

National Coastal Wetlands Conservation Grant Proposal

Modified Living Shoreline Restoration Project

Chesapeake Shores, Mathews County, Virginia



Virginia Department of Conservation and Recreation (Grantee)

June 24, 2010

A. Application for Federal Assistance (SF424) – Attached

B. Statement of Assurance – Attached

C. Project Statement

1. The need within the purposes of the Act;

The Chesapeake Bay has been a long time focus area by local, State, and Federal environmental agencies. The Chesapeake Bay was the nation's first estuary targeted by Congress for restoration and protection. Since the formation of the Chesapeake Bay Program in the 1980s, restoration efforts have largely focused on reducing contamination of the Chesapeake Bay and restoring its living resources. In May, 2009, President Obama reinvigorated and re-focused the Chesapeake Bay restoration effort through Executive Order (EO) 13508, titled: "Protecting and Restoring the Chesapeake Bay."

There are numerous threats and stressors affecting the Chesapeake Bay, and restoration efforts in the past have generally targeted reducing contamination, including sediment loading, nitrogen, and phosphorus, due to their detrimental effects on fish and wildlife species and habitats. Wetland restoration has been an integral component of this approach to restore the natural cleansing functions of intact wetlands. However, as emphasized by the EO, a broad suite of resource values and objectives are advocated in the EO's stated purpose: "to protect and restore the health, heritage, natural resources, and social and economic value of the nation's largest estuarine ecosystem and the natural sustainability of its watershed."

Within the Chesapeake Bay, there are many different shoreline types and conditions that contribute to the overall integrity of the system and ecosystem function. The beaches and sandy shoreline communities are among the most altered and degraded of the wetland types because they are some of the most desirable areas for residential and recreational development, and because they are inherently unstable. The beaches are created and maintained by the forces of wave action, wind, sediment transport, erosion, and in a naturally functioning system, these features migrated, appeared, and disappeared based on the interactions of these forces. Development along the Chesapeake Bay beaches almost invariably results in efforts to protect property from the same forces which maintain the beaches, and often the beaches are either lost, reduced in extent, or significantly degraded by efforts to protect property.

This proposal is submitted to support the construction of a modified living shoreline along 3,200 feet of Chesapeake Bay shoreline, resulting in the restoration and protection of 9.2 acres of littoral habitat, sandy beach, and primary dune which supports the federally listed threatened northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*) and other beach-dependent species. This project is intended to maintain this important habitat, the characteristics of the natural beach, and the natural local sediment dynamics while preventing further impacts and habitat loss due to erosion and shoreline hardening. The project will also maintain the beach that residents of the adjacent community enjoy, and residents of the community will maintain their rights to limited access and use of the beach. A conservation easement will aid in protecting this habitat from further shoreline hardening, further development and other human impacts.

Natural resource values –

Sandy estuarine shorelines backed by a dune system are a unique and valuable natural resource within the Chesapeake Bay. These types of estuarine wetlands are naturally highly mobile features. Unlike ocean dunes that are relatively continuous features, the dunes of the Chesapeake Bay are products of sand volume, varying wave climate, and inconsistent shoreline geology. These factors, along with seasonal and stochastic effects, can amplify the extent of sandy shoreline available and the quality of the dunes present. Sandy shorelines and the littoral communities adjacent to them provide habitat for numerous species of fish and wildlife that are reliant on these types of communities, and maintaining high-quality beach communities helps maintain the overall diversity of habitats and species within the Chesapeake Bay. Within the Chesapeake Bay, the remaining sandy beaches are the sole habitat used by the federally listed threatened northeastern beach tiger beetle and several other species dependent on beaches. Shorebirds use these habitats extensively during migration, and the submerged aquatic vegetation that thrives in sandy substrates offshore of beaches provides important nursery habitat for the Chesapeake Bay's aquatic species.

In Virginia, the importance of sandy shores was recognized with the passage of the Coastal Primary Sand Dune Protection Act in 1980. Eight localities were included in the Act: the counties of Accomack, Northampton, Mathews, Lancaster, and Northumberland; and the cities of Virginia Beach, Norfolk, and Hampton. The Act also defined a beach and coastal primary sand dune and included a list of those plants which grow upon the dunes. Over the years, the name of the Act was changed to The Coastal Primary Sand Dune and Beach Act. The purview of the Act was notably modified during the 2008 Session of the General Assembly. The list of local governments authorized to administer the Act was changed from the eight originally specified to include all of Tidewater Virginia as defined in § 28.2-100 of the Virginia Code.

The proposed project area lies immediately north of lands owned by The Nature Conservancy and designated through a deed of dedication with the Virginia Department of Conservation and Recreation (VDCR) as the New Point Comfort Natural Area Preserve. These lands are managed and maintained for their natural values and habitat. These lands also include sandy beaches and dunes, and support northeastern beach tiger beetles, nesting least terns (*Sterna antillarum*), and other beach-dependent wildlife and wetland communities. A similar modified living shoreline project is currently proposed for the Bavon community, which lies immediately south of the project area. The Bavon community has submitted an application for a grant to aid in implementing their shoreline management project in that area, and this project will include completion of any portion of that project and seamlessly integrate with that effort. The Nature Conservancy owns the beach between the Bay and the Bavon community in that area. The proposed project will complement the conservation value of these lands and other conservation efforts and ensure the compatibility of shoreline management.

Current threat –

The existence of sandy beaches and dunes are dependent on sand being maintained in the near shore waters, and natural forces being allowed to move and shape these areas. Long-shore sediment movement, sand bars, accretion, and erosion are all part of this system. Shoreline hardening efforts have robbed the system of the appropriate sediments, prevented the natural process of accretion and erosion from occurring, and have changed the interaction of waves on the shoreline edges resulting in the loss of this rare wetlands type.

It is estimated that within the Chesapeake Bay (both Maryland and Virginia), estuarine wetlands comprised of sandy intertidal zones and adjacent dune systems, have declined by an estimated 50 percent since 1937 (C.S. Hardaway, Virginia Institute of Marine Science, personal communication 2010). This wetland type is becoming rarer due to extensive amount of organics and non-sandy sediments entering the Chesapeake Bay. Increased erosion rates and higher runoff flush extensive amounts of soils from farmlands and developed areas into the Chesapeake Bay. Without transport of sandy deposits along shoreline reaches where accretion can continue to occur, sandy beach areas are slowly disappearing.

Additionally, attempts by property owners to prevent property loss by the placement of shoreline hardening structures (i.e., rip rap revetments and bulkheads) and other shoreline protection measures (e.g., groins, sills) has exacerbated the condition and accelerated the rate of loss of these sandy shoreline reaches. Revetments and bulkheads placed along sandy shorelines generally increase erosion of sand from in front of the structures and may increase erosion at either end of the structure. These

structures may effectively protect property, but do not protect and maintain beaches (Hardaway and Byrne 1999). Groins function by capturing sand between the structures to help buffer wave action. The sand that these structures capture may help prevent property loss and maintain a sandy beach between the structures, but they do that primarily by capturing sand from the natural littoral transport, and consequently can starve down-drift properties of sand (Hardaway and Byrne 1999). The beaches that are maintained within groin fields generally do not have the same extent or configuration that would occur in a natural beach. Hardaway and Byrne (1999) estimated that in 1990, approximately 19 percent of Virginia's shoreline (71 miles) was protected by revetments and bulkheads and approximately 6 percent of the shoreline (26 miles) was protected by groins. The rate of shoreline hardening appears to be increasing, and the Virginia Wetlands Report (2000) estimated that from 1990 to 2000, 18 miles of shoreline was hardened each year in Virginia (Virginia Wetlands Report 2000). Since 2000, the extent of these structures has continued to increase, and the resulting effect on the sediment transport process has detrimentally affected more extensive areas of shoreline. The fact that shoreline protection measures are generally implemented by individual landowners independent of each other, these structures may interfere with each other and cause further damage to coastal wetlands.

Private landowners control approximately 85 percent of Chesapeake Bay's shoreline (Chesapeake Bay Program 2005). Although tidal erosion is a natural process, anthropogenic activities make tidal erosion worse. At the same time, man-made shoreline development inhibits the Chesapeake Bay shoreline's natural progression. If there were no shoreline development or hardening the land would continue to erode, the beaches and tidal wetlands would continue to move inland as the shoreline retreats and sea level rises, as they have done over time. Because of the amount of shoreline development and hardening that is occurring, beaches and wetlands can no longer form in many shoreline areas. The installation of bulkheads and revetments usually increases nearshore erosion. It was the determination of a special subcommittee formed by the Chesapeake Bay Program (2005) that the use of living shorelines in low energy areas was the way to stabilize low energy shorelines, but in areas with higher erosion rates, like the conditions found at Chesapeake Shores, hardened structures (breakwaters) will need to be used in conjunction with a living shoreline. The placement of breakwaters at this site within the context of a living shoreline will help to dissipate the wave energy while allowing sand transportation and a healthy beach system to exist for the northeastern beach tiger beetle and all other species that are dependent on a beach habitat.

Within the proposed project area, there are two currently permitted revetment projects proposed by homeowners to protect their properties. Only one other shoreline protection project has been constructed on this shoreline, and the beach remains largely un-altered. The applicants for these shoreline hardening projects have agreed to

postpone construction to consider a community-wide shoreline management project. If individual projects are constructed, the fragmentation and degradation of this largely contiguous beach will have begun. We hope that through this proposal, we will be able to restore, enhance, and protect this shoreline.

Another issue affecting shorelines in the Chesapeake Bay and most other areas is sea level rise. Because many coastal lands in the Chesapeake Bay are subsiding, relative sea-level rise is occurring faster than in other regions, with many areas of the Chesapeake Bay's coastal wetlands already being inundated. As sea level rise continues, the current coastal wetlands are likely to change in character, location, and condition. Under natural conditions, the sandy beaches would likely tend to move shoreward. Within developed areas, sea level rise will likely result in loss of the habitat type as residents seek to protect their properties from loss. Over time, sandy beaches in some areas will continue to develop and migrate naturally in those areas where they are not constrained by development or other anthropogenic activities, and it is critical to maintain the processes of littoral sand transport to allow this process to occur. During the process of habitats adapting to changing sea level over the next century, this modified living shoreline project will maintain beach and littoral habitats and maintain the local sediment transport processes until the breakwaters as proposed cease to function due to the changed wave climate and conditions. Maintaining this habitat will help to maintain the northeastern beach tiger beetle population and other beach-dependent species in the local area as adjacent areas change and adapt normally. The properties owned by The Nature Conservancy that lie immediately south of the community are expected to adapt naturally to shoreline change, and the current beach and dune habitat in that area is expected to migrate naturally.

2. Discrete, quantifiable, and verifiable objective(s) to be accomplished during a specified time period;

The primary objective of this proposal is to restore the functionality of approximately a mile of estuarine intertidal wetlands including the adjacent subaqueous habitat, and to place this area into a conservation easement that will provide long-term protection. This habitat type is considered to be a nationally declining wetland type (declined by 8.3% from 1954 to 1974) (U.S. Department of the Interior 1989). Due to the significant declines in estuarine wetlands comprised of sandy intertidal zones and adjacent dune systems (estimated 50% decline since 1937), these habitats can be classified as a regionally rare and diminishing habitat type (C.S. Hardaway, Virginia Institute of Marine Science, pers. comm. 2010).

This project will provide permanent restoration and protection of:

- 3,200 feet of Chesapeake Bay shoreline improved and protected; and
- 9.2 acres of decreasing wetland/habitat types improved and protected;
 - 3.3 acres of littoral habitat
 - 3.4 acres of high beach
 - 2.5 acres of primary dune habitat

In addition to these areas, we expect that the project will enhance 6.8 acres of subaqueous habitat (Submerged Aquatic Vegetation [SAV] beds). There are currently SAV beds in the vicinity that are identified as <10 percent cover and 10-40 percent cover (Virginia Institute of Marine Sciences 2010). The enhancement is expected to result from the reduction in wave energy and increased stability of substrate adjacent to the breakwaters, resulting in expansion of the SAV beds and increased density (Palinkas et al. 2010).

3. Expected results or benefits, in terms of coastal lands and waters, the hydrology, water quality, or fish and wildlife dependent on the wetlands;

Developing a modified living shoreline project at this site will expand and improve this estuarine habitat and provide long-term protection by placing these lands into a conservation easement. The following benefits will be realized:

1. Habitat loss, habitat fragmentation, and impacts to beach-dependent fish and wildlife populations will be prevented.
2. The extent, quality, and integrity of the beach, dune, and marine habitats in the area will be improved.
3. The contribution of this shoreline habitat to the network of beach habitats throughout the Chesapeake Bay will be maintained. The improvements and expansion of this rare habitat type contribute to conservation of coastal dependent species, both common and rare.
4. The processes of littoral transport and sediment movement within the local area will be maintained. This will protect the processes that maintain other beaches and dunes in the area.
5. Sedimentation and contamination will be reduced by maintaining the natural buffering of intact beach and dune communities. Failure of septic systems will be prevented. Water quality within the local area will be maintained or improved.
6. The protection of these habitats will be improved through a conservation easement.
7. The local community and the county will take a more active role in wetland and coastal conservation, and this project will provide an example of stewardship that may be adopted by other communities.

4. The approach to be used in meeting the objectives, including specific procedures, schedules, key personnel, and cooperators;

The proposed project is a collaboration between many partners with a variety of interests and concerns. The project has been planned cooperatively with all parties, though the involvement of the parties has been variable due to differences in availability of personnel, interest, and other factors. Though VDCR is the applicant on this project, the other partners and participants will have a more active role in implementation than VDCR.

The U.S. Fish and Wildlife Service's (Service) Virginia Field Office has a principal role in planning and coordinating the project to ensure that the outcome is beneficial to the northeastern beach tiger beetle. This office is also providing in-kind contributions in planning, coordination, permitting, and monitoring.

Mathews County is partnering with all involved in this project to assist in coordinating contributions of individual organizations and to effectively plan the project. Mathews County plans to act as the sub-recipient of the grant and establish an agreement with the VDCR to oversee contracting and implementation of the project. Mathews County has provided in-kind assistance in planning, coordination with landowners, permitting, and potentially in developing a community tax district at the request of the residents that will fund maintenance and repairs of the breakwaters and the adjacent habitats.

Dr. Scott Hardaway of the Virginia Institute of Marine Sciences is acting as technical advisor on the planning and construction of the project and management of beach and dune systems within the Chesapeake Bay, and will coordinate post-construction monitoring of the shoreline and sediment response.

A U.S. Army Corps of Engineers (Corps) permit authorizing fill of Waters of the U.S. will be required to construct the project. In addition, the Corps is partnering to implement this project and intends to provide sand for the beach renourishment and augmentation through beneficial use of dredged material. Sands with appropriate characteristics dredged from either ongoing maintenance dredging projects or targeted projects under the Corps' Regional Sediment Management program will be used to provide appropriate material. This sand will either be delivered directly to the beach or to an upland stockpiling site to allow subsequent movement to the project area.

A permit from the Virginia Marine Resources Commission (VMRC) will be required for construction of the breakwaters on State-owned bottom, and a permit is required through the Mathews County Wetlands Board. The VMRC is also involved in the project as a technical consultant to help ensure appropriate consideration of marine resources.

The Bavon Homeowner's Association is an organized group of neighboring homeowners immediately south of the property owned by the Chesapeake Shores residents. Bavon residents are pursuing funding for a similar breakwater project involving most of the same partners, and will be integrally involved to ensure completion of their project and its integration of the projects to the maximum extent practicable.

The residents of Chesapeake Shores consist of approximately 45 individual landowners that live in the community, both in beachfront residences and in houses off of the beach. Though there is not currently an organized homeowner's association, the Chesapeake Shores residents are providing funding for the project and its maintenance over time. All residents of the community currently hold deeded access to the beachfront parcel for recreational purposes. The community will form a homeowners association and will gain title to the community's common property parcels, including the beach. They will establish a conservation easement for the beachfront properties to provide for their protection and maintenance. All of the landowners are supportive of the project and will be bound to the conditions of use consistent with the conservation purposes of the beach and dune once the project is implemented.

The Virginia Outdoors Foundation has expressed interest in holding the conservation easement at this site, and is in negotiations to determine whether they will commit to holding the easement. They plan to work with the community to enforce and monitor the terms of the easement and ensure the continued conservation benefit over time. If they decide not to hold the easement, another conservation organization will hold the easement.

5. A project location, including two maps: A map of the State showing the general location of the proposal, and a map of the project site;

The project is located in the communities of Bavon and Chesapeake Shores, Mathews County, Virginia (see attached maps, Figures 1-3). The shoreline lies along a low peninsula located on the southern tip of the County. The west-northwest shoreline of the peninsula is bounded by an extensive low marsh, and the remaining shorelines are bounded to the east by the Chesapeake Bay (project location) and to the southwest by Mobjack Bay (refer to Figure 2). The project will be implemented on a stretch of beach that lies between the Chesapeake Bay and the residences of the Chesapeake Shores and Bavon communities. The property to the west and south of these communities is owned by Mathews County and The Nature Conservancy.

6. Estimated costs to attain the objective(s) (the various activities or components of each project should be broken down by cost and by cooperator);

The cost to construct this modified living shoreline is estimated to be \$1,630,660. The following table contains the estimated costs to attain the objectives and the cooperators involved.

CWG Grant Request (Federal)		
#1 stone - materials	60,800.00	963,460.00
#1 stone - labor	74,000.00	
Armor stone - materials	578,260.00	
Armor stone - labor (part)	190,400.00	
Beach Fill - labor	50,000.00	
Beach Grass - materials & labor	10,000.00	
Chesapeake Shores Home Owners Association (CASH) (Non-Federal Match)		
Mobilization	9,000.00	330,000.00
E&S Controls - silt fence - materials & labor	1,150.00	
E&S Controls - access improvements - labor	15,000.00	
Clearing / Shoreline Cleanup - labor	20,000.00	
Breakwaters - filter cloth - materials & labor	21,250.00	
Breakwaters - #1 stone placement - labor	79,000.00	
Breakwaters - Armor placement - labor (part)	184,600.00	
Mathews County Contributions (IN-KIND) (Non-Federal Match)		
Contract administraton, Coordination, and Planning	15,000.00	15,000.00
TOTAL GRANT COST		1,308,460.00
Other Project Costs (Non-Match)		
U.S. Army Corps of Engineers		
Beach Fill (sand)	322,200.00	322,200.00
TOTAL PROJECT COST		1,630,660.00

We are requesting \$978,460.00, 74 percent of total project cost through this grant program, to cover the above expenses. Luck Stone, a corporation that supplies stone and aggregate products, has expressed interest in making a donation of the stone required to construct this project. Luck Stone is unable to provide a formal letter of commitment in time for this grant application, so our grant request includes the cost of the stone needed to construct this project. If Luck Stone donates material for the project, we will modify the application and funding request accordingly. The Corps is working to provide dredged sand material, valued at approximately \$322,200, for the project, and the homeowners of the Chesapeake Shores community have pledged \$330,000 toward this effort. Letters of commitment are attached. Additional in-kind

contributions will be provided by Mathews County, the Service, and other partners. These are not explicitly included in the cost estimates.

7. Form DI-2010 (Attached)

8. A concise statement, with documentation, of how the proposal addresses each of the 13 numeric criteria including a summary using FWS Form No. 3-2179 (see § 84.32);

Criteria 1: Will the project reverse coastal wetland loss or habitat degradation in decreasing or stable coastal wetland types?

This project will restore and protect 3,200 feet of shoreline and associated estuarine intertidal wetlands including the adjacent subaqueous habitat. It will also prevent additional loss due to erosion and the loss that will occur as shoreline protection structures are added to protect residences in the community, and will also prevent degradation due to sedimentation and nutrient inputs that will occur if the project is not implemented.

Estuarine intertidal wetlands are considered to be a nationally declining wetland type (declined by 8.3% from 1954 to 1974) (U.S. Department of the Interior 1989). Approximately 9.2 acres of declining habitat types will be restored and protected (see item 2 above).

As noted above, estuarine wetlands comprised of sandy intertidal zones and adjacent dune systems within the Chesapeake Bay have declined by an estimated 50% since 1937, and now can be classified as a regionally rare and diminishing habitat type (C.S. Hardaway, Virginia Institute of Marine Science, pers. comm. 2010). If we do not slow and attempt to reverse this loss and degradation of this important wetland type declines in the species that are dependent on this habitat type should also be expected.

Criteria 2: Will the application significantly benefit maritime forests on coastal barriers?

Historically this site did support the species characteristic of the maritime forest, but they have declined due to shoreline change and the impacts of the development of the site. The current project is not likely to significantly benefit maritime forests. If the project is implemented, it may allow for limited maritime forest restoration at this site following the restoration of a healthy beach and dune system.

Criteria 3: Does the project ensure long-term conservation of coastal wetland functions?

The project provides conservation in perpetuity by establishing a conservation easement on the shoreline beach and dune. The Virginia Outdoors Foundation has expressed interest in holding the conservation easement at this site, and is in negotiations to determine whether they will commit to holding the easement. The community has committed to placing the beach under a conservation easement, and addition of this conservation easement will ensure management and maintenance of the sandy beach and dune habitat for the natural benefits, to maintain a natural and functioning beach community and quality wildlife habitat.

The rate of beach erosion at this site is estimated to be 2.8 feet per year, as measured during the period from 1937-2002 (Hardaway et al. 2009). Since 2002, the beach has continued to erode to the point where some of the houses within the Chesapeake Shores community are currently threatened with flooding and structural damage during coastal storms, and there is no remaining beach at high tide in some areas. Sea level rise, land subsidence and increasing rates of shoreline development intensify tidal erosion, causing property loss and water quality degradation. Based on preliminary estimates and taking into account estimated sea level rise predictions, the project is expected to have a useful lifetime of 15 to 20 years, and possibly much more.

Criteria 4: Would the completed project help accomplish the natural resource goals and objectives of one or more formal, ongoing coastal ecosystem or coastal watershed management plan(s) or effort(s)?

On May 12, 2009, the President issued EO number 13508, titled: Chesapeake Bay Protection and Restoration. In this EO, the president committed to a renewed effort to restore the Chesapeake Bay, stating: "The Restoration of the health of the Chesapeake Bay will require a renewed commitment to controlling pollution from all sources as well as protecting and restoring habitat and living resources, conserving lands, and improving management of natural resources, all of which contribute to improved water quality and ecosystem health." Under this EO, federal agencies were tasked with preparing a report on the key challenges to protecting and restoring the Chesapeake Bay, and with developing a strategy for protection and restoration. On May 12, 2010, the Strategy for Protecting and Restoring the Chesapeake Bay Watershed was released.

The strategy under the EO includes a statement of the vision for the Chesapeake Bay and its resources. Among the objectives identified in the vision statement

that relate to this proposal are: “a broad network of land and water habitats that support life and are resilient to the impacts of development and climate change;” “extensive areas of conserved lands that protect nature and the region’s heritage;” and “cities, towns, and neighborhoods where citizens are stewards of nature.” The strategy goes on to identify many specific resource priorities and objectives. The strategy identifies beach and dunes as priority habitats within the coastal plain region, and includes both the northeastern beach tiger beetle and the northern diamondback terrapin (*Malaclemys terrapin terrapin*) as critical living resources within this region.

This proposal directly addresses many of the objectives of the EO and Chesapeake Bay restoration and protection. It will contribute to reduction in nutrients through preventing impacts to the septic systems in the adjacent communities and by maintaining the buffering function of the beach/dune community between the Chesapeake Bay and the adjacent residences. It will reduce sediment delivery to the Chesapeake Bay and improve local water clarity by stopping the erosion of the shoreline in this area, and it will maintain the resilience and functional characteristics of healthy beach and dune communities to maintain or improve the ecological integrity of the area. The project is also being conducted as a local/community partnership involving landowners and their local government. This is also consistent with the approaches advocated in the EO and its accompanying strategy.

In addition to the Chesapeake Bay EO, the project is consistent with several local coastal planning efforts. In 2009, Mathews County contracted VIMS to develop a county-wide coastal management plan. The intent of this effort was to inform the county comprehensive plan and promote proactive management of the county’s extensive coastline to benefit and protect the residents of the county and the natural resources. The draft plan, while still not complete, makes the primary recommendation of implementing consistent management approaches on shoreline units instead of management and protection of individual properties. This approach will help to ensure that shoreline protection and management measures do not detrimentally affect neighboring properties and work to protect and manage the same shoreline characteristics. The draft plan recommends installation of breakwaters along this specific stretch of beach to reduce erosion and reduce the risk of property impacts.

The approach to this project is also consistent with Corps Regional Sediment Management (RSM) planning process. A multi-agency planning team is currently working to develop a regional sediment management plan for Mathews County. Under the Corps’ National RSM program, The objectives of the Mathews County RSM plan, and the Corps’ nationwide RSM planning process is to protect and

enhances the nation's natural resources while balancing national security and economic needs through management of sediment and sand resources including placement of dredged material and efforts to reduce loss of sediment.

Criteria 5: Will the project benefit any federally listed endangered or threatened species, species proposed for Federal listing, recently delisted species, or designated or proposed critical habitat in coastal wetlands?

The project area is an important area of habitat for the State and federally listed threatened northeastern beach tiger beetle. A recent status review of the species by the Service recommended the species be reclassified to endangered due to declining population size and declining amount and condition of habitat available to support the species (U.S. Fish and Wildlife Service 2009).

Historically, the northeastern beach tiger beetle was a common inhabitant of coastal beaches from Cape Cod, Massachusetts to central New Jersey, and along the Chesapeake Bay, from Calvert County, Maryland south through Virginia. The northeastern beach tiger beetle is now considered to be extirpated from the majority of its former range along the Atlantic Coast. The only known extant populations along the Atlantic Coast are in Massachusetts (Martha's Vineyard and a translocated population on Monomoy National Wildlife Refuge). The beaches of the Chesapeake Bay in Virginia remain the stronghold of the northeastern beach tiger beetle. Two storm events have had a significant impact to northeastern beach tiger beetle numbers in Virginia in recent years, and the overall population is continuing to decline.

Past management efforts for the northeastern beach tiger beetle have focused on the collection of species biology information, distribution, and characteristics of the sites occupied. The data collected over recent years has shown a declining trend in northeastern beach tiger beetle populations and suitable habitat available. Facing the threat of continued and increasing change in coastal beach habitat resulting from sea level rise, the management agencies involved with this project are attempting to initiate a more proactive and adaptive management approach within the Chesapeake Bay in Virginia and Maryland by engaging county and local governments in regional coastal conservation planning efforts, beach protection and management, and permitting.

The geographic recovery areas (GRAs) outlined in the northeastern beach tiger beetle recovery plan help delineate appropriate provide focal management units. At the GRA level the Service will actively work with County, State and Federal agencies, private conservation groups, academics, municipalities, and individual landowners, to initiate a collective approach to beach and shoreline management that will primarily result in improved protection and quality of

northeastern beach tiger beetle habitat while helping landowners and municipalities protect coastal property and assets. By coordinating shoreline protection efforts and developing regional shoreline protection and management plans with the assistance of other agencies and organizations, we hope to be able to establish a network of coastal beach habitat while providing at least short-term protection to shoreline communities. Shifting to a larger scale shoreline protection effort will require all parties to work collectively toward a common goal. Through a combination of conservation easements and acquisitions, habitat conservation plans, safe harbor agreements, and regional shoreline protection efforts, this approach would help in maintaining the resiliency of coastal and beach habitats within the region to allow the northeastern beach tiger beetle, and other beach-associated wildlife, to adapt to climate change and increasing coastal erosion while addressing the needs of coastal property owners. This approach could provide northeastern beach tiger beetle populations the best chance to adjust to the changing shoreline conditions and provide for long-term survival and recovery of the tiger beetle.

As outlined in the recovery plan, three large and three small populations will need to be secured within GRA-9 to be able to delist the species. Currently, there are three small populations within this GRA that have ample protection; however, there are no large populations that have the needed protection. This project will protect and maintain habitat sufficient to support one large population. Even though there are a few small populations with protection from development and high use, none have adequate protection from increasing erosion rates caused by climate change and sea level rise. The habitat protected by the proposed project is expected to be one of the most persistent and protected populations within GRA-9.

Sandy beaches within the Chesapeake Bay also are important nesting habitat for the northern diamondback terrapin, a federal species of concern. By definition this is a species that is under consideration for listing, for which there is insufficient information to support listing at this time. The terrapin has been declining in numbers over the years, and the Service is reviewing the species status for possible listing. In 2003, the International Union for Conservation of Nature and Natural Resources (IUCN) listed the terrapin as a species of lower risk/near threatened. Like the northeastern beach tiger beetle, storm surges, beach erosion, and shoreline hardening threaten the terrapin's preferred nesting habitat. Any project that will improve and protect this regionally declining habitat type will be beneficial to this species, and possibly prevent it from being listed.

Criteria 6: Will the project provide, restore, or enhance important fisheries habitat?

The SAV in the nearshore area is of relatively low density and of limited value to fish species of concern. The addition of a breakwater system will result in reduced wave energy, but sufficient sand transport will still be maintained along the shoreline. The reduction in wave energy caused by the breakwaters is expected to allow more SAV to develop and the beds to expand (Palinkas et al. 2010). The rock structures (breakwaters) and the baylets created between the structures will offer juvenile fish shelter and protection, and also create habitat for many invertebrates.

The SAV beds provide habitat for The Chesapeake Bay EO identifies four focal species, and the blue crab (*Callinectes sapidus*) is one of these. SAV is identified as important habitat for molting female and young crabs. The expected increases in density should improve the suitability of these habitats for crabs. SAV beds are also identified as important habitat for juvenile migratory fishes, including striped bass (*Morone saxatilis*), Alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), and others.

Reduction in contamination and sediment delivery that will result from this project may be the largest contributor to improvements in fish habitat. This ubiquitous stressor within the Chesapeake Bay is affecting nearly all species and aquatic habitats, and the incremental reduction in contaminants and sediment will incrementally reduce the stressor.

Criteria 7: Will the project provide, restore, or enhance important habitat for coastal-dependent or migratory birds?

Yes. The beach and dune communities provide important habitat for migratory shorebirds during migration, and also breeding habitat for some high-priority beach-dependent species such as the least tern (Atlantic Coast Joint Venture 2007). Piping plovers (*Charadrius melodus*) have also been recorded on the beaches in the region. While piping plovers are not expected to breed in the project area, they may use the beaches during migration.

The project area falls within the North Atlantic Coastal Plain region within the Northern Atlantic Regional Shorebird Plan (Clark and Niles 2000). The plan identifies that the highest priority birds in the region are within the coastal wetland and beach habitats, and identifies mainland coastal Virginia as a significant area for shorebirds. The plan specifically identifies the following high-priority habitat objective: "Acquire land through partnerships to protect

and manage habitat that benefits shorebirds, rare species, waterfowl, and migrant landbirds.” This project directly addresses that need. This project will also address the highest-priority management objective: “Control disturbance through a) landowner outreach, b) visitor management..., controlling recreational disturbance...” The intended conservation easement will achieve this objective.

Bird Conservation Region (BCR) 30 encompasses the project area. The BCR defines the habitat within the project area as “beach, sand, and mudflats.” Of the highest priority species within this habitat type, the American oystercatcher (*Haematopus palliatus*), piping plover, ruddy turnstone (*Arenaria interpres*), and sanderling (*Calidris alba*) may use the area for foraging following project completion. In addition, many high priority shorebird species are expected to use the site. The project area falls within the Lower Chesapeake Western Shore shorebird focus area. Waterfowl are also expected to forage within the shallow submerged aquatic vegetation beds just offshore of the project area, and the project area falls within the Western Bayshore Waterfowl Focus Area.

Criteria 8: Will the project prevent or reduce input of contaminants to the coastal waters, or restore coastal wetlands and other associated coastal waters that are already contaminated?

The severe erosion rate along this shoreline has reached the primary dune system, and in some places has even gone further inland threatening septic systems. Stabilizing and expanding the shoreline and reestablishing a dune will help to protect water quality. Additionally, an intact and functioning beach/dune will also reduce sediment loads entering the Chesapeake Bay, and maintain natural buffering function of an intact beach.

The majority of its waters are highly degraded due to excessive nutrients, chemical contaminants, and sedimentation. Critical habitats such as sea grass beds and tidal wetlands have shrunk under continuing pressure from development and pollution. Populations of many of the Chesapeake Bay’s fish and wildlife species are declining as a result.

Sea-level rise is expected to have a direct impact on the distribution and composition of seagrass by increasing the water depth and thereby reducing the sunlight that seagrass needs for photosynthesis. Seagrasses or SAV are a critical resource that provide food and habitat for a wide range of Chesapeake Bay species, including crabs, fish, and waterfowl. Seagrasses also protect shorelines from erosion, remove nutrients from the water, and trap sediments that cloud

Chesapeake Bay waters. Rapid sea-level rise would undermine the current efforts to restore seagrass beds throughout much of Chesapeake Bay, which would have a significant impact on waterfowl and other aquatic species that depend on the seagrasses for food and cover. The current beds off this coastline are reported as supporting relatively low density of plants. The addition of a breakwater system will provide a more favorable habitat conditions for the growth of SAV and improve the water quality along this section of the Chesapeake Bay.

Beach pollution is usually infrequent or confined to local areas. Problems can develop in areas near pollution sources after a heavy rainfall or when septic systems fail. A well established and health beach/dune system acts as a buffer strip between the houses and the Chesapeake Bay. This buffer will help to slow erosion and reduce non-point source pollution caused by surface water run-off. The water quality along this section of shoreline can be improved once this wetland habitat is returned to a healthy and stable system that will filter and slow runoff from the upland areas and improve the quality of the groundwater flow that enters the Chesapeake Bay. Reduction of sediments and nutrients entering the local waters will have significant impacts on improving the seagrasses along this shoreline reach, and thus will have a positive impact on the fisheries in this area.

Criteria 9: Is the project proposal designed to leverage other ongoing coastal wetlands protection projects in the area, such as acquisition of areas to add to already acquired coastal lands, or provide impetus for additional restoration?

Yes. Through the early stages of development, this project along with the adjacent Bavon Community breakwaters project supports the recovery efforts the Service has outlined for the northeastern beach tiger beetle, and the partnership developed by these projects will lay a foundation for recovery efforts the Service has begun to implement. Through conservation easements, land acquisition, organized shoreline stabilization efforts, and Habitat Conservation Plans, the Service hopes to slow and reverse the decline of this species that has been occurring over the last ten years. As projects like this are implemented, the mix of federal, state, county, and private support provides a great opportunity to demonstrate to the public the effectiveness of collaborative conservation and shoreline stabilization efforts through outreach that will include the media.

This project will continue to build on the early success the partnership is having. By pooling the resources of individual organizations and leveraging private contributions with significant federal, state and municipal funding, the

partnership could accomplish a significant first step in conserving a regional declining and important wetland habitat type important to a number of species.

Criteria 10: Will the proposal receive financial support, including in-kind match, from private, local, or other Federal interests?

Yes. The Chesapeake Shores community has pledged \$330,000 in matching funds toward this project. Mathews County is providing in-kind match in the form of planning, coordination among partners, and implementing the construction of the project. The Service is providing in-kind match in the form of planning, coordination with other agencies, permitting, technical assistance, and assessment and monitoring of the project outcome. The Corps is intending to provide the sand material for the project delivered to the project site that will be used for beach contouring and dune renourishment.

In addition to these contributions, Luck Stone has expressed interested in donating the armor stone for the project, which is the largest remaining project expense. They are unable to commit to a donation at this time because the donation would fall into a subsequent fiscal year for their corporation. They have notified the Service that they intend to donate armor stone material to the adjacent Bavon Beach Modified Living Shoreline Project during the current fiscal year, and they will keep all parties apprised of their interest. If they do choose to make a donation, the cost will be significantly reduced and the grant budget will be revised accordingly.

Criteria 11: Does the proposal significantly reduce the Federal share by providing more than the required match amount?

Yes. The residents of the Chesapeake Shores community and Mathews County have pledged \$345,000 in non-Federal match, and this has reduced the amount that is requested. Non-Federal match is 26 percent of the project cost. Partners are pursuing additional contributions and match, and we hope to reduce the requested amount further through contributions such as the potential donation from Luck Stone. The Corps contribution, which is identified as non-match, also significantly reduces the project costs to both Federal and non-Federal partners.

Criteria 12: Is the project designed to increase environmental awareness and develop support for coastal wetlands Conservation?

This project will serve as a demonstration project for all the counties in Virginia and Maryland that have this rare habitat type that is being impacted by development and individual landowners' protection efforts. It will show how

through a collaborative effort conservation of this rare and declining habitat type can be maintained with a functional ecosystem which will provide habitat for a number of species, including the threatened northeastern beach tiger beetle. It will also prevent shoreline hardening that is slowing eating away at this habitat type. The partnership intends to present this effort as a demonstration site to local citizens and governments. On the adjacent TNC and County lands a kiosk will be placed so that anyone visiting the area will understand what the project is about, and the conservation process. Additionally, education information will be placed on partner websites, and media information will be provided to local newspapers, television and radio stations.

In addition to this, as part of the partnership population monitoring of the northeastern beach tiger beetle will continue with both adult and larval surveys. Aerials of the site will be flown by VIMS and rectified for inclusion into a GIS system that will be used to monitor and evaluate shoreline responses to the project and from sea level rise. This information will improve information about how projects like these will perform overtime, and contribute to our growing knowledge of coastal wetlands conservation practices.

Criteria 13: Do any other factors, not covered in the previous criteria, make this project or site particularly unique and valuable?

The community-level involvement in this project is a unique factor that is not well addressed in other criteria. The entire approach to the project has been to gain support for the project from the local community, and then to work with the communities to make the projects their own. While this approach may be viewed as a risk or liability in terms of ensuring the protection of the investment and the conservation value of the investment, when it is implemented well, this approach includes a large educational component that will allow the community members to understand and value the conservation benefits of the project. This community-based approach has been endorsed by the EO and the accompanying strategy for Protection and Restoration of the Chesapeake Bay.

We hope that including the community-level involvement in this model project will help other individuals and groups contemplating shoreline protection and management to see the value of approaching needs from a community basis. Projects designed in this manner will inherently be more successful and less damaging to wetlands simply because they are planned and implemented in a unified fashion instead of in a piecemeal fashion.

9. A description of the State trust fund that supports a request for a 75 percent Federal share in sufficient detail for the Service to make an eligibility determination,

or a statement that eligibility has been previously approved and no change has occurred in the fund;

Eligibility of the Virginia Department of Conservation and Recreation has been previously approved, and no change to the fund has occurred.

10. A list of other current coastal acquisition, restoration, enhancement, and management actions; agencies involved; relationship to the proposed grant; and how the proposal fits into comprehensive natural resource plans for the area, if any; and how the application fits into comprehensive natural resource management plans for the area.

This is a relatively new partnership that involves the conservation partners listed in #4. We hope that with the completion of this project, the partnership foundation will be established and further conservation efforts to protect these rare wetland types in the Chesapeake Bay and habitat for the federally threatened northeastern beach tiger beetle. This project truly has the potential to launch the first significant effort in the Commonwealth of Virginia to slow shoreline hardening, preserve important wetland habitats, and promote endangered species conservation.

As referenced above, this project is intended to complete and fully integrate with the Bavon Beach community's modified living shoreline project, which will further enhance the benefits of both efforts. The adjacent Nature Conservancy properties will benefit by avoiding shoreline projects that interfere with littoral transport. The conservation easement mechanism will also complement the conservation values of the adjacent public lands.

As expressed in the sections above, this project is closely aligned with many other comprehensive, local, and regional conservation plans and will achieve high-priority objectives of these plans.

The project will directly address both the approach and many of the specific objectives of EO 13508 and the associated Strategy for Protecting and Restoring the Chesapeake Bay Watershed. It will contribute to a network of coastal conservation lands, will protect and maintain habitats to safeguard the diversity of fish and wildlife in the Chesapeake Bay, and will be conducted in a manner to engage local communities.

The proposed project will implement recovery objectives in the Service's recovery plan for the northeastern beach tiger beetle (Service 1993), and will also implement habitat protection to benefit Tier II species in the Virginia State Wildlife Action Plan.

The project will restore and protect priority habitats identified in the North Atlantic Regional Shorebird Plan within the Shorebird focus area identified in the BCR 30

implementation plan. It will also enhance SAV in waterfowl foraging areas within areas identified as waterfowl focal areas in the BCR 30 implementation plan. These activities will benefit top priority and high-priority species in these plans. The proposed project will also enhance habitat for priority fisheries resources identified by the Service.

The proposed project is consistent with the recommended shoreline management included in the draft Mathews county shoreline management plan developed by the Virginia Institute of Marine Sciences, and follows recommended shoreline management practices for high-energy areas of the Chesapeake Bay.

The project is consistent with the intent of the Corps Regional Sediment Management Plan, and collaboration with the Corps and Mathews County under this plan will advance the application of RSM at a local level.

11. Public involvement or interagency coordination on coastal wetlands conservation projects that has occurred or is planned that relates to this proposal (Specify the organizations or agencies involved and dates of involvement.)

This project has resulted from extensive coordination among agencies and organizations involved, and those relationships are summarized in section 4 above. They involve routine close coordination among agencies. Additional coordination among the Corps, the Service, and Mathews County is planned regarding the integration of the Corps RSM into the project. This meeting is scheduled for mid-July 2010. VIMS personnel are meeting in mid-July 2010 with the Chesapeake Shores community regarding shoreline management.

The U.S. Fish and Wildlife Service made a presentation at a county-wide public meeting about beach and northeastern beach tiger beetle management at the invitation of the Mathews County Wetlands Board on March 15, 2010.

At the community level, the U.S. Fish and Wildlife Service and Mathews County jointly met with the Bavon Beach community residents on May 2, 2010 about options for shoreline management, and this meeting and additional coordination resulted in the submission of a grant application under the Chesapeake Bay Small Watersheds grant program. The U.S. Fish and Wildlife Service and Mathews County held two meetings with the Chesapeake Shores community on June 4 and June 19, 2010 to discuss shoreline management.

References:

- Atlantic Coast Joint Venture. 2007. New England/Mid-Atlantic Coast Bird Conservation Region 9BCR 30) Implementation Plan. Laurel, MD.
- Chesapeake Bay Program. May 2005. Sediment in the Chesapeake Bay and Management Issues: Tidal Erosion Processes. Prepared by the Tidal Sediment Task Force of the Sediment Workgroup under the Chesapeake Bay Program, Nutrient Subcommittee.
- Clark, K. E. and L. J. Niles (editors). 2000. Northern Atlantic regional shorebird plan, version 1.0. Unpublished report, New Jersey Endangered and Nongame Species Program, Division of Wildlife, Trenton, New Jersey.
- Hardaway, C.S., Jr. 2010. Personal communication, Virginia Institute of Marine Science, Gloucester Point, Virginia.
- Hardaway, C.S., Jr., Donna A. Milligan, Lyle M. Varnell, and Julie Herman. 2009. Tidal Sediment Yield Estimate Methodology in Virginia for the Chesapeake Bay Program Water Quality Model. Report for Shoreline Studies Program, Virginia Institute of Marine Science, College of William and Mary, Gloucester Point, Virginia.
- Hardaway, C.S., Jr., and R.J. Byrne. 1999. Shoreline Management in Chesapeake Bay, Virginia Institute of Marine Science, VSG-99-11.
- Palinkas, C.M., E.W. Koch, and N. Barth. 2010. Sedimentation adjacent to naturally eroding and breakwater-protected shorelines in Chesapeake Bay. IOP Conference Series: Earth and Environmental Science 9(1): 012012
- The Virginia Wetlands Report. 2004. Virginia Institute of Marine Science of the College of William and Mary, Gloucester Point, Virginia Vol. 19, No. 2
- Virginia Institute of Marine Sciences. 2010. Preliminary 2009 Distribution of Submerged Aquatic Vegetation in the Chesapeake Bay and Tributaries and the Coastal Bays. <http://web.vims.edu/bio/sav/maps.html>. Accessed June 22, 2010.
- U.S. Department of the Interior. 1989. National Wetlands Priority Conservation Plan, Prepared by the U.S. Fish and Wildlife Service.
- U.S. Fish and Wildlife Service. 1993. Northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*) recovery plan, Hadley, MA.

U.S. Fish and Wildlife Service. 2009. Northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*) 5 Year Status Review: Summary and Evaluation. Gloucester, VA.

The following is a list of signed letters of commitment from an authorized representative of any non-State agency match provider:

- June 24, 2010 letter from U.S. Fish and wildlife Service
- June 23, 2010 letter from the Norfolk District of the Corps of Engineers
- June 23, 2010 letter from Mathews County
- June 23 letter from the Chesapeake Shores community (representative Peyton Carr)

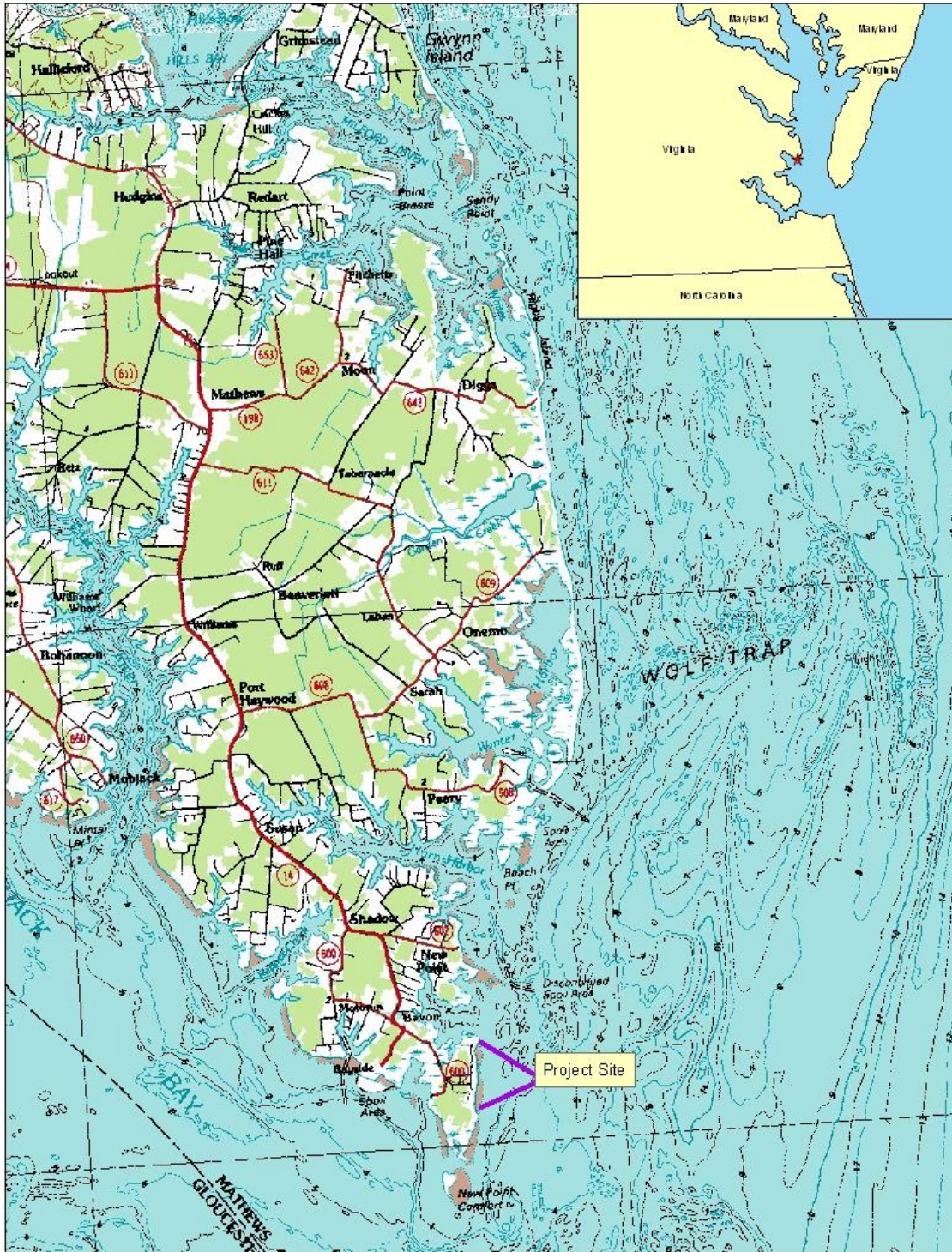


Figure 1. General location map of project site, Chesapeake Shores, Mathews County, Virginia.

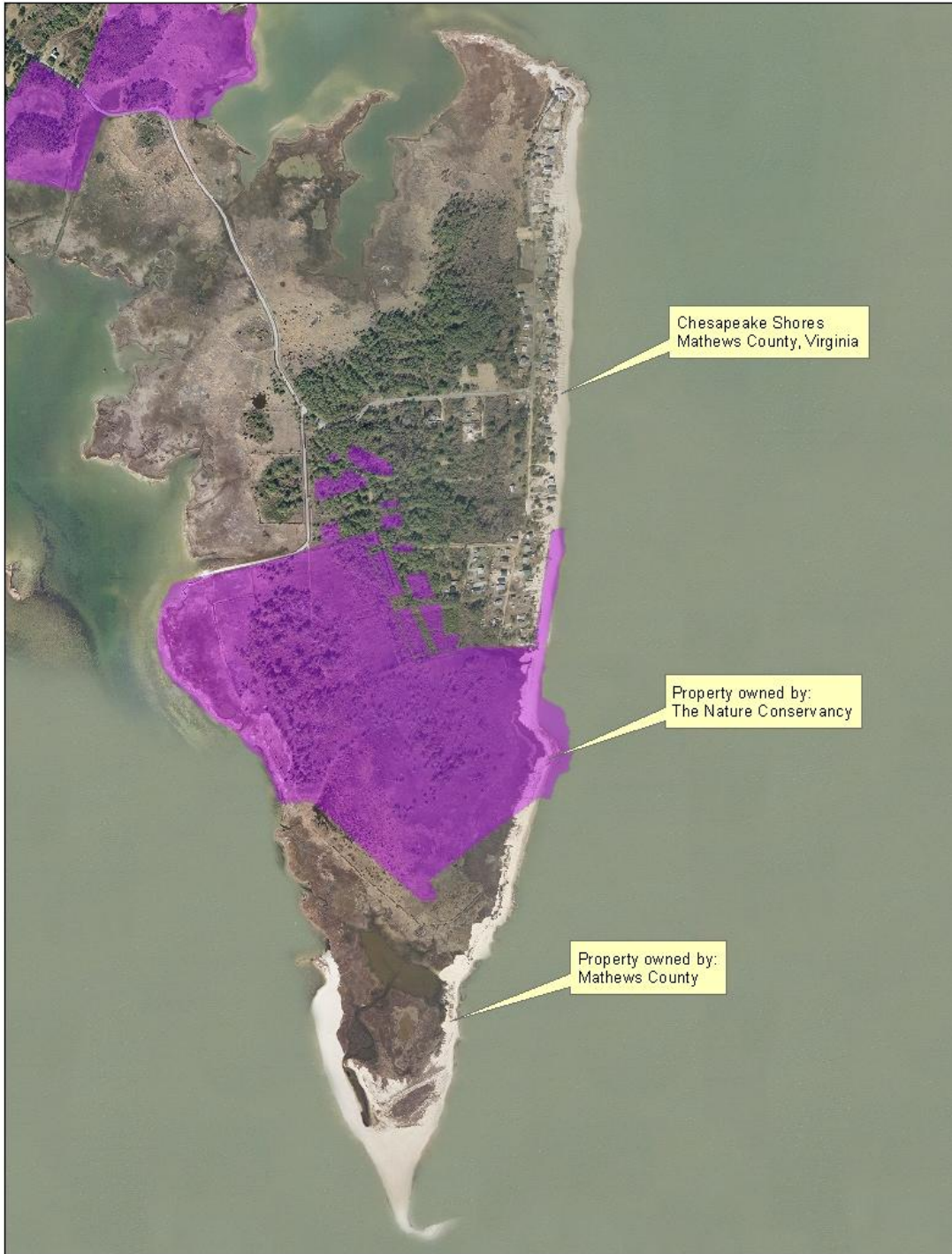


Figure 2. Aerial map of Chesapeake Shores shoreline, and the adjacent properties owned by The Nature Conservancy and the County of Mathews (Virginia).



Figure 3. Map showing Chesapeake Shores shoreline with proposed breakwaters, and the habitat types that will be created and protected by the project.