes would be constructed using sand hydraulically dredged from within the island footprint or from the access channel. The sediment to construct the proposed wetland and upland habitat area at James Island would be dredged from the following Federal navigation channels in the Chesapeake Bay leading to Baltimore Harbor: the Craighill Entrance Channel; the Craighill Channel; the Craighill Angle, the Craighill Upper Range; the Cutoff Angle; the Brewerton Channel Eastern Extension; the Tolchester Channel, the Swan Point Channel, Inland Waterway from Delaware River to Chesapeake Bay, and potentially other non-federal projects.

C. Barren Island

Plans for Barren Island incorporate the use of sills to protect the current acreage of the island and the SAV (submerged aquatic vegetation)/shallow water habitat off the eastern shore of Barren Island. Sills constructed along the current shoreline would be backfilled with dredged material to create wetland habitat. Phase I Barren restoration would involve the modification of 4900' of existing rock sill, construction of 3,840' of new rock sill on the north shore, 4,620' along the western and southern shore, and a back-up containment of 1,300'. Sills would be built to an elevation of 4' MLLW. Modification of the existing sill and construction of new sills would consume roughly 20 ac of shallow water habitat. Approximately, 23 and 49 ac of island habitat (72 ac total) would be created by backfilling on the north, and west and south, respectively. The material that would be used

to backfill behind the breakwaters at Barren Island would be from authorized maintenance of local Honga River channels and is characterized as silt and sand.

Also, as part of Phase I, monitoring would be carried out to evaluate the need for constructing breakwaters off the southern tip of Barren Island following the historic shoreline in order to protect the SAV habitat to the south and southeast of Barren Island. If it is determined that the SAV habitat to the south and southeast requires further protection, a maximum 8,200' of structure is proposed at a maximum height of 6' MLLW. If built to maximum length, the southern breakwater would have a 9.5 ac footprint. A total of 92 ac has been identified as the impact area at Barren Island through preliminary designs. However, with refinement during final designs, it is expected that no more than approximately 100 acres of near-shore habitat would be impacted by the total project at Barren Island. The project limit is identified in Figure 3.

III. PRESENCE OF FEDERALLY LISTED SPECIES IN THE PROJECT AREA

In a letter dated July 20, 2004, the NMFS identified the presence of the following federally listed species in the Mid-Chesapeake Bay region: shortnose sturgeon (*Acipenser brevirostrum*) and several species of sea turtles, leatherback (*Dermochelys coriacea*), loggerhead (*Caretta caretta*), Kemp's ridley (*Lepidochelys kempi*), and green (*Chelonia mydas*). In a letter dated December 1, 2004, USFWS noted the presence of the federally threatened bald eagle (*Haliaeetus leucocephalus)* at James and Barren Islands.

Since the USFWS ESA coordination letter was received, the American bald eagle was removed from the endangered species list in 2007. It remains in a five year monitoring phase to ensure the population is indeed not slipping backwards. In light of the bald eagle remaining in a monitoring phase, an evaluation of the impacts of the current project on the bald eagle is included in this document as if the species was still listed.

There are currently no plant or animal species observed during field investigations at James or Barren Island listed on the Federal RTE list. Although recently delisted in 2007, the American bald eagle was listed as Federally threatened throughout nearly all of this study period.

A. Project area description

In addition to on-going Chesapeake Bay monitoring efforts, surveys in the vicinity of James and Barren Island were performed as part of the feasibility study to identify existing conditions. Following is a characterization of resources that have the potential to affect the use of the project area by identified federally-listed species.

Water quality in the vicinity of James and Barren Islands has been monitored by Maryland Department of Natural Resources (MDNR) (MDNR 2005a) Water Quality Monitoring Program since 1985. The two stations closest to James Island are a mainstem station, CB4.3C, and a Little Choptank River station, EE2.2. CB4.3C is located to the north and west of James Island while EE2.2 is off the northeast corner. The mainstem station 5.1 is directly west of Barren Island. Table 1 presents water surface water temperature recorded at these stations for the period 1985 to 2003 (MDNR 2005a).

Mollusks are a potential food source of loggerheads, Kemp's ridleys and shortnose sturgeon. Clam surveys were completed at James and Barren Island in March 2004. At James Island, no hard shell clams were found. Harvesting rates of soft-shell (*Mya arenaria*) and razor (*Tagelus plebius*) clams were not sufficient to be considered productive natural clam bars, suggesting that mollusk populations are minimal in the vicinity of the islands (Harms 2005). Barren Island surveys identified few soft-shell clams and no hard shell clams. Although a minor amount of sub-legal razor clams were present, numbers were not high enough to qualify as a productive bar for razor clams (MES 2004).

SAV can provide a valuable foraging habitat for Kemp's ridleys and green turtles. Virginia Institute of Marine Science (VIMS) annual surveys from 1994 to 2003 were reviewed to understand the presence of SAV in the James and Barren Island vicinities.

Table 1: Surface Water Temperatures for monitoring stations in the vicinity of James (A) and Barren (B and C) Islands

(A) Surface Water Temperature (°F) Chesapeake Bay Mainstem / Cedar Point (CB5.1)			
Month	**Minimum**	**Mean**	**Maximum**
January	33.08	38.02	43.52
February	33.08	35.5	41.9
March	35.96	40.19	47.84
April	47.12	50.55	58.46
May	59	61.24	67.19
June	65.66	73.84	79.7
July	77.99	80.83	83.21
August	78.44	80.61	83.75
September	72.68	76.03	80.24
October	63.5	67.25	70.7
November	48.74	55.42	61.7
December	40.82	44.91	54.14

(B) Surface Water Temperature (°F) Choptank River / Little Choptank (EE2.2)				(C) Surface Water Temperature (°F) Chesapeake Bay Mainstem / Dares Beach (CB4.3C)			
Month	**Minimum**	**Mean**	**Maximum**	**Month**	**Minimum**	**Mean**	**Maximum**
January	31.28	35.94	42.44	January	32.36	37.41	42.26
February	31.1	35.04	41.72	February	32	34.74	41.36
March	35.24	41.32	47.48	March	35.6	39.34	45.5
April	47.66	54.42	60.26	April	46.94	50.11	54.86
May	59.18	61.56	66.83	May	58.46	60.51	65.93
June	71.06	73.31	78.26	June	64.76	71.82	77.09
July	76.46	81.06	83.57	July	76.64	79.47	81.5
August	74.66	79.97	83.48	August	76.28	79.5	81.5

September	63.86	73.48	77.99	September	71.78	74.53	79.88
October	53.24	61.71	67.1	October	62.78	65.77	69.26
November	44.96	51.19	59.72	November	48.92	53.89	60.8
December	37.76	42.39	52.16	December	38.3	44.04	53.06

SAV beds have made a resurgence since 1999 in the waters on the eastern side of Barren Island. An average of 695 ac of SAV beds was present between 1999 to 2003, peaking at 1,325 ac in 2001. Minimal beds of SAV were found prior to 1999. No SAV was documented by the VIMS maps off the western or northern shoreline of Barren where the project would be constructed. James Island had very little SAV compared with Barren Island. Two small beds periodically occur along the eastern shore of the James Island remnants, averaging 10 ac between 1999 and 2003. SAV beds at James Island peaked in 2001 at 22.6 ac.

Additional SAV surveys were conducted as part of the existing conditions evaluation at James and Barren Island (MES 2004, BBL 2004). Widgeon grass (*Ruppia martina*) was the dominant SAV recorded during the summer 2002 survey. Three separate beds were recorded along the eastern shoreline of each of the James Island remnants. All SAV found by spring 2003 monitoring was identified as horned pondweed (*Zannichellia palustris*). SAV beds were most dense along the middle remnant. SAV beds along the southern remnant were patchy at best. Weather conditions did not permit sampling at the northern remnant. SAV surveys conducted in the supplemental survey, August 2003, failed to produce any SAV except for a single blade of horned pondweed. No SAV was documented within the footprint of the proposed James Island alignment or impact area. Barren Island SAV investigations were made during summer 2002 and spring and summer 2003 (BBL 2004). Aquatic species observed at Barren Island include eelgrass (*Zostera marina*), horned pondweed, and widgeon grass. The presence of SAV appears to be dependent on the location around the island. SAV crown densities were highest along the eastern shoreline of Barren Island. SAV was also present along the northern shoreline and southeastern island tip. SAV was not identified along the western shoreline. The likely reasons for the absence of SAV along the western shorelines are the steep slopes of the shoreline, lower water clarity, and a higher exposure to wave action. The more extensive VIMS monitoring showed no SAV within the proposed Barren Island project area. However, the existing conditions evaluation identified low density SAV beds along the northern and southern proposed project areas. Additional monitoring would be completed during the Design Phase of the project to minimize any impacts to SAV beds.

The Chesapeake Bay Program has defined Tier I, II, and III SAV recovery zones. The Tier I SAV distribution restoration target is the restoration of SAV to areas currently or previously inhabited by SAV as mapped through regional and baywide aerial surveys from 1971 through 1990 (Batuik *et al.* 1992; Dennison *et al.* 1993). The Tier II and Tier III distribution restoration targets are the restoration of SAV to all shallow water areas identified as existing or potential SAV habitat, down to the 1- and 2-meter (3.3 and 6.6 foot) depth contours, respectively. There is no Tier 1 area in the vicinity of James Island. Tier I areas have been delineated to the northeast, east, and southeast of Barren Island.

Tier II and Tier III zones surround both islands. It is estimated that 298.8 ac of bottom less than 2 m in depth exist within the project footprint at James Island. All of the Barren project area, approximately 100 ac, is less than 2 m in depth.

B. Shortnose sturgeon (*Acipenser brevirostrum*)

SNS have been documented in the Chesapeake Bay since the 1600s, when settlers first colonized America. Historical records indicate that SNS were commonly found to inhabit the Potomac River in Maryland in the 1800s (Uhler and Lugger 1876). Few SNS have been reported in the Chesapeake Bay since the last known resident populations were considered extirpated in the 1970s (Dadswell et al. 1984). There is, however, a documented resident population in the Delaware River (Hastings et al. 1987).

When SNS were found in the bay over the last 20 years, it was generally believed that they were infrequent transients, non-resident adults that had traveled through the Inland Waterway, or C&D Canal, from the Delaware Bay into the Chesapeake Bay. Suitable and/or critical habitat for SNS in the Chesapeake Bay is currently unknown, due to their infrequent detection in the Bay. Spawning occurs in upper, freshwater areas, while feeding and overwintering activities may occur in both fresh and saltwater habitats. Spawning habitat has not been identified in the Chesapeake Bay. Prior to 1998, no juveniles or spawning activity had been observed in the Chesapeake Bay for decades, leading to the assumption that a distinct population segment, or resident population, did not exist in the Chesapeake Bay. Speculation has been that overfishing, loss of habitat, and spawning impediments such as the Conowingo Dam have contributed to their decline or extirpation. At present, the continued existence of SNS in the Chesapeake Bay remains uncertain. However, genetic assessments of the SNS in the Chesapeake Bay have indicated that those specimens analyzed are genetically similar to the Delaware River population that is currently stable (Wirgin et al., 2002).

SNS usually occur in the Chesapeake Bay at depths between 3.3 and 39.4 ft (1 and 12 m) (Kieffer and Kynard 1993, Savoy and Shake 2000, Welsh et al. 2000) although captures have been made at depths up to 60 ft. Due to the stress caused by high temperatures of summer surface waters SNS seek deep, cooler waters during warm seasons.

NMFS has been reviewing SNS catches in the Chesapeake Bay as a result of the USFWS Reward Program that was initiated in 1996. This program has resulted in the reporting and documentation of SNS as incidental bycatch in gillnets, pound nets, catfish traps, fyke nets, hoop nets, and eel traps of watermen in the Chesapeake Bay. The Reward Program has documented 61 SNS caught (of which 55 are non-multiple captures) as of January 13, 2005. SNS caught in the mid-Bay region below the Bay Bridge are depicted by catch method in Figure 4.

Nine SNS were captured in the Susquehanna River and two from the Susquehanna Flats. SNS have been captured in upper Bay tributaries: two in the Bohemia River, one in the Sassafras River, and one in the Elk River. Thirty SNS captures were made north of the Bay Bridge, of which all, but three were north of Hart-Miller Island. The remaining 16 shortnose sturgeon were captured south of the Bay Bridge in the vicinity of Kent Island,

Holland Point (near Herring Bay), north of Barren Island, Fishing Bay (near the Nanticoke River), and the Potomac River (7). It is important to note that all but one SNS captures south of the Bay Bridge (latitude 39˚00'00'') occurred in March, April, May, or June (spring and early summer). SNS prefer lower salinity waters. The spring/early summer presence of SNS below the Bay Bridge may be associated with the southern extension of lower salinity waters in the Bay from spring freshwater discharge. The one exception was a December 2004 capture at the mouth of the Potomac River in Ophelia, VA.

Length data from the Reward Program captures indicates that the largest SNS were generally captured in the middle Chesapeake Bay around the Potomac River mouth through the Barren Island area. 'Possible juveniles' have all been captured in the upper Chesapeake Bay.

The majority of the SNS found in the Chesapeake Bay through the USFWS Reward Program have been captured in relatively shallow water [<25 ft (<7.6 m)], consistent with the gear type of the commercial watermen (primarily gillnets and pound nets). This is also consistent with some studies which have found that sturgeon tend to stay in the top 6.6 ft (2 m) of the water column when traveling, and come into shallow waters to feed (Moser and Ross 1993). While it is probable that the gear type in which the SNS were captured influences both the location and depth of the recorded capture locations in the USFWS Reward Program data, it can be deduced from this information that sturgeon are using waters of 4 to 60 ft (1.2 to 18.3 m) in at least the months of December through June each year. SNS are known to overwinter in deep, channel sections of rivers (NMFS 1999). Thus, it is probable that the Howell to Grove Point section of the upper Chesapeake Bay provides overwintering habitat for SNS due to the water depth. The extent to which SNS use the shipping channel in this region is unknown. Four of the SNS were captured in the general vicinity of the southern approach channels to the C&D Canal and one was captured near the Tolchester Channel. However, many more have been captured in shallower waters.

No SNS were captured in the waters immediately surrounding James or Barren Island in the Reward Program as of January 13, 2005. Although, the waters around James and Barren are actively fished, the nearest SNS catch was approximately 8 nautical miles to the northwest of Barren Island and to the south of James Island where three SNS were captured by way of pound nets (Figure 4). Seasonal fisheries surveys were conducted in 2002 and 2003 at James and Barren Island to characterize existing finfish communities surrounding the islands for the Mid-Chesapeake Bay Feasibility Study. Several fisheries gear types were used during the various fisheries surveys: bottom trawl, popnet, gillnet, and beach seine. There were no SNS identified in any of the surveys at James or Barren Island. SNS are probably transient to the area.

C. Sea turtles

Of the four sea turtle species found in Chesapeake Bay, loggerheads and Kemp's ridleys are the most common visitors and are most likely to be found in the project area. Leatherbacks typically continue north on their migration past the Chesapeake Bay, while

loggerheads and Kemp's ridleys will enter the Bay once water temperatures reach 18 to 20˚C (64.4 to 68˚F) (Lutcavage and Muscik 1985, Byles 1988, CBP 2005). Loggerheads and Kemp's ridleys immigrate into Chesapeake Bay in late May or early June once water temperatures warm and emigrate in September and October (Lutcavage and Musick 1985, Byles 1988, Keinath et al. 1994) (See Table 1). Loggerheads account for nearly 90% of the summer sea turtle population in the Chesapeake Bay (CBP 2005). The greatest threats to sea turtles in the Chesapeake Bay are injury and death from boat propellers, accidental capture in pound nets, and ingestion of plastic refuse.

Sea turtles generally nest on high energy sand beaches along the eastern seaboard, south of the State of Maryland. No nesting is known to occur within the Chesapeake Bay (Evans et al. 1997).

The Chesapeake Bay is an important developmental and foraging habitat for sea turtles in the summer months. After overwintering in southern waters, sea turtles migrate north along the Atlantic coast to feed during the summer months. Loggerheads feed mostly on shellfish such as horseshoe crabs, clams, mussels, and other invertebrates. Kemp's ridleys prefer horseshoe crabs, but will consume other crustaceans, sea grasses, sponges, fish, mollusks, and snails. Loggerheads typically use channel edges (mean water depth of 9.4 m) whereas ridleys occupy shallower areas (mean water depth of 4.6 m) (Byles 1988). Kemp's ridleys distribution may be closely related to the location of seagrass beds where they can find a plentiful supply of crustaceans (Lutcavage and Musick 1985). Leatherbacks have been reported in the upper Bay (Hardy 1969 cited by Byles 1988*)* but are most frequently found at the Bay mouth. Leatherbacks are most likely drawn to the mouth to feed on jellyfish; the main constituent of their diet (Keinath et al. 1987). Young green turtles feed on worms, young crustaceans, aquatic insects, grasses and algae, but become strictly herbivorous as adults. Green turtles were historically recorded in the Chesapeake, but are now rarely found (Keinath et al. 1987).

There are two sources of information on the current presence of sea turtles in Maryland waters of the Chesapeake Bay: the Marine Mammal and Sea Turtle Stranding Program, 1990 through present, and the Sea Turtle Tagging and Health Assessment Study, operated from 2001 through 2003.

The Marine Mammal and Sea Turtle Stranding Program was established by the Maryland Department of Natural Resources (MDNR) at the Cooperative Oxford Laboratory (COL) in the fall of 1990. The network is responsible for the retrieval and examination of all dead stranded marine mammals and sea turtles in Maryland. The stranding network collects species identification, stranding location, and life history (morphometric) data in addition to investigating causes of death, and assessing human interaction from boat strikes, fisheries interactions, and entanglement or ingestion of marine debris.

308 dead stranded sea turtles were reported in Maryland (Chesapeake Bay and Atlantic Coast) between 1991 and 2003 (Kimmel 2004). Of the 308 reported, 123 were found in the Chesapeake Bay (Figure 5). The remaining 185 were reported from the Maryland portion of the Atlantic Coast and the coastal bays. Strandings of all four federally listed

species have been reported in Maryland. Strandings have occurred throughout the Chesapeake Bay from Tangier Sound to the mouth of Back River (Figure 5), but strandings were most heavily concentrated in Calvert and Saint Mary's counties along the western shore. Table 2 contains the Chesapeake Bay strandings by year and species. Focusing only on the Chesapeake Bay strandings, loggerhead accounted for 91% of all stranding (n=112 turtles). Of the remaining strandings, 6% were leatherback (n=6), 3% were Kemp's ridley (n=3), and less than 1% (n=1) were unknown. No green sea turtles have been reported in Chesapeake Bay (Kimmel 2004), although one was found along the

Table 2: Sea Turtle Strandings in Chesapeake Bay, 1991-2003 (reproduced from Kimmel, 2004)

Species	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	TOTAL
Loggerhead	4	5	12	6	17	14	7	19	3	8	7	5	5	**112**
Leatherback	-	1	-	-	3	-	1	-	-	1	-	-	1	**7**
Kemp's ridley	1	-	-	-	-	-	-	-	-	1	-	-	1	**3**
Green	-	-	-	-	-	-	-	-	-	-	-	-	-	**0**
Unknown	-	-	-	-	-	-	-	-	-	-	1	-	-	**1**
TOTAL	5	6	12	6	20	14	8	19	3	10	8	5	7	**123**

Maryland Atlantic Coast in 2000. Monthly strandings data characterizes sea turtle use of the Chesapeake Bay during warm months. Sea turtle strandings occurred from May to November with a small number (2) being recorded in January (Table 3). The highest concentration of strandings was in June (81), followed by July.

Table 3: Monthly distribution of sea turtle strandings by species in Maryland's Chesapeake Bay. (Kimmel, pers. comm.)

Species	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Leatherback	0	0	0	0	0	3	2	0	1	0	0	0
Kemp's ridley	1	0	0	0	1	3	0	0	0	0	0	0
Loggerhead	1	0	0	0	5	74	14	7	6	6	2	0
Green	0	0	0	0	0	0	0	0	0	0	0	0
unknown	0	0	0	0	0	1	1	0	0	0	0	0
TOTAL	**2**	**0**	**0**	**0**	**6**	**81**	**17**	**7**	**7**	**6**	**2**	**0**

A second source of knowledge about sea turtle presence in Chesapeake Bay is available from the "Sea Turtle Health Assessment and Tagging Study" initiated in September 2000 by MDNR's COL. This study established a cooperative agreement with pound net fishermen in Maryland to obtain information such as weight, size, and blood samples from incidentally captured sea turtles. Two commercial watermen participated in 2001 and reported 7 turtles. Three commercial watermen participated in 2002, resulting in a report of 12 turtles. In 2003, participation increased to five pound netters and the reporting of 23 incidentally captured sea turtles. Figure 6 identifies the location of participating pound nets from 2001 through 2003. Table 4 summarizes the location and identification of the 23 sea turtles captured in 2003.

Incidental takes occurred between May and September in 2001, 2002, and 2003 with the greatest number of captures occurring in June and July. Captures were concentrated

northwest of Hooper's Island and near the mouth of Fishing Bay due to a higher reporting of incidental captures by watermen in those areas. Although, the spatial distribution of turtle captures can not conclusively characterize sea turtle use in Chesapeake Bay, it does identify areas definitively used by sea turtles.

This study has examined a total of 42 sea turtles since the summer of 2001, of which 3 were recaptures. As reported by Kimmel (2004), seventeen of the remaining 39 turtles were Kemp's ridleys and 22 were loggerheads. Kemp's ridleys were typically 30 to 40 cm subadults.

Table 4: Distribution of incidental captures of sea turtles among 2003 net sites. Numbers in parentheses indicate recaptures. (reproduced from Kimmel, 2004)

Net Site	# of nets	Loggerhead	Kemp's ridley	Total
NW of Hoopers Island	3	8 (1)	5 (1)	13
Pocomoke Sound	1	2		2
Fishing Bay	1		1	1
Choptank River	1	1	1	2
Kent Island	2	2 (1)		2
Totals	**8**	**13 (2)**	**7 (1)**	**20 (3)**

Recaptured individuals provide insight on the use of Chesapeake Bay waters by sea turtles and demonstrate the diversity of sea turtle movements. A Maryland loggerhead sea turtle captured in a pound net near Kent Island in July 2001 was recaptured in the same pound net on September 15, 2003 indicating site fidelity by a subadult loggerhead over multiple, although not necessarily consecutive years (Kimmel 2004). A Kemp's ridley tagged in the mouth of the Choptank River on June 21, 2003 was recaptured a week later about 10 miles from the initial capture location in a pound net northwest of Hoopers Island. A loggerhead found in one of the three pound nets northwest of Hoopers Island was recaptured in a different net in the same general location several days after the original capture. These two recaptures suggest restricted turtle movements within the Bay during the summer (Kimmel 2004). Conversely, two captures in waters outside the Chesapeake Bay demonstrate migrations of greater distance. A loggerhead, was tagged on May 23, 2002 and recaptured in a pound net in Virginia waters of the Potomac River on August 15, 2002. A fifth turtle, a loggerhead, incidentally captured near Hoopers Island in 2001, had originally been tagged on July 23, 1992, on Melbourne Beach, Brevard County, Florida, a distance of roughly 1500 km, by the University of Central Florida (Kimmel 2004).

D. Bald eagle

Bald eagle numbers dropped from a historic national estimate of 25,000 to 75,000 nesting birds to fewer than 450 nesting pairs by the early 1960s. U.S. population decline was due to habitat destruction and degradation, illegal shooting, contamination of its food source and reproductive impairment from pesticides (notably DDT) and heavy metals. Bald eagles have made a dramatic comeback over the past three decades following the ban on the use of DDT and other organochlorine pesticides by the U.S. Environmental Protection Agency in 1972. Nationwide, there are now more than 6,000 adult bald eagle nesting pairs in the continental U.S. More than 2,000 bald eagles call the Chesapeake Bay area their home. The bald eagle has been recently delisted to threatened and will require five years of monitoring before it can be completely delisted. Once this occurs, protections will continue under the Bald and Golden Eagle Protection Act, the Migratory Bird Treaty Act, and the Lacey Act.

Bald eagles can be found in Maryland year round, primarily along the Chesapeake Bay and its tributaries with numbers increasing in colder months when bald eagles from Canada and northeastern United States overwinter in Maryland. Migratory populations are concentrated at Blackwater National Wildlife Refuge, Aberdeen Proving Ground, and

the Susquehanna River below the Conowingo Dam. Bald eagles build platform nests in the upper limbs of tall trees, preferably within one mile of open water, along a shoreline or marsh. Nesting in Maryland is limited to tidal portions of state waters and along the Potomac River. MDNR monitors bald eagle populations in Maryland through the Maryland Mid-Winter Bald Eagle Survey (since 1979), the Maryland Bald Eagle Nest Success and Productivity Survey (since 1977), and the Maryland Bald Eagle Nesting Pair Survey (MDNR, 2005b). Currently, there are 383 nesting pairs spread across 20 counties compared to 41 regional pairs in 1977 (MDNR, 2005b). Dorchester County has the greatest number of nesting pairs, 84; followed by Charles County with 53 nesting pairs, mainly along the Potomac River. In 2001, 315 nesting pairs produced 432 young (MDNR, 2005b; most recent data available). Bald eagles primarily eat fish, but their diet may also include waterfowl, mammals, muskrats, and turtles, both live and carrion, when fish are scarce.

Responding to a USACE request for information on federally listed or proposed for listing species within the Mid-Chesapeake Islands project area, USFWS listed a nest at both Barren (DO-82-04) and James (DO-99-11) Island in a letter dated December 1, 2004. First noted in 1982, DO-82-04 was located at the southern end of Barren Island. Further consultation with Glenn Therres (phone conversations, March 3, 2005 and April 5, 2005) of the MDNR National Heritage Program identified the recent loss of the Barren Island nest. As recently as the late 1990s James Island was home to two nests, DO-99-11 and DO-02-02 (Therres, personal communication). Only one nest, DO-02-02, remains on the northeastern tip of the middle remnant. DO-99-11, situated on the northern island remnant, was blown down in 2003. Figures 7 shows the location of the only existing James Island nest, DO-02-02.

Time of year restrictions established by MDNR and USFWS for PIERP delineated three zones of activity limitation. Zone 1 extends 330 feet from the nest. There are year-round restrictions within Zone 1 that include any habitat changes, land clearing, building, and road construction. No human activities are permitted in Zone 1 between December 15 and June 15. Limited activity is permitted between June 16 and December 14. Zone 2 extends 660 feet from a nest. Restrictions include major habitat changes such as clear cutting, land clearing, building, and road construction. No human activities are permitted between December 15 and June 15, but exceptions may be made if research finds that the nesting eagles are tolerant of the activity. Activities such as hunting, fishing, hiking, and farming are possible between June 16 and December 14. Zone 3 extends ¼ mile around the nest. Most activities are possible, but management should include protection of roosts and feeding sites within the area. There are restrictions on timber cutting, land clearing, building, and road and trail construction between December 15 and June 15 (USACE, 1996).

IV. IMPACTS TO FEDERALLY LISTED SPECIES IN PROJECT AREA

A. Shortnose sturgeon

1. Impacts to individuals

Any SNS that may be in the area during construction would be displaced. Adult, juvenile, larval, and young-of-the-year sturgeon feed primarily on zoobenthos and appear to remain close to the substrate providing the potential for entrainment. Although the risk of entrainment of SNS that might be in the construction area during construction and hydraulic dredging for dike creation exists, this is a minor risk as no SNS have been reported in the project area. Further, construction of the sand dikes for the 1,100 acre Poplar Island Environmental Restoration Project (PIERP) to the north of James and Barren Islands did not encounter or impact any SNS.

SNS use Chesapeake Bay waters of 4 to 60 ft depth primarily between December and June. No SNS were captured in the waters immediately surrounding James or Barren Island in the Reward Program as of January 13, 2005. Although, the waters around James and Barren are actively fished, the nearest SNS catch was approximately 8 nautical miles to the northwest of Barren Island and to the south of James Island where three SNS were captured by way of pound nets. There were no SNS identified in any of the surveys at James or Barren Island. The sparse collections of SNS in this area of the Bay indicate that SNS are likely to be transient to the area. Therefore, no impacts are expected directly to individuals from this project.

2. Impacts to habitat

Restoration of James Island would result in the permanent transformation of 2,072 ac of open water habitat to island habitat. Restoration measures at Barren Island would transform eroding shoreline into 72 ac of wetland habitat. Additionally, restoration structures at Barren, including sills and breakwaters, would consume a maximum of 20 ac of bottom (12.5 ac of sill in Phase I plus, if determined necessary, 9.5 ac of breakwaters in Phase II). Of the total project area, 298.8 and 100 ac at James and Barren, respectively, are less than 2 meters in depth. Additionally, 100.8 acres of shallow water habitat would be deepened to 25' at James Island to establish the access channel on the northwest of the restored island.

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SNS have separate foraging, overwintering, spawning, and larval/juvenile habitat. The loss of open water habitat is not expected to have a significant impact on the various habitats used by shortnose sturgeon populations. Consistent with nearby East Coast populations, feeding habitat would be most important during April to October. Productive reaches of the upper Chesapeake Bay (e.g. near the saltwater/freshwater interface and channel areas bordering mud flats or emergent macrophyte bed) are potential feeding areas (NMFS, 1999). Based on foraging patterns exhibited by SNS in other northeast river systems, SNS in this system are likely to be widely dispersed and actively feeding during the summer. Feeding is generally thought to be most important

when water temperatures range from 45 to 82˚F (7 and 28˚C). This temperature range occurs from April to August in waters surrounding James and Barren Island (Table 1). Maximum water depths within the proposed James Island footprint are 13.2' with a mean of 8.5'. The maximum depth within the access channel footprint is 26.5' with a mean of 14.8'. The area surrounding James and Barren Islands may serve as foraging habitat, but similar habitat is available in the adjacent vicinity. Fisheries studies in the vicinity of the James and Barren have not collected any species that would be indicative of unique habitats relative to those available within the middle reach of the Chesapeake Bay. Therefore, the project area is not likely to be unique or critical habitat for SNS (or other fish species).

Spawning, overwintering, and larval/juvenile habitat are not expected to be impacted. SNS spawning and early life history typically takes place in the freshwater reaches of fast-flowing river systems. No SNS spawning habitat has been identified in the Chesapeake Bay. Additionally, salinities near the project area are not within the range typical of spawning habitat: approximately 9 to 18.7 ppt at Barren Island, and 9.8 to 19.5 ppt at James Island. Most mainstem areas north of the Bay Bridge are considered potential overwintering habitat and as such, the James and Barren Island region is not expected to be overwintering habitat for SNS. Habitat important to the larval and juvenile stages of SNS would be found above the saltwater/freshwater interface, on gravel/sand/mud substrate, and deeper channel areas [32.8' to 65.6' (10 to 20 m) deep] in freshwater rivers (Pottle and Dadswell 1979).

Water quality impacts due to construction are expected to be short-term and minor. During perimeter dike construction at James, the toe dike would be constructed first to minimize turbidity plumes resulting from dredging associated with the sand borrow activities and placement of sand to construct the dikes. Dredged material transported to the James Island site would be contained within the armored dikes. Discharges through the spillways would be monitored, and must meet State water quality standards. It is expected that a State of Maryland water quality certification and a wetlands license would be obtained. Turbidity and total suspended solids (TSS) limits would be prescribed in these documents. Dredged material transported to the Barren Island site would be contained behind sills. To address the potential for toxic metal production materials placed at the James and Barren Island, project sites would be managed and conditioned periodically if necessary to maintain the pH near neutral. Where determined necessary, time of year restrictions, best management practices (BMPs), turbidity curtains, and silt fences would be used to minimize impacts. An extensive monitoring plan, such as the one used at PIERP, would be established.

3. Impacts to prey

Juvenile SNS feed mostly on benthic crustaceans and insect larvae, while adults feed largely on mollusks, polychaetes, and small benthic fish (Gilbert 1989). Up to 2,072 ac of open water habitat at James Island and approximately 100 ac of shoreline habitat at Barren Island that supports SNS prey would be lost to accommodate the proposed project. Prey individuals would be destroyed or displaced as a result of project expansion and borrow actions in both locations. The reduction of benthic communities as a result of island expansion would reduce biomass available for consumption by SNS that may use

these areas as feeding grounds. However, SNS prey occur over a broad area of the Bay. And although the project will cause loss of open water and benthic habitat for SNS prey species, population levels of prey species are expected to remain regionally healthy because of the ready availability of these lost habitats elsewhere in the mid-Chesapeake Bay region. Further, development of open water habitat regionally in association with erosion and rising sea level would be expected to contribute habitat that supports benthic biomass in the Bay. Creation of salt marsh at James and Barren plus expected protection of SAV at Barren will support a wide variety of SNS forage species and partially compensate for the loss of open water habitat and disturbance to bottom habitats. The James Island access channel will likely recover a benthic community comparable to pre-project conditions within several years following cessation of dredging, as is typical of benthos occurring on sands and fine mobile estuarine deposits (Newell et al. 1998). However, access channel depths below the pycnocline following dredging have the potential to lose their benthic macroinvertebrate communities in the future if hypoxic or anoxic conditions occur for prolonged periods of time.

4. Cumulative impacts

Other dredging and placement actions occur in the immediate vicinity of the project area. Periodic maintenance dredging is conducted in small navigation channels including: Knapps Narrows, the Honga River, and the Chester River. Maintenance dredging of the federal channels in these locations would result in displacement of SNS and forage resources immediately after dredging. Knapps Narrows was last dredged 4 to 5 years ago, and it is expected that maintenance dredging will occur in either 2005 or 2006. The Chester River has been maintained within the past 3 years and would not require dredging for several years. The Honga River dredging and channel realignment was conducted and completed earlier in 2004. However, Honga River channels will require periodic future dredging that will provide material for the proposed wetland creation at Barren Island. These dredging projects will cause temporary bottom disturbance and loss of benthos that could serve as forage for SNS. The magnitude of the impacts of these dredging projects will depend on the speed of benthic recolonization of the area and the frequency of maintenance dredging. There is also periodic maintenance dredging and placement activities associated with other portions of the Baltimore Harbor and Channels federal project in the Patapsco River, the Swan Point Channel, Tolchester Channel, and the approach channels to the Chesapeake & Delaware Canal. Activities north of the Bay Bridge should have the potential to have a larger impact on the species because SNS are more common in northern regions.

The State of Maryland and Baltimore District are currently evaluating expansion of PIERP. PIERP is restoring 1,100 acres of open water to island habitat, half uplands and half tidal wetlands. If Poplar Island Expansion moves forward, up to 600 acres of additional open water may be converted to uplands/wetlands within 16 to 26 nautical miles of James and Barren Islands. The expansion also proposes dredging sand for dike construction from an open water area west/southwest of the current project, potentially impacting between 49 and 230 acres.

B. Sea turtles

1. Impacts to individuals

A hydraulic dredge would be used to mine the sand needed for dike construction at James Island. There is potential for entrainment of sea turtles that might be in the construction area during use of hydraulic dredges for dike creation, specifically Kemp's ridleys and loggerheads that feed on mollusks and crustaceans. Entrainment risk during construction is the same type of risk that exists during hydraulic dredging. Construction of the sand dikes for the 1,100 acre PIERP did not encounter or impact any sea turtles. Additionally, no dredging activities in Maryland Chesapeake Bay waters have resulted in a sea turtle incidental take. Sea turtles are more prevalent in Virginia portions of the Chesapeake Bay. Fifty-five sea turtle incidental takes, mostly loggerheads, have been reported in Virginia waters since 1994. (The period of record is 1980 to the present.) Incidental takes in Virginia occurred between April and November.

Although direct monitoring was not performed, there were no sea turtles identified in any of the finfish surveys or wildlife monitoring at James or Barren Island (MES 2004, BBL 2004). Sea turtles are migratory individuals that are seasonal transients to the project area and no impacts are expected directly to individuals. During cooler weather months, particularly, no direct physical impacts to individuals are expected because sea turtles are unlikely to be present.

2. Impacts to habitat

No nesting is known to occur within the Maryland portions of Chesapeake Bay (Evans et al. 1997). The Chesapeake Bay is used only as developmental and foraging habitat by sea turtles in the summer months. Open water habitat at James and Barren Islands that is to be transformed into island habitat would be permanently loss to sea turtles. However, because of the great abundance of this habitat type in the Bay, no detrimental impacts to sea turtle populations are expected. Although dredging activities for the northwest access channel at James Island would disturb bottom, open water habitat would remain, thus no long-term impacts to sea turtle habitat are expected. It is anticipated that the project would have a positive benefit on sea turtle foraging habitat by providing protection to the abundant SAV beds to the east of Barren.

Measures discussed to minimize construction impacts to SNS habitat apply for sea turtles also.

3. Impacts to prey

Impacts to sea turtle prey are similar to those SNS prey would experience although sea turtles typically prey on larger prey items than SNS. Overall, prey would be displaced, but no significant negative impact is expected to regional populations. These areas are not expected to be particularly abundant with respect to mollusk resources. Clam surveys identified minimal or no hard shell clam, soft-shell clam, and razor clam population in the

waters surrounding James and Barren Islands. Sea turtles may be drawn to the abundant SAV beds to the east of Barren Island to forage. Proposed restoration measures at Barren would protect these beds and thus provide habitat for many sea turtle prey species. The likely loss of SAV beds without the proposed restoration measures would negatively impact sea turtle prey habitat.

4. Cumulative impacts

Cumulative effects from other projects discussed in the section on shortnose sturgeon impacts should not be significant relative to sea turtles because sea turtles are mobile, seasonal transients, and have opportunistic feeding habits. Their seasonally limited presence in Maryland Chesapeake Bay waters minimizes sea turtle exposure to proposed project activities.

D. Bald eagles

1. Impacts to individuals

With appropriate management efforts, negative impacts to individual bald eagles are not expected. There are no eagle nests at Barren Island. A portion of the proposed project at James Island for restoration and dredged material placement would be located approximately 940 ft (500 yd) west of the remaining island remnants and nest DO-02-02. The nest at James is outside the limits for Zone 1 (330 ft) and 2 (660 ft) restrictions, but within Zone 3 (1329 ft) (See Figure 7). Management would need to include protection of roosts and feeding sites. There may be construction restrictions between December 15 and June 15.

2. Impacts to habitat

With compliance to Zone 3 restrictions, no impact to current nesting habitat is expected at James Island. No nesting habitat currently exists at Barren Island. It is anticipated that the project would increase bald eagle habitat on James and Barren Islands. Activities at Barren and James would stabilize the island by preventing further shoreline erosion and loss of mature trees bald eagles favor for nesting. Long-term impacts of construction at James Island would be creation of new nesting habitat. The footprint of James Island restoration cells (2,072 ac) and Barren (approximately 100 ac = maximum impact if all phases are constructed) would be permanently loss as aquatic foraging habitat. However, there is an abundance of similar habitat in the region. Construction activities may temporarily impact foraging activity in the vicinity of James and Barren Islands. However, this disruption is expected to be minor and temporary. It is anticipated that over the long-term, the restoration of James and Barren Islands will enhance foraging habitat and prey species.

3. Impacts to prey

Fish species that bald eagles prey on would permanently lose 2,072 ac of shallow water habitat at James Island and approximately 100 ac at Barren Island. However, this habitat is regionally abundant. Additionally, 1,043 ac of wetland habitat at James Island and 72 ac at Barren Island would be created, and abundant SAV beds protected that would provide nursery habitat for many prey species. Other prey species including mammals and waterfowl are expected to benefit from the creation of island habitat at James and Barren Islands. No long-term significant impact is expected to bald eagle prey species.

4. Cumulative impacts

The regional dredging activities discussed in the shortnose sturgeon cumulative impacts section should have no impacts on bald eagles. PIERP and its potential expansion (Poplar Island Expansion Study- PIES) would provide potential nesting habitats as well as hunting acreage for bald eagles. Wetland creation and SAV protection associated with the two projects is expected to benefit prey species. Dredging for borrow sand to construct dikes at PIES is not expected to impact bald eagles or their habitat. PIES would result in a loss of approximately 600 ac of shallow water that serves as open water foraging habitat.

IV. FEDERAL AGENCY'S OPINION ON PROJECT IMPACTS TO ESA

In summary:

1. Shortnose sturgeon, and Kemp's ridleys, loggerhead, green and leatherback sea turtles are known to occur near the project area, but have not been shown to utilize the open water immediately around James and Barren Islands. Kemp's ridleys and loggerheads are the two species most frequently identified in Maryland Chesapeake Bay waters. The proposed project would convert up to 2,072 acres of open water habitat at James Island (including 298.9 acres maximum of shallow water habitat less than 2 m) and no more than approximately 100 acres of open water habitat at Barren Island (entire project acre is less than 2 m) to island habitat, resulting in a net loss of potential habitat for shortnose sturgeon and sea turtles. Up to an additional 100.8 acres of bottom will be disturbed in the dredging of the proposed James Island access channel.

2. There is the potential for sea turtles and shortnose sturgeon to be in the project area and be directly impacted by construction operations because these species have been identified in similar habitats in the region. However, the potential for direct impacts are anticipated to be minimal due to the fact that no SNS or sea turtles have been recorded in the project area by recent monitoring efforts and they are likely to only be transient to the project area. Additionally, both SNS and sea turtle regional presence is greatest in the spring and summer and much reduced in winter months.

3. Fisheries investigations in the vicinity of James and Barren Islands have not identified rare or unique aquatic habitats or critical habitat for SNS or sea turtles. Conversely, the

open waters of the project area that would be impacted by the proposed action are regionally abundant within the middle reaches of the Chesapeake Bay.

4. There is a potential for bald eagles to be in the project area. A nest at James Island is within approximately 940' of the project. No nests currently exist at Barren Island. Construction at James Island may temporally interrupt foraging in the project area. Zone 3 time of year restrictions would be followed to minimize the potential for impacts during nesting season. Restoration of James Island and Barren Island is anticipated to provide additional nesting habitat and positive, long-term benefits. No negative, long-term impacts are expected to bald eagles, their habitat, or prey.

5. The marshes created as part of island creation at James and Barren Islands will support a wide variety of forage species for sea turtles and SNS. The creation of this habitat is expected to compensate somewhat for loss of open water and benthic habitats.

6. By benefiting SAV beds, restoration actions at Barren Island are expected to enhance sea turtle foraging habitat and preserve habitat used by prey species of SNS, sea turtles, and bald eagles.

7. Discharges from the new placement cells would be subject to compliance with state water quality standards, resulting in only short term, minor perturbation to water quality.

8. Although other federal, state and private sponsored projects occur in the project vicinity that cause the disturbance of bottom habitat, these projects are periodic and should not substantially affect SNS, sea turtles, bald eagles, and their respective habitat. Proposed large-scale island restoration projects would cause a loss of bottom and open water habitat for these species, however, regionally this habitat is abundant. Therefore, no substantial cumulative impacts to habitat or populations of these species are expected to result from this project.

In conclusion, the Baltimore District, after reviewing relevant fisheries and wildlife information and analyzing potential project impacts, has determined that the proposed action is not likely to adversely affect shortnose sturgeon, sea turtles, bald eagles, their habitat, or prey in the project area.

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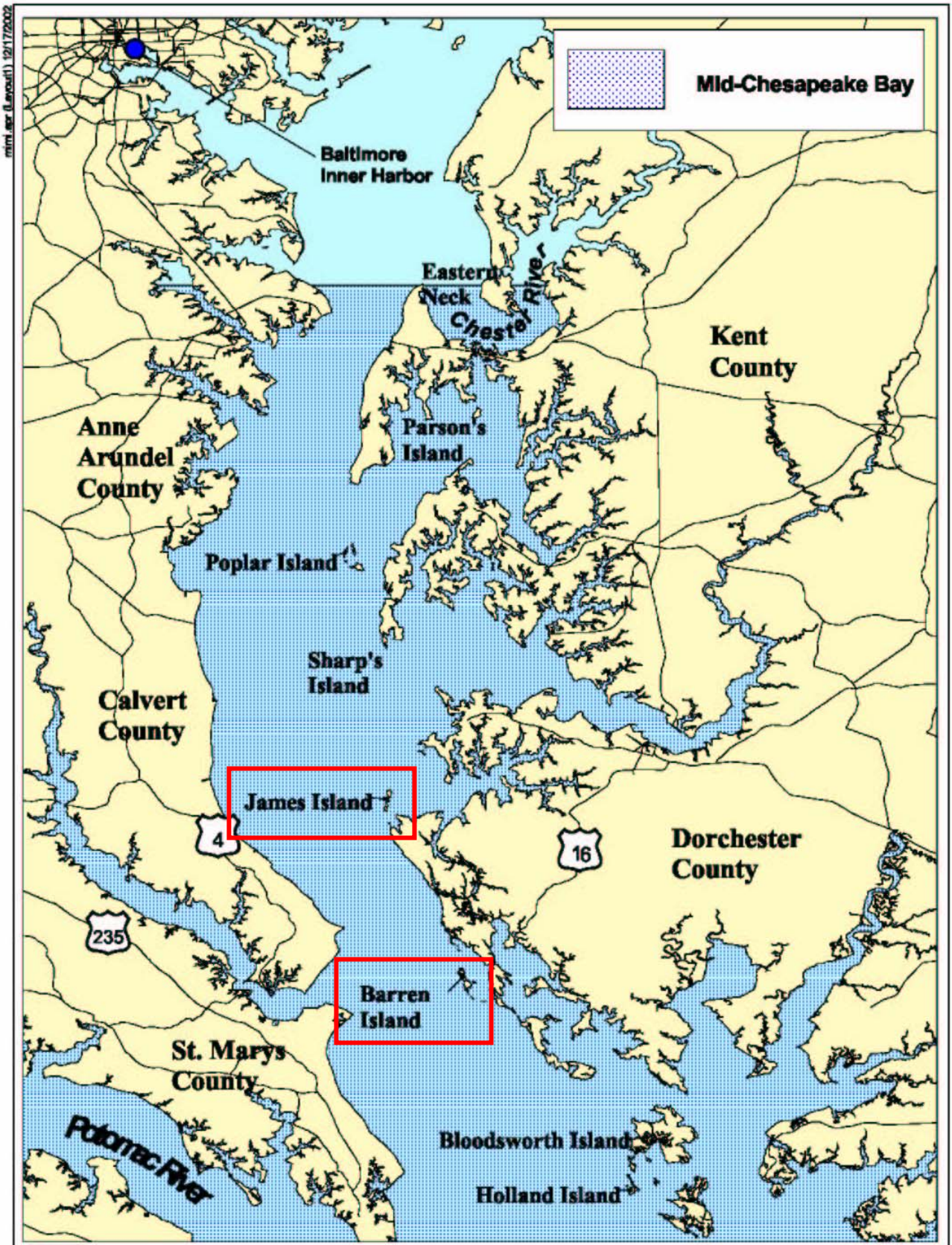


Figure 1: Mid-Chesapeake Bay Island Restoration Feasibility Study Project Area

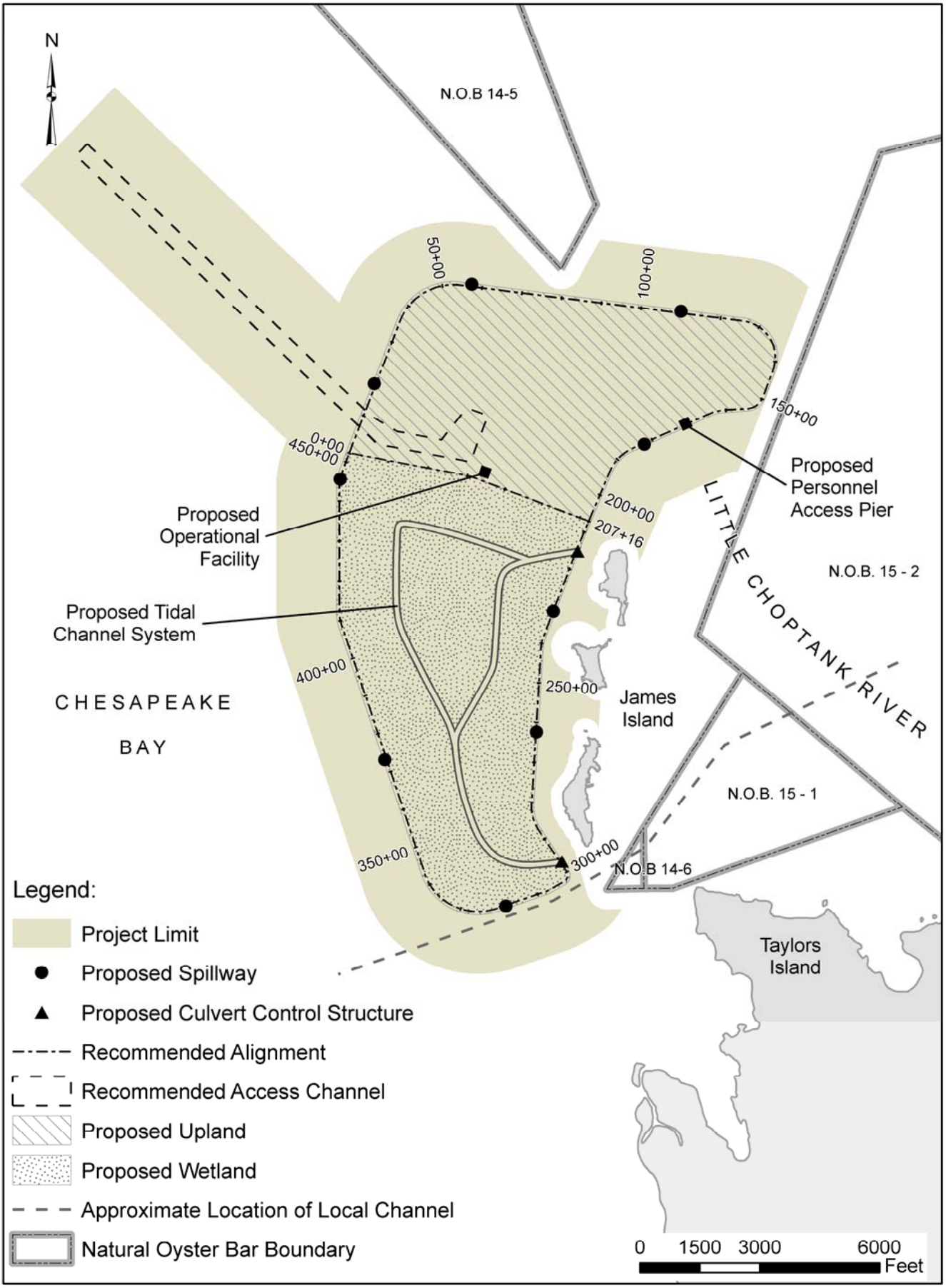


Figure 2: James Island Recommended Plan.

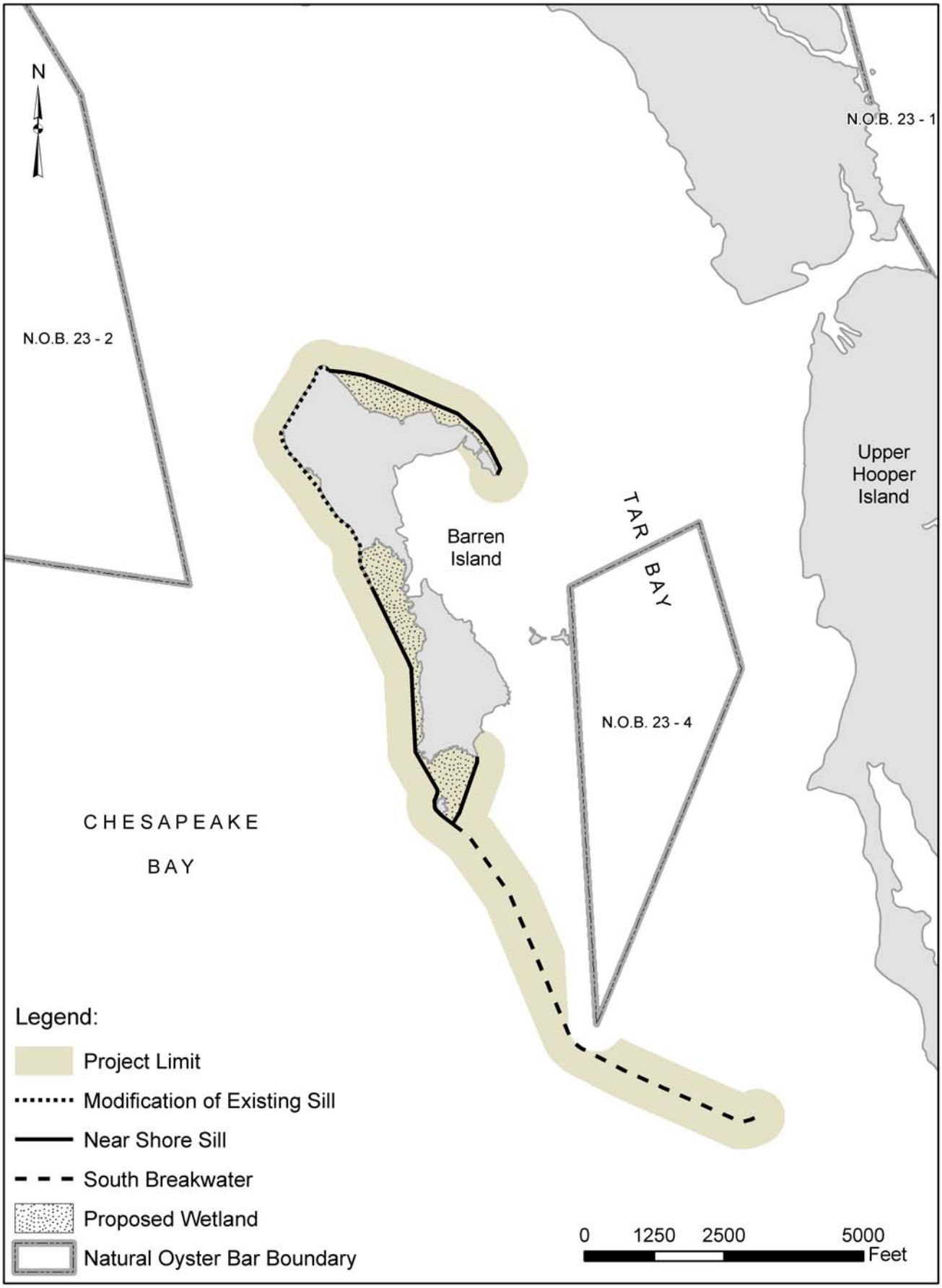
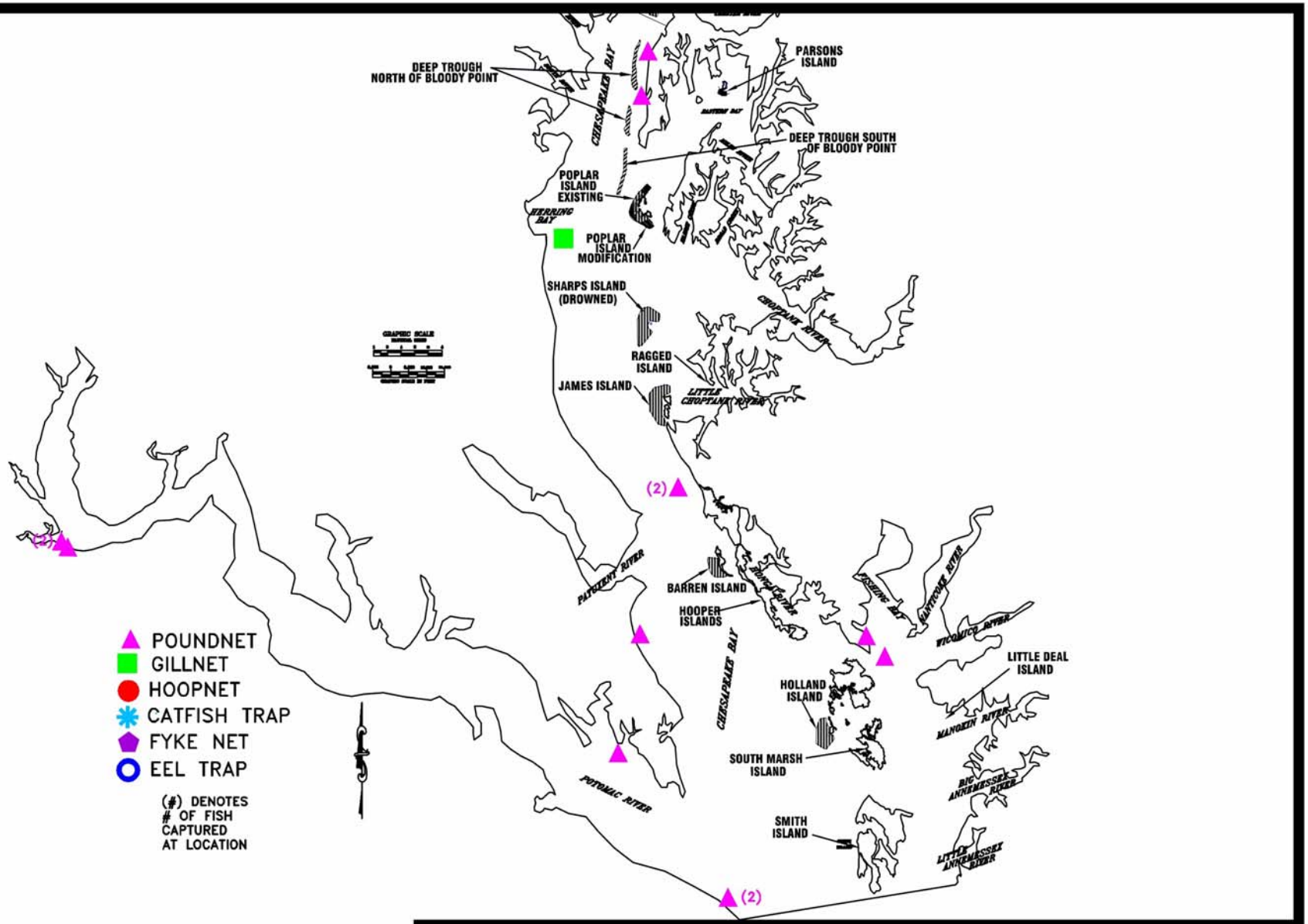


Figure 3: Barren Island Recommended Plan.



Updated January 13, 2005

MARYLAND ENVIRONMENTAL SERVICE

SNS REWARD PROGRAM CATCHES IN THE MID BAY SOUTH OF BAY BRIDGE
FIGURE **4**

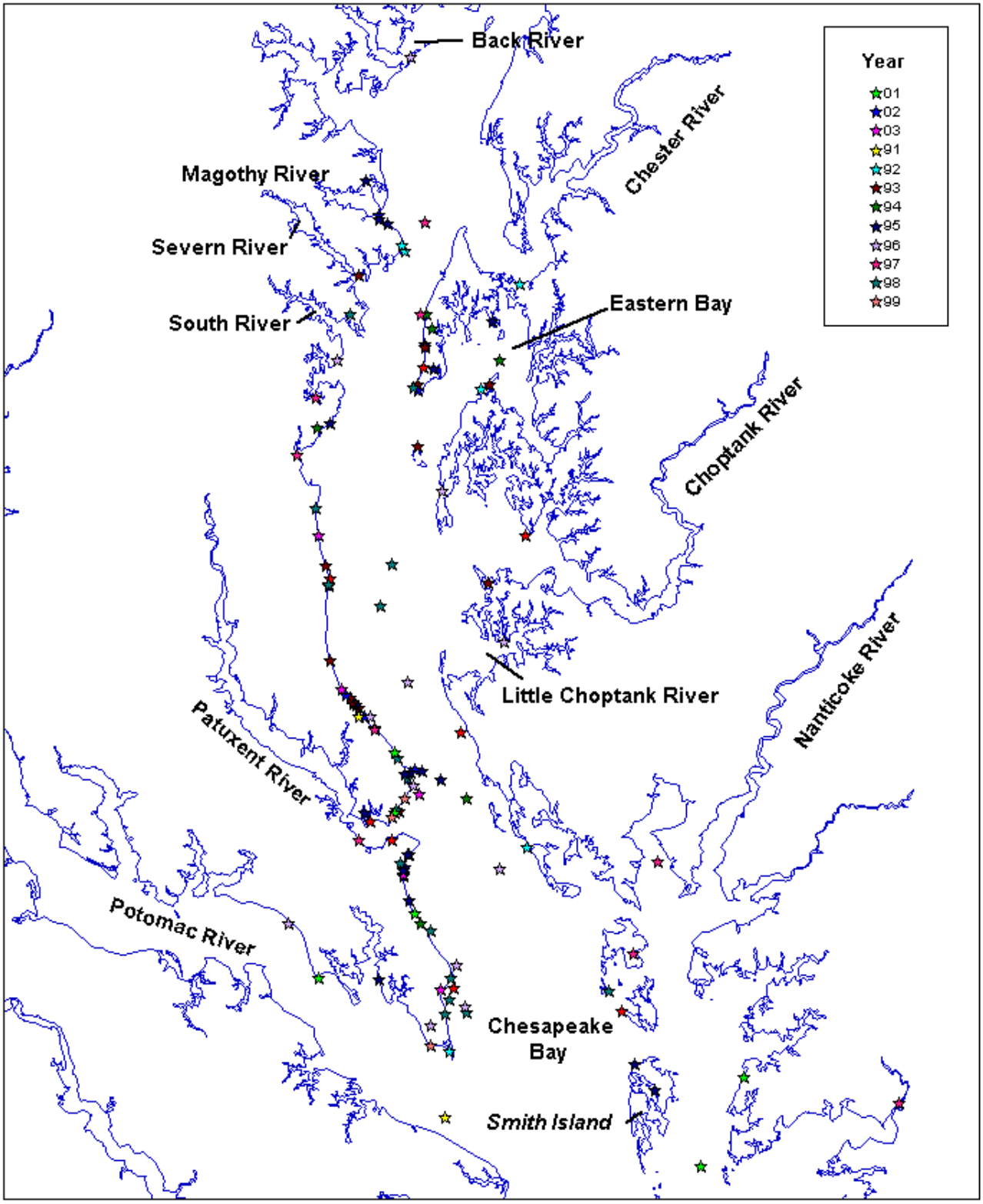


Figure 5. Locations of sea turtle strandings in Maryland portion of the Chesapeake Bay, 1991 to 2003. See text for details. (reproduced from Kimmel, 2004)

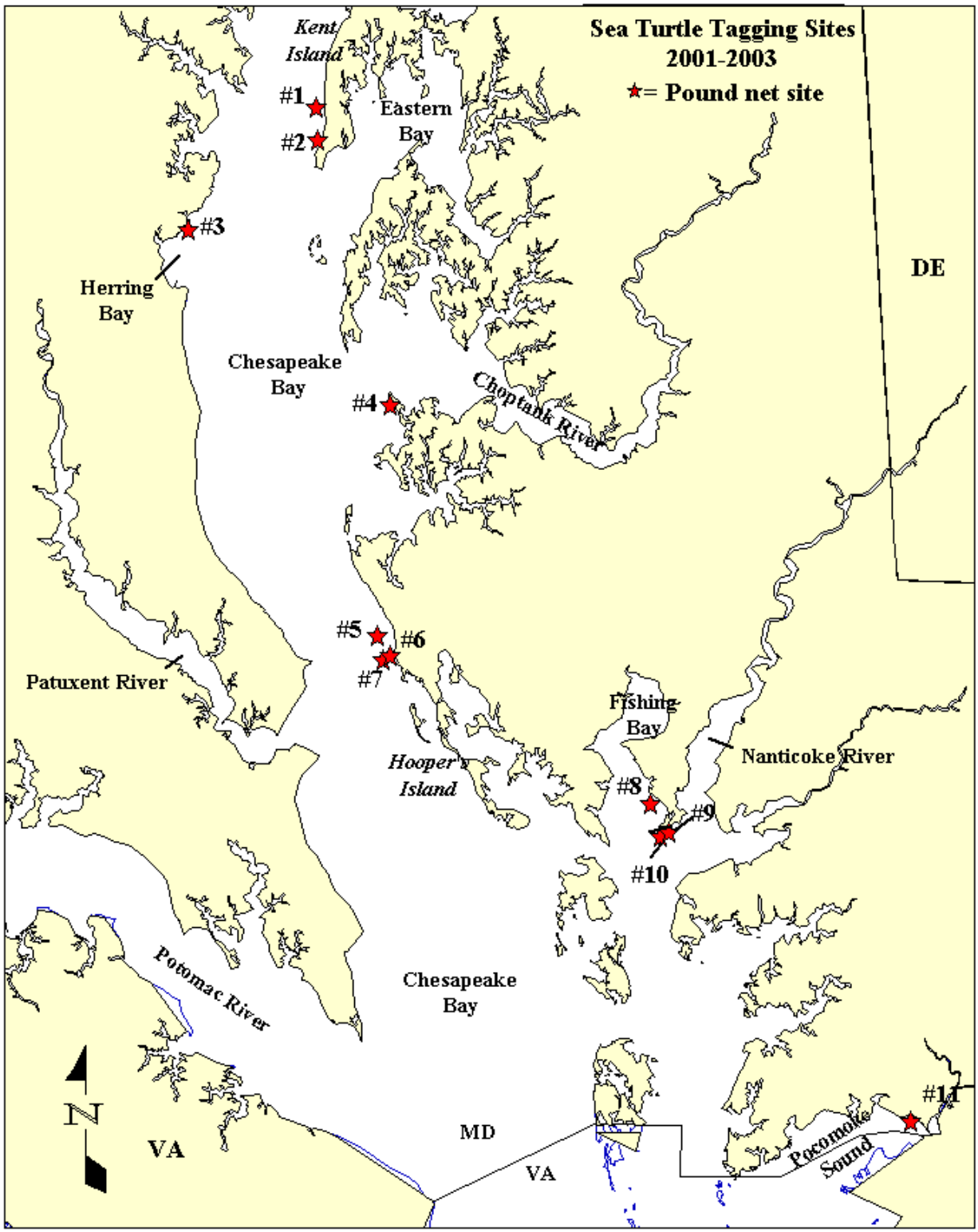


Figure 6. Pound net sites in Chesapeake Bay in which incidentally captured sea turtles were examined and tagged, 2001-2003. Refer to Table 2 for data on sea turtles at each net site. (Kimmel, 2004)

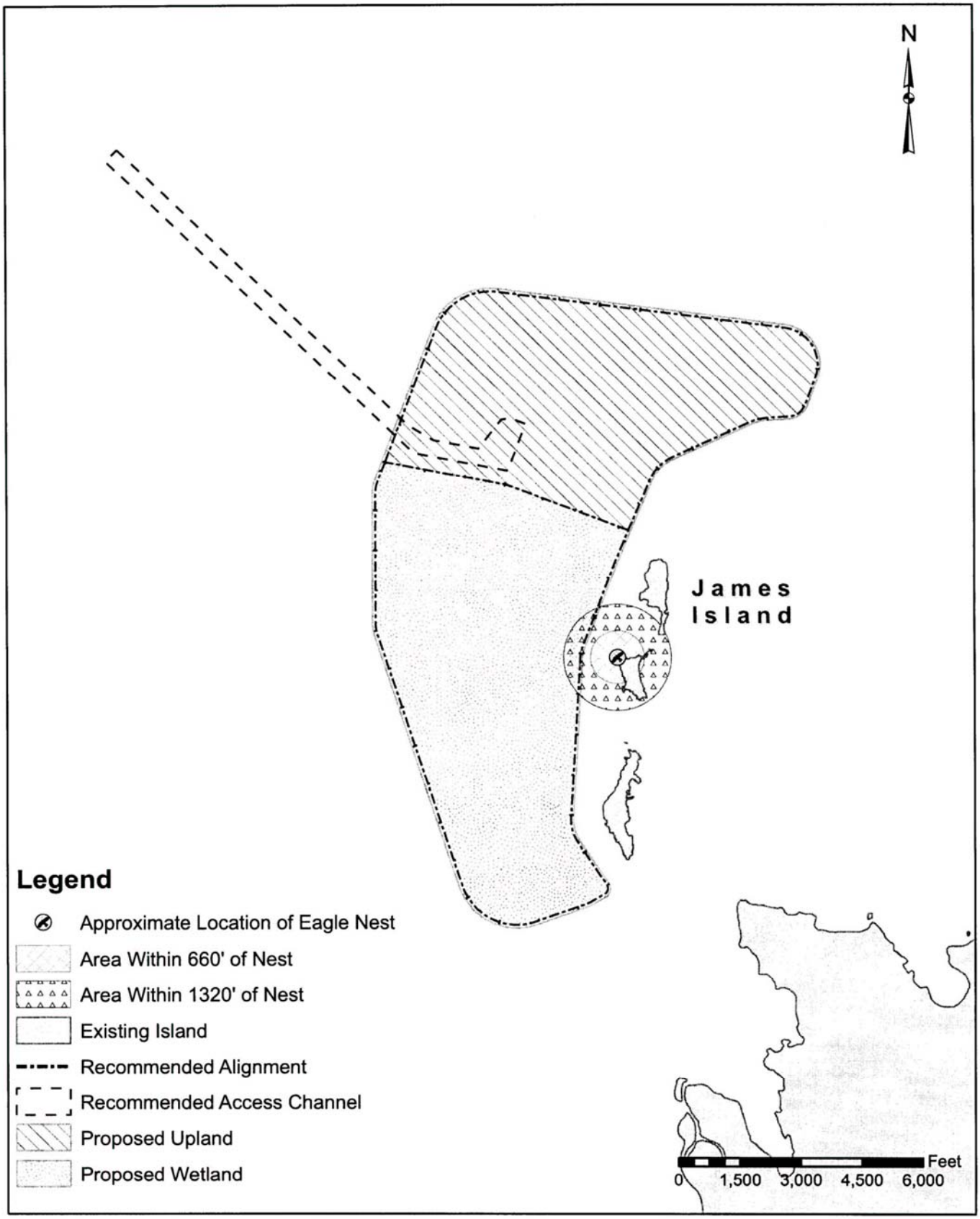


Figure 7: Location of Bald Eagle nest at James Island. Zones 2 (660') and 3 (1320') of activity limitation are identified.

Attachment D: Agency Coordination

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MARYLAND DEPARTMENT OF HOUSING
& COMMUNITY DEVELOPMENT

June 24, 2004

Tom Humbles
MES
259 Najoles Road
Millersville, MD 21108

Dear Mr. Humbles,

I have reviewed the two volumes, *Underwater Archaeological Surveys in the vicinity of James and Barren Islands in the Chesapeake Bay, Maryland.* While I believe the net results are accurate, these could easily be combined into one report as they contain a great deal of redundant material.

In general, the volumes do not address the State's *Standards and Guidelines for Archeological Investigations in Maryland* (G. Shaffer and E. Cole, 1994) especially in format, and discussion of specific contexts; it also frowns on use of "boilerplate" in background sections. This volume is available on the Trust's web site (www.marylandhistoricaltrust.net). No environmental background is provided, such as a discussion of geology that would support their determination that the magnetic clusters adjacent to James Island are geologic in origin, or the hydrology of the Bay addressing tides, currents, storm patterns and erosion. The historical section focuses almost exclusively on Virginia, ignoring important sources of information about Maryland. The chapter on Chesapeake vessels is extremely interesting but is never applied or otherwise related to the vessels they located. This may be premature since they did not dive on, or further investigate the sites, but then this chapter could be reserved for use in a Phase II project if one is undertaken. If the volumes are combined into one report it should be included.

I have marked the Barren Island volume extensively and since the typographical and grammatical errors are mirrored in the James Island volume I have only marked pages where my comments differ from the other report. As mentioned previously, the net assessment probably accurate, the reports could be tightened up.

.../2

I am happy to discuss this with you or to work with PCI in order to produce the best possible report. I may be reached at 1-800-756-0119 x7662, or 410-514-7662 or via email: Langley@dhcd.state.md.us.

Sincerely,

Susan B.M. Langley, Ph.D.
State Underwater Archaeologist

Encl.
/sl

cc. B. Cole, MHT
S. Bilicki, MHT

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P. O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

REPLY TO
ATTENTION OF

July 2, 2004

Planning Division

Mr. Mike Johnson
Department of the Navy
Commanding Officer
Naval Air Warfare Center: Aircraft Division
Attn: Test Range, Bldg 2118
23013 Cedar Point Road
Patuxent River, MD 20670

Dear Mr. Johnson:

This letter is in reference to the U.S. Army Corps of Engineers, Baltimore District's (Corps) study to determine the potential for restoring island habitat in the Mid-Chesapeake Bay region. The Congressional study authority defines the study area as the Eastern Shore of the Chesapeake Bay, Maryland, from the confluence of the Chester River south to the State of Maryland border.

The Mid-Chesapeake Island Environmental Restoration Feasibility Study focuses on restoring hundreds of acres of aquatic and wildlife island habitat in the Mid-Chesapeake Bay region through the beneficial use of clean dredged materials from the Port of Baltimore channel system. Material from Baltimore Harbor within the Patapsco River will not be considered for placement at any restored islands. Restoration of island habitat is necessary and valuable to the Chesapeake Bay ecosystem. In the last 150 years, roughly 10,500 acres have been lost in the middle-eastern portion of Chesapeake Bay. It is estimated that most island habitats will be completely eroded and lost to the Bay within the next 10 to 20 years.

The feasibility study looked at the State of Maryland's island database and determined that about 100 islands could be used for potential restoration. That information was used to develop a screening criteria to prioritize the islands for restoration. Through the screening criteria process, James and Barren Islands were ranked as the top two candidates for restoration. James Island is located in Dorchester County at the mouth of the Little Choptank River in the Chesapeake Bay (see attached map of project area). In 1680, James Island was approximately 1350 acres. Today only three remnants remain totaling 79 acres. Barren Island is located in Dorchester County, off the western shore of Hooper Islands (see attached map of project area). Barren Island is an United States Fish and Wildlife Service wildlife management area that also serves as a satellite refuge of the Blackwater National Wildlife Refuge. Currently 197 acres, Barren Island has lost approximately 500 acres in the past 325 years. Alternatives are being explored that would restore both James and Barren Islands as well as alternatives to restore either James or Barren. Examples of potential dike alignments being considered are shown in the attached figures. Once the exterior dikes are constructed, dredged material is pumped into interior cells. Depending on the height of the interior dikes either uplands or wetlands are created. Cells are drained and pumped with more dredged material until the cell is full. After final draining and grading, cells are planted.

The Mid-Chesapeake Island Environmental Restoration Feasibility Study received authorization from a resolution by the Senate Committee on Environment and Public Works dated June 5, 1997. An environmental impact statement (EIS) is also being prepared to comply with the National Environmental Policy Act of 1969.

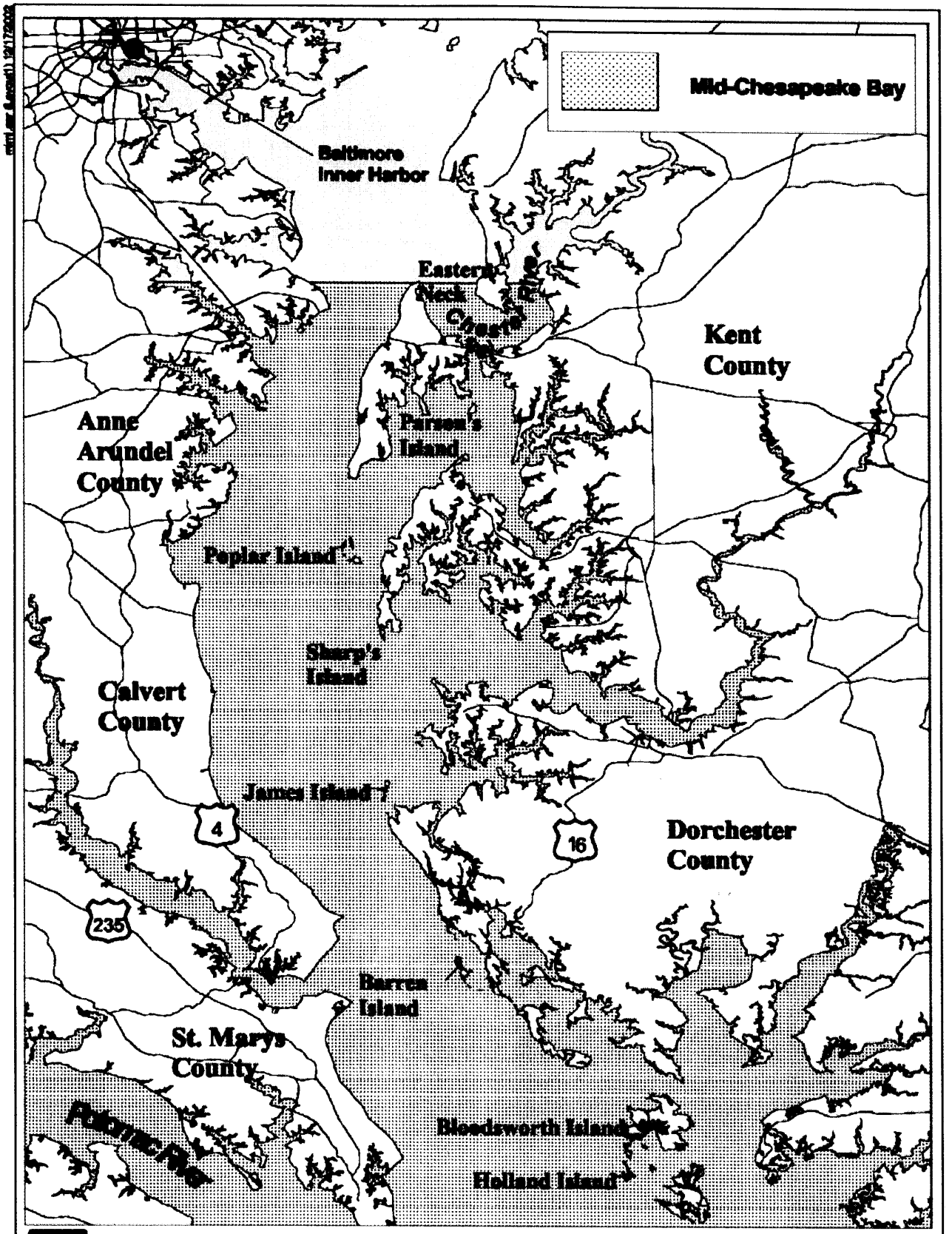
The area south and southwest of Barren Island is designated Restricted Area 334.200. The Corps is requesting information on the activities and use that is restricted in this area. If permitted, the southern tip of the constructed island could potentially extend into the restricted area (please note dike alignments in Figure 2). In the least, barges would be anchored in the restricted area adjacent to Barren Island in order to facilitate pumping of dredged material during construction.

If you have any questions regarding this matter, please contact Ms. Angie Sowers, Ph.D., at (410) 962-7440.

Sincerely,

Wesley E. Coleman, Jr.
Chief, Civil Project Development Branch

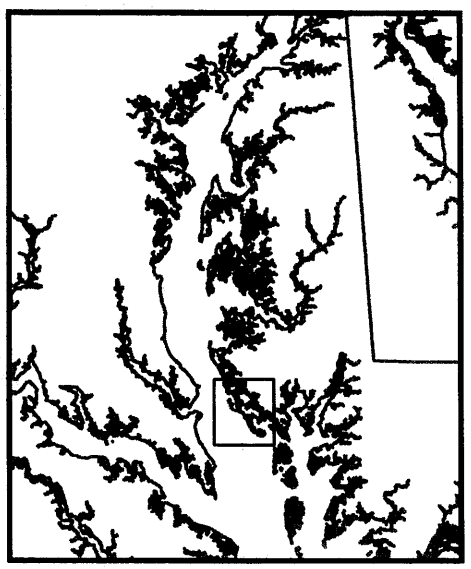
Enclosures



US Army Corps of Engineers
Baltimore District

Mid-Chesapeake Bay Island Environmental Restoration Feasibility Study

FIGURE 2: Potential Barren Island Alignments and Restricted Area 334.200



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
One Blackburn Drive
Gloucester, MA 01930-2298

JUL 20

Wesley E. Coleman, Jr.
Chief, Civil Project Development Branch
Department of the Army
Baltimore District, US Army Corps of Engineers
PO Box 1715
Baltimore, Maryland 21203

Attention: Planning Division

Dear Mr. Coleman,

This is in response to your letter received July 6, 2004 requesting information on the presence of species listed under the jurisdiction of the National Marine Fisheries Service (NOAA Fisheries) in the Mid-Chesapeake Bay region. The Army Corps of Engineers (ACOE) is conducting a study to determine the potential for restoring island habitat in this region.

The federally endangered shortnose sturgeon (*Acipenser brevirostrum*) has been documented in the Chesapeake Bay. The NOAA Fisheries recovery plan (1998) indicates that shortnose sturgeon found in the Chesapeake Bay and its tributaries are considered part of the Chesapeake Bay population. Welsh *et al.* (1999) summarizes historical and recent evidence of shortnose sturgeon presence in the Chesapeake Bay. The first published account of shortnose sturgeon in the Chesapeake system was an 1876 record from the Potomac River reported in a general list of fishes of Maryland (Uhler and Lugger 1876). Other historical records of shortnose sturgeon in the Chesapeake include: the Potomac River (Smith and Bean 1899), the upper Bay near the mouth of the Susquehanna River in the early 1980's, and the lower Bay near the mouths of the James and Rappahannock rivers in the late 1970's (Dadswell *et al.* 1984). The US Fish and Wildlife Service Reward Program for Atlantic Sturgeon began in 1996. Shortnose sturgeon have been incidentally captured via this program. As of May 2003, fifty-four shortnose sturgeon were captured via the reward program in the Chesapeake Bay and its tributaries – two from the Susquehanna Flats, eight from the Susquehanna River, two in the Bohemia River, six in the Potomac River, one in the Sassafras River, one in the Elk River, two south of the Bay Bridge near Kent Island, one near Howell Point, one just north of Hoopers Island, and two in Fishing Bay. The remaining shortnose sturgeon were captured in the upper Bay north of Hart-Miller Island. These fish were captured alive in either commercial gillnets, poundnets, fykenets, eel pots, hoop nets, or catfish traps.

Several species of sea turtles are known to be present in the Chesapeake Bay. Leatherback sea turtles (*Dermochelys coriacea*) are present off the Maryland coast but are predominantly pelagic. Loggerhead (*Caretta caretta*), Kemp's ridley (*Lepidochelys kempi*), and green sea turtles

(*Chelonia mydas*) are present in the Chesapeake Bay mainly during late spring, summer and early fall when water temperatures are relatively warm. Aerial surveys of loggerhead turtles north of Cape Hatteras indicate that they are most common in waters from 22 to 49m deep, although they range from beaches to waters beyond the continental shelf. In the Chesapeake Bay area, Kemp's ridleys frequently forage in shallow embayments, particularly in areas supporting submerged aquatic vegetation. Green sea turtles are known to occur in estuarine and oceanic waters along the East Coast from Long Island to the tropics. Recent data from sightings and incidental captures in fishing gear indicate that Loggerhead and Kemp's ridley are the species of sea turtles most likely to be found in the waters of Chesapeake Bay while Leatherback and Green sea turtles may be also in the area.

Section 7(a)(2) of the ESA states that each Federal agency shall, in consultation with the Secretary, insure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. Because shortnose sturgeon and listed sea turtles are likely to be present in the vicinity of the project area and may be affected by the project, the proposed action must undergo Section 7 consultation. The federal action agency, in this case the Army Corps of Engineers, is responsible for initiating Section 7 consultation. When project details are developed, please submit a description of the project along with an assessment of the projects impacts on shortnose sturgeon and sea turtles to the attention of the Endangered Species Coordinator, NOAA Fisheries, Northeast Regional Office, One Blackburn Drive, Gloucester, MA 01930. After reviewing this information, NOAA Fisheries will then be able to conduct a consultation under Section 7 of the ESA.

Thank you for your cooperation in this matter. If you have any questions or concerns about these comments or about the consultation process in general, please contact Julie Crocker of my staff at (978) 281-9328 ext. 6530.

Sincerely,

Mary A. Colligan
Assistant Regional Administrator
for Protected Resources

File Code: Sec. 7 – spp. presence MD

File Copy

DEPARTMENT OF THE NAVY

NAVAL AIR STATION
22268 CEDAR POINT ROAD
PATUXENT RIVER, MARYLAND 20670-1154

5090
Ser 87/836
SEP 21 2004

From: Commanding Officer, Naval Air Station, 22268 Cedar Point Road, Unit NASAD, Patuxent River, Maryland 20670

To: Chief, Civil Project Development Branch, Mr. Wesley E. Coleman Jr., Department of the Army, Baltimore District, P.O.Box 1715, Baltimore, Maryland 21203-1715

Subj: U.S. ARMY CORPS OF ENGINEERS HABIT RESTORATION PROJECT FOR THE MID-CHESAPEAKE BAY REGION

1. Thank you for the opportunity to comment on the U.S. Army Corps of Engineers habit restoration project for the Mid-Chesapeake Bay region discussed in your letter dated 2 July 04. The project appears to be very similar to the Poplar Island restoration project which members of my staff visited about a year ago. Based on the Barren Island alignments that you provided, the retaining dikes would extend approximately 3500 feet into the Restricted Areas of the Chesapeake Test Range.

2. The type of flight operations we conduct in that area are compatible with the expansion of Barren Island for use as a wildlife management area, and therefore, I have no objections to the plan, provided that current or planned future flight operations will not be restricted due to the possible arrival of nesting colonial waterbirds (which have shown the ability to readily adapt to our operations at Bloodsworth Island). Please include such a provision in the waterways construction permit for this project.

3. If your intended use should change to include recreational or residential development; that could threaten the long term sustainability of flight operations in the Chesapeake Test Range and would be of significant concern to the Commanding Officer, Naval Air Warfare Center, Aircraft Division.

4. I would appreciate an opportunity to review and comment on the Draft EIS when it becomes available. If you have any questions regarding this matter, please contact Mike Johnston on 301-342-1179 or our Natural Resources manager, Mr. Kyle Rambo, on 301-757-0005.

Zachary A. Henry, Jr.

ZACHARY A. HENRY

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P. O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

REPLY TO
ATTENTION OF

October 26, 2004

Planning Division

Mr. Glenn Therres
Wildlife and Natural Heritage
Maryland Department of Natural Resources
582 Taylor Avenue
Annapolis, MD 21401

Dear Mr. Therres:

This letter is in reference to the U.S. Army Corps of Engineers, Baltimore District's (Corps) study to determine the potential for restoring island habitat in the Mid-Chesapeake Bay region. The Congressional study authority defines the study area as the Eastern Shore of the Chesapeake Bay, Maryland, from the confluence of the Chester River south to the State of Maryland border.

The Mid-Chesapeake Island Environmental Restoration Feasibility Study focuses on restoring hundreds of acres of aquatic and wildlife island habitat in the Mid-Chesapeake Bay region through the beneficial use of clean dredged materials from the Port of Baltimore channel system. Material from Baltimore Harbor within the Patapsco River will not be considered for placement at any restored islands. Restoration of island habitat is necessary and valuable to the Chesapeake Bay ecosystem. In the last 150 years, roughly 10,500 acres have been lost in the middle-eastern portion of Chesapeake Bay. It is estimated that most island habitats will be completely eroded and lost to the Bay within the next 10 to 20 years.

The feasibility study has looked at the State of Maryland's island database and has determined that about 100 islands could be used for potential restoration. That information was used to develop a screening criteria to prioritize the islands for restoration. Through the screening criteria process, James and Barren Islands were ranked as the top two candidates for restoration. James Island is located in Dorchester County at the mouth of the Little Choptank River in the Chesapeake Bay (see attached map of project area). In 1680, James Island was approximately 1350 acres. Today only three remnants remain totaling 79 acres. Barren Island is located in Dorchester County, off the western shore of Hooper Islands (see attached map of project area). Barren Island is an United States Fish and Wildlife Service wildlife management area that also serves as a satellite refuge of the Blackwater National Wildlife Refuge. Currently 197 acres, Barren Island has lost approximately 500 acres in the past 325 years. Alternatives were explored to restore both James and Barren Islands as well as alternatives to restore either James or Barren. Protection of Barren Island using breakwaters and similar means was also considered. Evaluation of the alternatives by the project delivery team identified the recommended plan to be the creation of an approximately 2000 acre island at James Island and protection of Barren Island (see enclosed figures). Based on the objectives, the recommended

plan best protects the existing resources at Barren and James while providing adequate capacity for dredged material.

The Mid-Chesapeake Island Environmental Restoration Feasibility Study received authorization from a resolution of the Senate Committee on Environment and Public Works dated June 5, 1997. An environmental impact statement (EIS) is also being prepared to comply with the National Environmental Policy Act of 1969.

The Corps is requesting any information your office may have on the presence of state listed rare, threatened, and endangered species. This request is for the project areas shown in the enclosed figures. Please provide this office with any comments regarding protected plant and animal species within 30 days of the date of this letter so that we may address these concerns in our plan formulation phase. A coordination letter has also been sent to the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service for information concerning federally protected species listed by Section 7 of the Endangered Species Act (ESA).

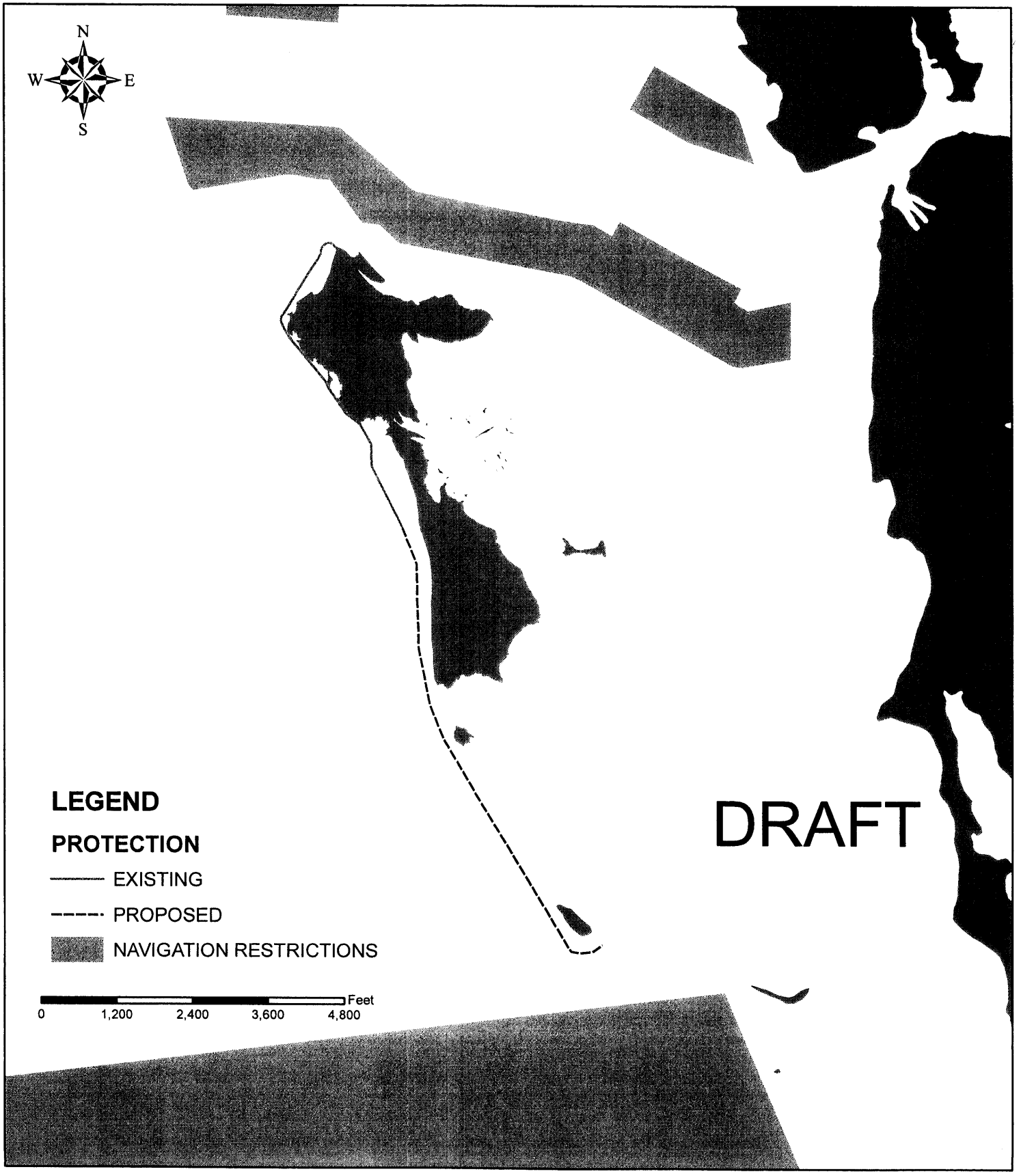
If you have any questions regarding this matter, please contact Ms. Angie Sowers, Ph.D., at (410) 962-7440.

Sincerely,

Wesley E. Coleman, Jr.
Chief, Civil Project Development Branch

Enclosures

BARREN ISLAND
PROPOSED PROTECTION ONLY
AUG 04



JAMES ISLAND
REVISED ALIGNMENT 5
& PROPOSED ACCESS CHANNEL PLAN

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Robert L. Ehrlich, Jr., *Governor*
Michael S. Steele, *Lt. Governor*
C. Ronald Franks, *Secretary*

November 26, 2004

Mr. Wesley E. Coleman, Jr.
Baltimore District, US Army Corps of Engineers
P.O. Box 1715
Baltimore, MD 21203-1715

RE: Environmental Review for James Island and Barren Island, Feasibility Study for Mid-Chesapeake Island Environmental Restoration, Talbot and Dorchester Counties, Maryland.

Dear Mr. Coleman:

The Wildlife and Heritage Service has determined that there are nest records for the state and federally threatened Bald Eagle (*Haliaaetus leucocephalus*) known to occur on both James Island and Barren Island. There are also historic waterfowl concentration and staging areas known to occur along the open water that is part of or adjacent to the shorelines of both James Island and Barren Island.

Barren Island also supports a breeding colony of waterbirds, and has potential Forest Interior Dwelling Birds (FIDS) habitat. In addition, there is a record for the state-listed endangered Eastern Narrow-mouthed Toad (*Gastrophryne carolinensis*) known to occur on Barren Island.

Thank you for allowing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

Sincerely,

Lori A. Byrne

Lori A. Byrne,
Environmental Review Coordinator
Wildlife and Heritage Service
MD Dept. of Natural Resources

ER #2004.2584.tado
Cc: S.A. Smith, DNR
R. Dintaman, DNR

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

December 1, 2004

Mr. Wesley E. Coleman, Jr., Chief
Civil Project Development Branch
Department of the Army
Baltimore District, US Army Corps of Engineers
P.O. Box 1715
Baltimore, Maryland 21203-1715

RE: James and Barren Island Restoration Projects, Dorchester County, MD

Dear Mr. Coleman:

This responds to your letter, received October 22, 2004, requesting information on the presence of species which are federally listed or proposed for listing as endangered or threatened within the above referenced project area. We have reviewed the information you enclosed and are providing comments in accordance with section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

The federally threatened bald eagle *(Haliaeetus leucocephalus)* nests within the above referenced project area. One nest, identified as DO-99-11, is located on the northern remnant of James Island. A second nest, identified as DO-82-04, is located at the southern end of Barren Island near Whitewood Cove. For further information regarding activity at these nests, Glenn Therres of the Maryland Wildlife and Heritage Division should be contacted at (410) 260-8572. Any construction or forest clearing activities within one-quarter mile of an active nest may impact bald eagles. If such impacts may occur, further section 7 consultation with the U.S. Fish and Wildlife Service may be required.

Except for occasional transient individuals, no other federally proposed or listed endangered or threatened species are known to exist within the area. Should additional information on the distribution of listed or proposed species become available, this determination may be reconsidered.

This response relates only to federally protected threatened or endangered species under our jurisdiction. For information on the presence of other rare species, you should contact Lori Byrne of the Maryland Wildlife and Heritage Division at (410) 260-8573.

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interest in these resources. If you have any questions or need further assistance, please contact Craig Koppie (410) 573-4534.

Sincerely,

G. A. Moser

G. Andrew Moser
Acting Program Supervisor, Threatened and Endangered Species

cc: Glenn Therres, Maryland Wildlife and Heritage Division, Annapolis, MD

COUNTY COUNCIL OF DORCHESTER COUNTY

COUNTY OFFICE BUILDING
P. O. BOX 26
CAMBRIDGE, MARYLAND 21613
PHONE: (410) 228-1700
FAX: (410) 228-9641

GLENN L. BRAMBLE, PRESIDENT
DAVID B. YOCKEY, VICE PRESIDENT
EFFIE M. ELZEY
THOMAS A. FLOWERS
WILLIAM V. NICHOLS

JANE BAYNARD
COUNTY MANAGER

E. THOMAS MERRYWEATHER
COUNTY ATTORNEY

April 13, 2005

Scott Johnson, Project Manager
United States Army Corps of Engineers
P.O. Box 1715
Baltimore, Maryland 21203-1715

Dear Mr. Johnson:

I am writing on behalf of the Dorchester County Council to thank you for providing the Council with an update regarding the status of the James and Barren Island dredge spoil restoration projects at the County Council's meeting on Tuesday, April 12, 2005.

While the County Council is pleased that the James and Barren island restoration projects are slated for completion after the Poplar Island enhancement project is completed, the County Council is concerned that James and Barren islands are eroding at a very fast pace. We encourage you to take whatever steps possible to help expedite the completion of these important island restoration projects.

Thank you.

Sincerely,

DORCHESTER COUNTY COUNCIL

Glenn L. Bramble

Glenn L. Bramble, President

GLB:mmf

http://www.docogonet.com
e-mail: info@council.docogonet.com

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P. O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

REPLY TO
ATTENTION OF

May 5, 2005

Planning Division

Mr. John Nichols
National Marine Fisheries Service
Habitat Conservation Division
904 South Morris Street
Oxford, Maryland 21654

Dear Mr. Nichols:

I am writing to request your review of the Essential Fish Habitat (EFH) Assessment for the Mid-Chesapeake Bay Island Environmental Restoration Project that the Baltimore District is proposing at James and Barren Islands in Dorchester County, Maryland. A feasibility report with an integrated Environmental Impact Statement (EIS) is currently being prepared and is scheduled for public review in the summer of 2005.

Initial coordination with NMFS identified the Choptank River as the appropriate geographic area upon which to base the Mid-Chesapeake Bay Islands EFH analysis. In a telephone conversation on February 21, 2005, it was concluded that of species with EFH designated in the Choptank River, only juvenile and adult summer flounder (*Paralicthys dentatus*), adult and juvenile bluefish (*Pomatomus saltatrix*), and juvenile red drum (*Sciaenops occelatus*) were likely to occur at the proposed project site. Informal consultation has occurred continuously throughout the feasibility study via your involvement at regular project delivery team meetings and through your participation on the Mid-Bay plan formulation subgroup.

The District's EFH assessment for the proposed project is enclosed. The District is requesting your concurrence that the proposed project complies with the provisions of the Magnuson-Stevens Fishery Conservation and Management Act, as amended, and as such will not have a substantial adverse effect on essential fish habitat for Federally managed species. Please review the enclosed EFH assessment and provide your agency's concurrence or comments within 30 days of the date of this letter.

If you have any questions, please contact Ms. Angie Sowers at (410) 962-7440.

Sincerely,

Wesley E. Coleman, Jr.
Chief, Civil Project Development Branch

Enclosures

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P. O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

REPLY TO
ATTENTION OF

May 17, 2005

Planning Division

Ms. Julie Crocker
National Marine Fisheries Service
U.S. Department of Commerce
One Blackburn Drive
Gloucester, MA 01930-2298

Dear Ms. Crocker:

Section 7(a)(2) of the Endangered Species Act (ESA) (16 U.S.C. 1531 et. seq.) requires every Federal agency, in consultation with and with the assistance of the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS), to ensure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. The purpose of this letter is to request your review of the ESA Section 7(a)(2) assessment the Baltimore District, U.S. Army Corps of Engineers has prepared for the proposed Mid-Chesapeake Bay Island Environmental Restoration Project at James and Barren Islands in Dorchester County, Maryland. A feasibility report with an integrated Environmental Impact Statement (EIS) is currently being prepared and is scheduled for public review in the late summer or fall of 2005.

Section 7 (a)(2) consultation was initiated by coordination letters submitted to NMFS and USFWS from the District on June 23, 2004. A letter dated July 20, 2004, from NMFS identified the presence of shortnose sturgeon (*Acipenser brevirostrum*), and loggerhead (*Caretta caretta*), Kemp's ridley (*Lepidochelys kempi*), green (*Chelonia mydas*), and leatherback sea turtles (*Dermochelys coriacea*) in the project area. A letter dated December 1, 2004, from USFWS highlighted the use of James and Barren Islands by the federally threatened bald eagle (*Heliaeetus leucocephalus*).

The District's ESA assessment for the proposed project is enclosed. The District is requesting your concurrence that the proposed project is not likely to adversely affect the listed species or designated critical habitats under your jurisdiction. Please review the enclosed ESA assessment and provide your agency's concurrence or comments within 30 days of the date of this letter.

If you have any questions, please contact Ms. Angie Sowers at (410) 962-7440.

Sincerely,

Wesley E. Coleman, Jr.
Chief, Civil Project Development Branch

Enclosures

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P. O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

REPLY TO
ATTENTION OF

Planning Division

May 17, 2005

Mr. John Wolflin
Supervisor
U.S. Fish and Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Dr.
Annapolis, MD 21014

Dear Mr. Wolflin:

Section 7(a)(2) of the Endangered Species Act (ESA) (16 U.S.C. 1531 et. seq.) requires every Federal agency, in consultation with and with the assistance of the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS), to ensure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. The purpose of this letter is to request your review of the ESA Section 7(a)(2) assessment the Baltimore District, U.S. Army Corps of Engineers has prepared for the proposed Mid-Chesapeake Bay Island Environmental Restoration Project at James and Barren Islands in Dorchester County, Maryland. A feasibility report with an integrated Environmental Impact Statement (EIS) is currently being prepared and is scheduled for public review in the late summer or fall of 2005.

Section 7 (a)(2) consultation was initiated by coordination letters submitted to NMFS and USFWS from the District on June 23, 2004. A letter dated July 20, 2004, from NMFS identified the presence of shortnose sturgeon (*Acipenser brevirostrum*), and loggerhead (*Caretta caretta*), Kemp's ridley (*Lepidochelys kempi*), green (*Chelonia mydas*), and leatherback sea turtles (*Dermochelys coriacea*) in the project area. A letter dated December 1, 2004, from USFWS highlighted the use of James and Barren Islands by the federally threatened bald eagle (*Heliaeetus leucocephalus*).

The District's ESA assessment for the proposed project is enclosed. The District is requesting your concurrence that the proposed project is not likely to adversely affect the listed species or designated critical habitats under your jurisdiction. Please review the enclosed ESA assessment and provide your agency's concurrence or comments within 30 days of the date of this letter.

If you have any questions, please contact Ms. Angie Sowers at (410) 962-7440.

Sincerely,

Wesley E. Coleman, Jr.
Chief, Civil Project Development Branch

Enclosures

CF: CPD Reading File

SOWERS/sam/7440/CENAB-PL-P

BLERSCH/CENAB-PL-P

ABADIE/CENAB-PL-P

BIERLY/CENAB-PL-P

COLEMAN/CENAB-PL-P

S://CPD/Correspondence/Mid-Bay Critical Areas Commission cover ltr.doc

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P. O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

REPLY TO
ATTENTION OF

March 18, 2005

Planning Division

Regina Esslinger
Critical Area Commission
1804 West Street
Suite 100
Annapolis, MD 21401

Dear Ms. Esslinger:

This letter is in reference to the U.S. Army Corps of Engineers, Baltimore District's (Corps) study to determine the potential for restoring island habitat in the Mid-Chesapeake Bay region. The Congressional study authority defines the study area as the Eastern Shore of the Chesapeake Bay, Maryland, from the confluence of the Chester River south to the State of Maryland border.

The Mid-Chesapeake Island Environmental Restoration Feasibility Study focuses on restoring hundreds of acres of aquatic and wildlife island habitat in the Mid-Chesapeake Bay region through the beneficial use of clean dredged materials from the Port of Baltimore channel system. Material from Baltimore Harbor within the Patapsco River will not be considered for placement at any restored islands. Restoration of island habitat is necessary and valuable to the Chesapeake Bay ecosystem. In the last 150 years, roughly 10,500 acres have been lost in the middle-eastern portion of Chesapeake Bay. It is estimated that most island habitats will be completely eroded and lost to the Bay within the next 10 to 20 years.

The Mid-Chesapeake Island Environmental Restoration Feasibility Study received authorization from a resolution by the Senate Committee on Environment and Public Works dated June 5, 1997. An environmental impact statement (EIS) is also being prepared in accordance with the National Environmental Policy Act of 1969.

At the start of the Feasibility Study, the Critical Areas Commission was sent a study initiation letter dated January 31, 2003. During a phone discussion on January 11, 2005, you requested further project information to satisfy a review by the Critical Areas Commission. The purpose of this letter is to provide the information requested. Please find enclosed a short description of the proposed recommended plan as well as figures of the proposed plan at Barren Island and James Island. A more detailed description of the project will be available in the *Mid-Chesapeake Bay*

Islands Environmental Restoration Project Draft Feasibility Report and Environmental Impact Statement that is scheduled for public review in the summer of 2005.

Please provide us with notification of when a decision can be expected by the Critical Areas Commission. If you have any questions regarding this matter, please contact Ms. Angie Sowers, Ph.D., at (410) 962-7440.

Sincerely,

Wesley E. Coleman, Jr.
Chief, Civil Project Development Branch

Enclosures

Mid-Bay Chesapeake Islands Environmental Restoration Project
Chesapeake Bay and Dorchester County, Maryland

Critical Areas Commission Coordination

Prepared By: Baltimore District, U.S. Army Corps of Engineers

March 2005

I. LOCATION

The Mid-Chesapeake Bay Islands Restoration Project focuses on James and Barren Islands, both in Dorchester County. James Island is 16 miles north of Barren Island on the Eastern Shore of Maryland. James Island is situated at the mouth of the Little Choptank River, 3100' north of Taylors Island. James Island, once at least 1350 acres in the 17th century, now amounts to 3 small remnants totaling 100 acres (Maryland, 1949; Kearney, 1991). Presently, James Island is privately owned. Barren Island lies immediately west of Hoopers Island. Barren Island currently totals nearly 200 acres, but was recorded at 754 acres in 1848 (Wray, 1995). Barren Island is federally owned and managed by the U.S. Fish and Wildlife Service (USFWS) as a satellite refuge area to Blackwater National Wildlife Refuge.

II. PURPOSE

The purpose of the proposed project is to re-create and restore important regional island habitat that has been lost to land subsidence, rising sea level, and erosion in the Chesapeake Bay, plus provide protection to prevent future loss. In the last 150 years, it has been estimated that 10,500 acres have been lost in the middle-eastern portion of Chesapeake Bay due to erosion and sea-level rise. It is predicted that if no actions are taken most island habitats will be completely eroded and lost to the Bay in the next 10 to 20 years. At the same time, the project will provide for the beneficial use of sediments that are dredged from Bay navigation channels. There currently is a dredged material placement shortfall that will be realized in the next 8 to 10 years. The Baltimore District's Baltimore Harbor and Channels Dredged Material Management Plan (DMMP) identified, evaluated, screened, prioritized, and ultimately optimized placement alternatives resulting in the recommendation of a specific viable plan of action for the placement of dredged materials over the next 20 years. Large island restoration was one of the recommended alternatives of the Draft Baltimore Harbor and Channels Dredged Material Management Plan and Tiered Environmental Impact Statement (EIS) that is currently under public review.

III. AUTHORITY

The Baltimore District received the authority to pursue the study under the resolution of the Senate Committee on Environment and Public Works on June 5, 1997. Using the criteria defined by this resolution, the Eastern Shore, Maryland and Delaware Section 905(b) Analysis identified and recommended for further detailed feasibility-level study several projects that were within the Federal interest such as the beneficial use of dredged material to replace habitats lost from development and erosion activities and the

restoration and creation of hundreds to thousands of acres of wetlands, terrestrial and riparian habitat.

IV. Project Description

The Baltimore District, U.S. Army Corps of Engineers (Corps) in partnership with the State of Maryland Department of Transportation, Maryland Port Administration (MPA) has initiated an environmental restoration feasibility study for the restoration of island habitat in the Mid-Chesapeake Bay region. This study focuses on restoring hundreds of acres of aquatic and wildlife island habitat in the Mid-Chesapeake Bay region through the beneficial use of dredged materials from the Port of Baltimore channel system.

The Mid-Chesapeake Islands Restoration Project recommends island restoration at James Island and island protection at Barren Island (Figure 1 and 2 enclosed, respectively). The James Island portion of the project involves constructing armored dikes, breakwaters, and/or other structures approximating the island's historical footprint and filling the enclosed area with clean dredged material from Federal navigation channels in Chesapeake Bay. The 2,072-acre fill area will be subdivided to provide approximately 55% tidal wetland habitats and 45% upland island habitats. Construction at James Island will necessitate the dredging of an access channel on the northwest. The access channel would be approximately 12,720' in length, 400' in width at base with 3:1 side slopes. Of the total length, 3,070' would lie within the island footprint with 9,650' extending outside the footprint. The total footprint of the access channel is roughly 153.5 acres, with 52.7 acres within and 100.8 acres outside the island footprint. The potential project limit highlighted on Figure 1 is 4,100 acres. Approximately 40000' of perimeter dikes would be constructed. The sand for dike construction will be hydraulically dredged from within the island footprint or from the access channel. The sediment to construct the proposed wetland and upland habitat area at James Island will be dredged from the following Federal navigation channels in the Chesapeake Bay leading to Baltimore Harbor: the Craighill Entrance Channel; the Craighill Channel; the Craighill Angle, the Craighill Upper Range; the Cutoff Angle; the Brewerton Channel Eastern Extension; the Tolchester Channel, the Swan Point Channel, Inland Waterway from Delaware River to Chesapeake Bay, and other non-federal projects as determined by the Project Delivery Team (PDT).

Plans for Barren Island incorporate the use of sills to protect the current acreage of the island and the SAV/shallow water habitat off the eastern shore of Barren Island. Sills constructed along the current shoreline would be backfilled with dredged material to create wetland habitat. Phase I Barren protection would involve the modification of 4,900' of existing sill, construction of 3,840' on the north shore, 4,620' along the western shore, and a backside containment of 1,300'. Sills would be built to an elevation of 4' MLLW. Sills would be built to an elevation of 4' MLLW (mean low low water). Modification of the existing sill would require a 2 acre footprint. The near-shore sill would consume 5 acres of shallow water habitat. Approximately, 23 and 49 acres of island habitat (72 acres total) will be created by backfilling on the north and west, respectively. The material that would be used to backfill behind the breakwaters at Barren Island will be from authorized dredging of local Honga River channels and is characterized as silt and sand. Also, as part of Phase I, monitoring would be carried out to evaluate the need for constructing breakwaters off the southern tip of Barren Island following the

historic shoreline in order to protect the SAV habitat to the south and southeast of Barren Island. If it is determined that the SAV habitat to the south and southeast require further protection, a maximum of 8,200' of structure is proposed at a maximum height of 6' MLLW. If built to maximum length, the southern breakwater would have a 9.5 acre footprint. In total, Barren Island protection measures would impact a maximum of 94 acres of near-shore habitat (72 acres of created wetland plus 22 acres of sills and breakwaters).

A more detailed description of the project will be available in the *Mid-Chesapeake Bay Islands Environmental Restoration Project Draft Feasibility Report and Environmental Impact Statement* that is scheduled for public review in summer 2005.

V. Alternatives Considered

Large island restoration addresses two problems plaguing the Chesapeake Bay: 1) the rapid loss of island habitat over the past 200 years; and 2) the need to accommodate large amounts of dredged material. Additional support for large island restoration stems from the recommendations of the Draft Baltimore Harbor and Channels Dredged Material Management Plan and Tiered Environmental Impact Statement (EIS) that is currently under public review

Initially 105 islands were considered for restoration. The initial screening eliminated 84 islands, leaving 21 islands to be carried into the plan formulation process. These 21 islands were grouped into island complexes based on their vicinity and functioning as an island ecosystem. The resulting 8 island/island complexes were evaluated and ranked using 10 engineering criteria including possible restoration size, capacity, and foundation material. Public scoping meetings identified that there was public support for selecting the two highest ranking islands, Barren and James, for concept plan formulation.

A range of alternatives were developed for James and Barren Islands by the PDT. Four alignments for Barren and five alignments for James were delineated. For these alignments, a variety of wetland to upland ratios was considered ranging from all upland to all wetland configurations. A total of 20 different alignment combinations were considered that resulted in 170 alternatives.

The 170 alternatives were screened down to 14 alternatives using engineering suitability criteria and environmental considerations. Benefits and costs were developed for the 14 alternatives and a cost effective/incremental cost analysis was performed. The cost effective alternatives were evaluated against the 11 objectives identified by the PDT. From this final, screening, the recommended plan was determined.

VI. References

Kearney, MS, and J.C. Stevenson. 1991. Island land loss and marsh vertical accretion rate evidence for historical sea-level changes in Chesapeake Bay. *Journal of Coastal Research*. 7: 403-415.

State of Maryland, Department of Geology, Mines, and Water Resources. 1949. *Shore Erosion in Tidewater Maryland.* Bulletin 6. Baltimore, MD.

Wray, R.D., S.P. Leatherman, R.J. Nicholls. 1995. Historic and future land loss for upland and marsh islands in the Chesapeake Bay, Maryland, U.S.A. *Journal of Coastal Research*. 11(4): 1195-1203.

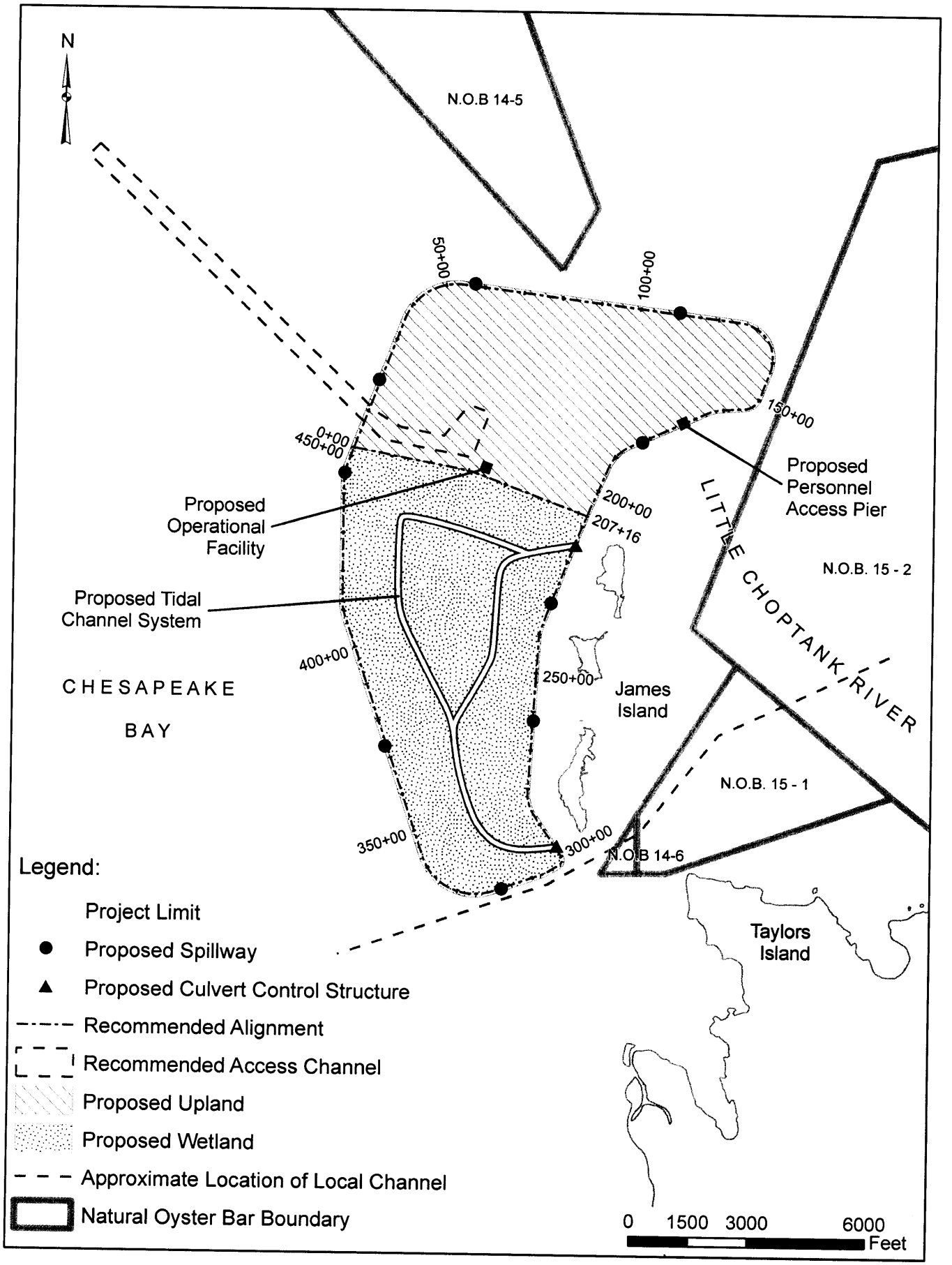


Figure 1: James Island Recommended Plan.

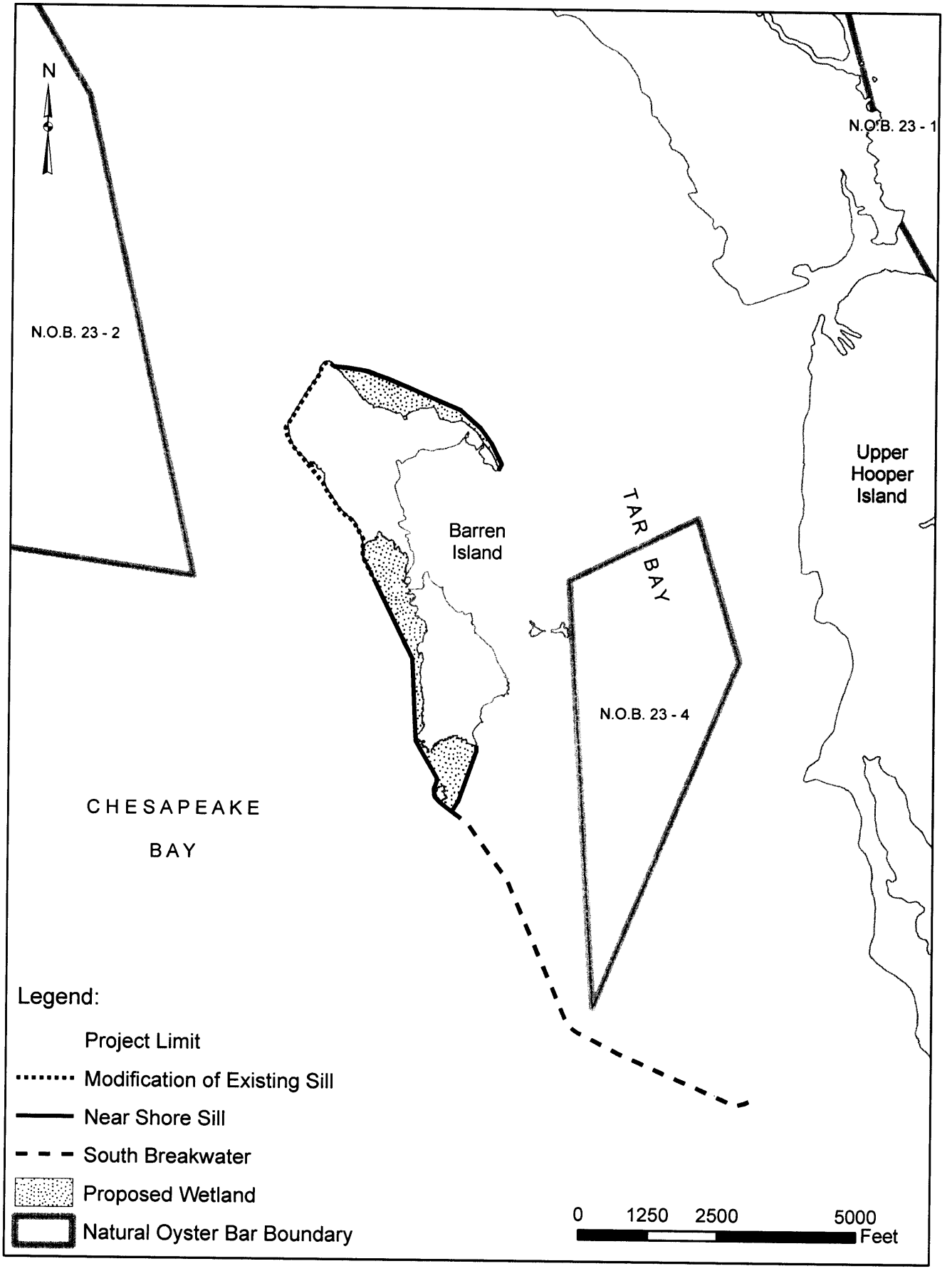


Figure 2: Barren Island Recommended Plan.

U.S. Department of Commerce
National Marine Fisheries Service
Habitat Conservation Division
904 South Morris Street
Oxford, Maryland 21654

May 20, 2005

MEMORANDUM TO: Mark Mendelsohn, Planning Division
Baltimore District, Corps of Engineers

FROM: John Nichols

SUBJECT: Mid-Chesapeake Bay Island EIS

The National Marine Fisheries Service (NMFS) has reviewed the draft Environmental Impact Statement (EIS) for the Mid-Chesapeake Bay Island Ecosystem Restoration Feasibility Study, dated March 8, 2005. The following outline briefly summarizes NMFS comments and recommendations that will be contained in our forthcoming letter for this project.

ISSUES AND CONCERNS

1. NMFS views the selection of James and Barren Islands for restoration activities as essentially one project. The preferred option for James Island (i.e., 2,072 acres, 55% wetlands and 45% uplands) will exceed the 1847 footprint of the original island (i.e., 976 acres) by 212%. Alternatively, the Barren Island portion of the project will chiefly involve stabilizing of the existing island, with minor construction of tidal marsh. Because of the higher ecological value of benthic communities and commercial pound net fisheries in the Barren Island vicinity, limiting the size of the Barren Island restoration (while concentrating dredge material placement capacity at James Island) will minimize impacts to valued existing resources. Therefore, we support the concept of a 2,072-acre James Island, coupled with a minimal action that will essentially conserve the existing footprint of Barren Island.

2. We concur with the proposal to limit sand borrow activities to areas within the footprint of James Island Option 5. Similarly, material used for wetland restoration at Barren Island should be generated only from navigation-related projects (e.g., Honga River Federal Project).

3. James Island Option 5 will result in the displacement of a documented recreational fishing ground within the north portion of the project footprint.

4. The conceptual engineering design of James Island Option 5 essentially lacks peripheral features that will benefit fish resources in adjacent waters surrounding the proposed island. Minor adjustments should be made in the design to address the latter issue.

FISH & WILDLIFE COORDINATION ACT COMMENTS

1. Where project logistics permit, tidal marsh cells should cover most of the east shoreline of the island. Arranging marsh cells on the protected lee side of the island will facilitate eventual removal of exterior dikes from these cells, to allow for more hydrologic and trophic interactions between marsh and open water.

   Additionally, we recommend an increase in the number of tidal ports (e.g., from the proposed 2 to 4 or 5) associated with the marsh cells on the east side of the island. Each port should lead to a cut channel extending back into the marsh, with a dendritic pattern of smaller tributaries feeding each channel. By locating tidal ports along the east side of the island, export of detritus and other energy from the marsh cells will be directed toward Natural Oyster Bars and oyster restoration sites within the Little Choptank River estuary.

2. The shoreline pattern of east side of the island should be diversified with a series of small coves and/or crenulations. For example, the northeast tip of the island should be re-designed with a two-prong pattern that encloses a small cove. This cove should tie into the 9-10 foot depth contour, to increase its value to recreational fishing. A similar cove could also be constructed at the southern tip of the island. Losses of upland and/or wetland area resulting from creating coves could be replaced through adjustments of the west side of the island alignment.

3. NMFS strongly supports the restoration of brackish water wetlands at the Blackwater National Wildlife Refuge, Dorchester County, with dredge material generated by maintenance of the Port of Baltimore Approach channels. To facilitate the latter project, your agency should investigate the use of James Island as a staging area for material used in the Blackwater project. As discussed at previous meetings of the Bay Enhancement Work Group, material could be pumped from James Island to the refuge (i.e., using a permanent pipeline running from James Island to a staging area or intermediate pumping station at the refuge) on an as-need basis. The latter option would provide flexibility to refuge staff for selecting the size and location of marsh restoration sites according to their preferred schedule.

ESSENTIAL FISH HABITAT COMMENTS

As recommended above, your agency should investigate diversifying the shoreline of the island to provide more habitat benefits to finfish using adjacent waters, including federally managed species. For example, small coves lined with smooth cordgrass marsh will be attractive foraging habitat for juvenile summer flounder.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

May 24, 2005

Colonel Robert J. Davis, Jr., P.E.
District Engineer
U.S. Army Corps of Engineers
P.O. Box 1715
Baltimore, MD 21203-1715

Attn: Angela Sowers

Re: Mid-Chesapeake Bay Island Ecosystem Restoration Study

Dear Colonel Davis:

This constitutes the report of the U.S. Fish and Wildlife Service on the Mid-Chesapeake Bay Island Restoration Study, Maryland. It is submitted in accordance with Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*) and Section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*). It is based on the information based in the preliminary draft Environmental Impact Statement dated March 8, 2005. The intent is to summarize the main environmental issues of the project and to set forth the Service's official position on the recommended plan. The report will not address specific details of the project such as the design of individual habitat features.

PROJECT DESCRIPTION

The project involves utilizing material from the maintenance dredging of federal navigation channels to restore and protect fish and wildlife habitat at two island locations in the middle portion of Chesapeake Bay. The main part of the project is to use material dredged from the federal main shipping channels in the upper Chesapeake Bay proper (i.e., outside of the Patapsco River) to construct a 2,070-acre island next to the remnants of James Island. The island would consist of 55 % tidal wetland habitat and 45 % upland habitat with elevation of 20 feet MLLW. Over the years James Island has been greatly reduced by erosion to the point where all that currently remains is three island remnants which total less than 100 acres. A perimeter dike (Fig. 1) would be constructed using 14.4 mcy of sandy material dredged from within the project footprint,1.5 mcy dredged from a local access channel, and 0.84 mcy of rock. Between 78 and 95 million cubic yards (mcy) of material from navigation channel dredging would ultimately be used in the creation of the island. Since the average annual quantity of material dredged from

the upper bay channels (exclusive of the Patapsco River) is approximately 2.9 mcy, this project would provide capacity for 27 to 33 years of maintenance dredging.

A secondary part of the project involves the construction of a rock sill (elevation 4 feet MLLW) near the shoreline on the north and west sides of Barren Island (Fig. 2). Approximately 11,035 feet of new sill would be constructed, and 4,900 feet of existing sill would be improved. Approximately 88 acres of tidal wetlands would be established behind the sill by depositing 0.7 mcy of material derived primarily from the maintenance dredging of the Honga River and Tar Bay federal navigation channels. Since dredging records from 1989 and 2004 (4 cycles) show a rate of 48,600 cubic yards per year, the project would provide capacity for approximately 14 years of dredging. The project also provides for construction of a rock breakwater up to 3,350 feet in length at the south end of the island if monitoring indicates that additional protection is needed for the beds of submerged aquatic vegetation on the east side of the island.

FISH AND WILDLIFE RESOURCES WITHOUT THE PROJECT

James Island has been substantially diminished by erosion and currently consists of three remnant sections which total less than 100 acres in size. The island consists of a mix of wooded upland and tidal marsh. A comprehensive effort was made to survey fish and wildlife resources in the project area. Wildlife surveys on the island revealed a variety of bird species as well as a limited number of mammals and reptiles/amphibians. The most notable species is a bald eagle which has a nest at the northern end. The aquatic habitat within the project footprint has an average depth of 8.5 feet MLLW with a range between 4 and 13.2 feet. Surveys of zooplankton, benthic invertebrates, and fish revealed typical estuarine assemblages. The Benthic Index of Biotic Integrity indicated that the benthic community was in a somewhat stressed condition. A clam survey indicated low numbers of soft clams that would not be sufficient to support commercial harvesting. There are no charted Natural Oyster Bars or oyster restoration sites within the project footprint although the edges of three bars are located within 500 yards. Crab pot surveys and incidental observations by the Natural Resources Police showed that pots for blue crabs are frequently set within and around the project footprint. However, it did not appear that the level of effort in the area was particularly high relative to other areas. Four pound nets are licensed for locations within the project footprint, although they have not been fished within the last five years. The pound nets in the region of the bay typically catch menhaden, striped bass, croaker, and spot.

The Chesapeake Bay aerial surveys of submerged aquatic vegetation (SAV) indicate that the only SAV beds in the vicinity of James Island have been reported from restricted areas on the east side of the island. The 7 surveys between 1986 and 1993 consistently reported small beds with sparse to medium density on the east side of the island. However, no SAV was reported in the surveys from 1994 to 2000. Beds were again reported in the 2001 and 2002 surveys, but they were absent from the 2003 and 2004 surveys. SAV was sampled around the island with throw rakes during Summer 2002, Spring 2003, and Summer 2003. The Summer 2002 sampling verified the presence of widgeon grass on the east side of all three island remnants. The Spring 2003 survey found horned pondweed in dense beds east of the northern remnant and in smaller less dense beds east of the southern remnant. The Summer 2003 sampling did not collect any SAV.

Barren Island consists of three main eroding remnant sections that total about 180 acres. The island is a part of the Chesapeake Islands Refuge unit of the National Wildlife Refuge System. The island is primarily composed of a mix of forest and marsh habitats. Extensive biological resource information has been collected for the area. Of particular note is the presence of two sites at the southern end of the island used by colonial nesting water birds. The principle species nesting in these colonies include great blue heron, double crested cormorant, herring gull, and brown pelican. There is also a bald eagle nest site on the south end of the island. Breakwaters have been installed along portions of the west and north sides. Initially many of the breakwaters were sand filled geotextile tubes. These structures have deteriorated and several have since been fortified with rock. Dredged material from the Honga River federal navigation project has been deposited behind many of the breakwaters to create salt marsh. There are several licensed pound net sites on the west side of Barren Island. However, only one of these would be potentially directly affected by the project, and this net has not been fished in the last five years. The Chesapeake Bay aerial SAV surveys from the past 10 years indicate that SAV was consistently absent along the exposed west side of the island. It was occasionally reported from the north side of the island in small beds. SAV was most frequently observed on the east side in fairly large beds of variable density. Qualitative SAV sampling conducted in 2002 and 2003 generally agreed with this pattern.

Barren Island is classified as an "Otherwise Protected Area" (OPA) under the Coastal Barrier Improvement Act of 1990. OPA's are not subject to the Act's restrictions on the use of federal funds except for a restriction on the use of federal flood insurance for new construction. Similarly, there is no requirement for consultation with the Service.

Federally Listed Endangered and Threatened Species

The bald eagle (*Haliaeetus leucocephalus*), which is federally listed as a threatened species, has one nest site on the north end of James Island and another nest site on the south end of Barren Island. Construction activities that occur within 0.25 mile of a nest site could have an adverse effect on the eagles. If such activities are anticipated, you should contact this office to discuss the need for scheduling the work to avoid the nesting season or other precautionary measures to reduce the potential for adverse effects. The shortnose sturgeon (*Acipenser brevirostrum*), which is federally listed as endangered, and some sea turtle species especially the loggerhead (*Caretta caretta*) and Kemp's ridley (*Lepidochelys kempi*), which are federally listed as threatened and endangered respectively, may occasionally occur within this region of Chesapeake Bay. Since these species are under the jurisdiction of the National Marine Fisheries Service, we recommend that you contact them for further information.

Future Without the Project

At James Island erosion is progressing so rapidly that we would expect that the island would completely disappear within 2 or 3 decades. At Barren Island breakwaters installed along the northwest side of the island have slowed the rate of erosion, although some of these breakwaters are becoming less effective. In view of the continuing need to dispose of dredged material from the federal channel, it appears likely that there would be an effort to extend the breakwaters

further southward. However, as this would take place slowly over many years, the southern portion of the island would continue to be exposed to a high rate of erosion.

BIOLOGICAL EFFECTS OF THE PROJECT

At the James Island site, 2,070 acres of open water habitat would be converted to an island composed of a mix of tidal wetland and upland forest. In an area of this size the existing aquatic resources are certainly significant, but high value habitats such as oyster bars, productive clam bottom, SAV beds, and popular fishing sites would be avoided. A moderate amount of blue crab commercial harvesting that occurs in the area would be displaced. The new island would be generally located in the area of the historic James Island footprint, although it would extend significantly beyond the 1847 shoreline. Due to erosion, island habitat is becoming scarce in Chesapeake Bay. Undeveloped islands often have special habitat values because their isolation tends to reduce predation and human disturbance pressures. Sensitive species such as colonial nesting birds find them especially attractive. The new island will protect the existing island remnants from the waves that develop over the long fetch from the north and west directions. The wave protected zone between the new island and the James Island remnants could become more productive and would appear to have potential for SAV colonization.

The James Island project will utilize a large quantity of navigation channel dredged material that would be difficult to dispose of without significant environmental impacts. The experience to date with the similar project at Poplar Island indicates that the disturbance associated with dike construction can be effectively managed. The fact that the habitat development goals of that project also appear to be progressing well is a good indication that the James Island project would be successful.

The environmental effects associated with the Barren Island project would be primarily favorable. Although one inactive pound net could be affected, for the most part there would not be any significant adverse effects on recreational or commercial fishing activities. The rock sill would protect this island wildlife refuge from a severe erosion threat. The retention of an intact island should help to maintain the rather extensive beds of SAV that occur on the east side and potentially the beds that occur along Hooper Island. The project would provide a placement area for the productive use of dredged material from the local federal navigation channels. There could be some disturbance of the bird rookeries by the construction activity especially in the future as the shoreline recedes closer to the colonies. This potential impact would be minimized by seasonal restrictions or other precautions, which would be included, if necessary, in the special use permit that would be required from the Refuge.

CONCLUSIONS

The James Island placement site appears to be well chosen to minimize adverse biological effects, while using dredged material for habitat development and protection purposes. Construction and development of an island habitat on such a large scale will present many challenges. However, the ongoing experience at Popular Island indicates that dredged material can be used in this way to create desirable habitat. The proposed monitoring and adaptive management plan will help to insure that the project achieves its objectives.

In conclusion, the Service enthusiastically supports both the James Island and Barren Island components of this project. If there are any questions, please contact George Ruddy at (410) 573-4528.

Sincerely,

for John P. Wolflin
Supervisor

cc: Tom Eagle, Eastern Neck Refuge

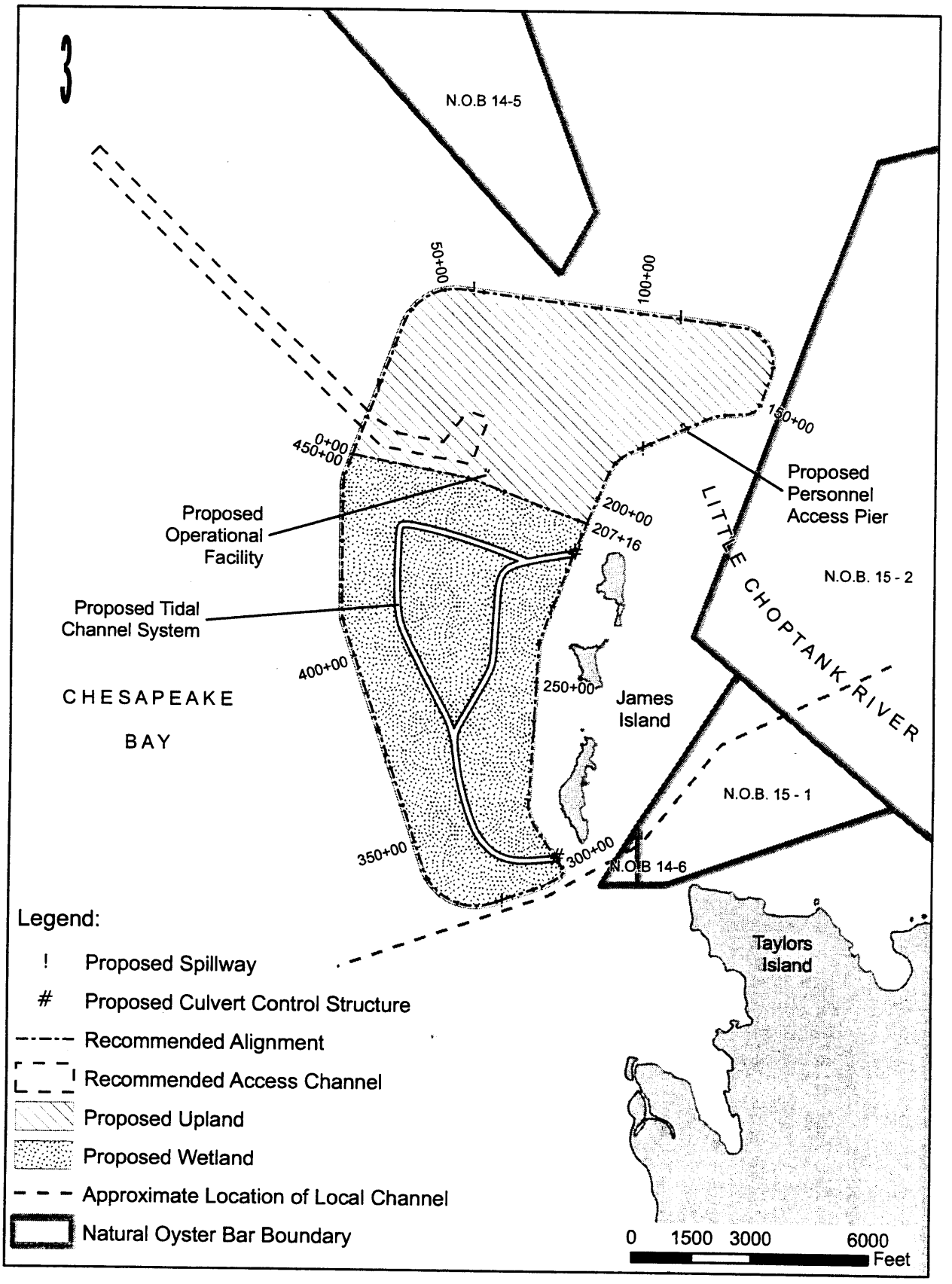


Figure 1. James Island Recommended Plan.

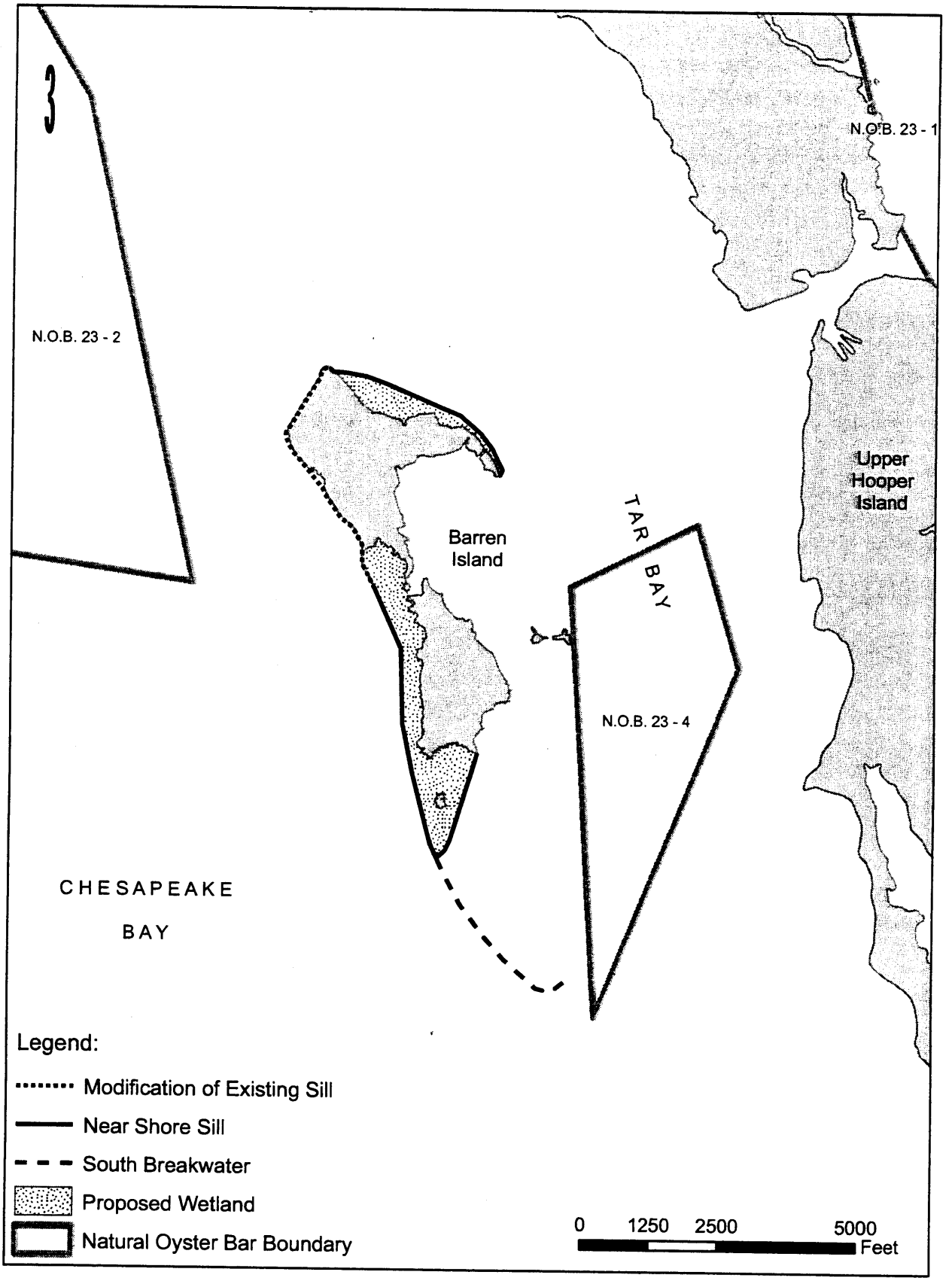


Figure 2. Barren Island Recommended Plan.

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P. O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

REPLY TO
ATTENTION OF

Planning Division

June 8, 2005

Mr. Jim Newcomb
Dorchester County
Soil Conservation District Director
501 Court Lane
Rm 213
Cambridge, MD 21613

Dear Mr. Newcomb:

The Baltimore District, U.S. Army Corps of Engineers (Corps) in partnership with the State of Maryland Department of Transportation, Maryland Port Administration (MPA) has initiated an environmental restoration feasibility study for the restoration of island habitat in the Mid-Chesapeake Bay region. The Mid-Chesapeake Bay Islands Environmental Restoration Feasibility Study focuses on restoring hundreds of acres of aquatic and wildlife island habitat in the Mid-Chesapeake Bay region through the beneficial use of dredged material from the Port of Baltimore channel system. The study is recommending island restoration at James Island and Barren Island, both on the Eastern Shore of Maryland in Dorchester County. A feasibility report with an integrated Environmental Impact Statement (EIS) is currently being prepared and is scheduled for public review in the late summer or fall of 2005.

The purpose of this letter is to request your determination on the impact of the proposed Mid-Chesapeake Bay Island Environmental Restoration Project on soils designated as prime farmland on James and Barren Islands in order to fulfill compliance with the Prime and Unique Farmlands Executive Order (CEQ Memorandum, 11 August 1980). Keyport silt loam occurs on the eastern shore of the northern remnant of James Island. Mattapex silt loam exists throughout Barren Island, with the largest area on the southern remnant. At this time, the Corps does not anticipate adverse impacts to the prime farmland soils at either Barren or James Island. Only positive benefits are expected as the proposed project would provide protection to both islands. Enclosed please find figures depicting the proposed activities at James and Barren Island (Figure 1 and 2, respectively).

The James Island portion of the project involves constructing armored dikes, breakwaters, and/or other structures approximating the island's historical footprint and filling the enclosed area with clean dredged material from Federal navigation channels in Chesapeake Bay. The 2,072-acre fill area would be subdivided to provide approximately 55% tidal wetland habitats and 45% upland island habitats. The proposed alignment would provide capacity for 78 to 90 million cubic yards (Mcy) of dredged material consisting of relatively low cohesion silts and clays with some fine sands. Construction at James Island would necessitate the dredging of an access channel on the northwest. The access channel would be approximately 12,720 feet in length, and 400 feet in width at base with 3:1 side slopes. Of the total length, 3,070 feet would lie within the island footprint, with 9,650 feet extending outside the footprint. The total footprint of the access channel is roughly 153.5 ac, with 52.7 ac within and 100.8 ac outside the island footprint. Approximately 40,000 feet of perimeter dikes would be constructed using sand hydraulically dredged from within the island footprint or from the access channel. The project limit is highlighted in Figure 1. The project limit identifies the project impact boundaries and provides for minor

adjustments to the location of the proposed island alignment. The sediment to construct the proposed wetland and upland habitat area at James Island would be dredged from the following Federal navigation channels in the Chesapeake Bay leading to Baltimore Harbor: the Craighill Entrance Channel; the Craighill Channel; the Craighill Angle, the Craighill Upper Range; the Cutoff Angle; the Brewerton Channel Eastern Extension; the Tolchester Channel, the Swan Point Channel, Inland Waterway from Delaware River to Chesapeake Bay, and potentially other non-federal projects.

Plans for Barren Island incorporate the use of sills to protect the current acreage of the island and the SAV (submerged aquatic vegetation)/shallow water habitat off the eastern shore of Barren Island. Sills constructed along the current shoreline would be backfilled with dredged material to create wetland habitat. Phase I Barren restoration would involve the modification of 4,900 feet of existing rock sill, construction of 3,840 feet of new rock sill on the north shore, 4,620 feet along the western and southern shore, and a back-up containment of 1,300 feet. Sills would be built to an elevation of 4 feet MLLW (mean lower low water) modification of the existing sill and construction of new sills would consume roughly 20 ac of shallow water habitat. Approximately, 23 and 49 ac of island habitat (72 ac total) would be created by backfilling on the north, and west and south, respectively. The material that would be used to backfill behind the breakwaters at Barren Island would be from authorized maintenance of local Honga River channels and is characterized as silt and sand. Also, as part of Phase I, monitoring would be carried out to evaluate the need for constructing breakwaters off the southern tip of Barren Island following the historic shoreline in order to protect the SAV habitat to the south and southeast of Barren Island. If it is determined that the SAV habitat to the south and southeast requires further protection, a maximum 8,200 feet of structure is proposed at a maximum height of 6 feet MLLW. If built to maximum length, the southern breakwater would have a 9.5 ac footprint. In total, Barren Island restoration measures would directly impact 92 ac of near-shore habitat. The project limit is identified in Figure 2.

The Corps is requesting your concurrence that the proposed project is not likely to adversely affect the soils designated as prime farmland on James and Barren Islands. Please review the enclosures and provide your agency's concurrence or comments within 30 days of the date of this letter.

If you have any questions, please contact Ms. Angie Sowers at (410) 962-7440.

Sincerely,

Wesley E. Coleman, Jr.
Chief, Civil Project Development Branch

Enclosures

DORCHESTER SOIL CONSERVATION DISTRICT

501 Court Lane, Room 213
Cambridge, Maryland 21613
Phone (410) 228-3733

June 27, 2005

Department of the Army
Baltimore District, U.S. Army Corps of Engineers
Planning Division - c/o Wesley E. Coleman Jr.
P.O. Box 1715
Baltimore, Maryland 21203-1715

Dear Mr. Coleman:

This letter is in reference to your letter dated June 8, 2005 about your proposed project to restore parts of James and Barren Islands. Pertaining to effects of these restoration efforts on the prime farmland soils remaining on these two islands, we see no adverse effects. If anything there will only be positive effects by protecting the limited acreage left. With out any intervention these islands will be completely gone in the near future, so we only see positive benefits by protecting and expanding what is currently there.

If you have any questions or need any additional information please contact us.

Sincerely;

James A. Newcomb Jr.

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