

# Shoreline Restoration Complete at NSF Indian Head

## Five-Year Project Prevents Erosion, Protects Critical Infrastructure

**WITH A FINAL** tree-planting event in October 2012, volunteers and conservation professionals completed the restoration of the Potomac River shoreline at Naval Support Facility (NSF) Indian Head and the base's Stump Neck Annex. NSF Indian Head, located in Charles County, Maryland, has approximately 17 miles of shoreline on the Potomac River, Mattawoman Creek, and Chicamuxen Creek.

The event marked the successful end of the five-year, \$20 million project that protects both the environmental

the installation received \$5.2 million from Hurricane Isabel Relief funding in Fiscal Year 2004. The funding was used to prepare a Shoreline Development Plan, to fund the design, and for permitting and construction of the first phase of the project. Additional phases were planned contingent on funding in out-years. The solution prescribed by the management



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health of regional waters and \$54 million worth of government property. Prior to the project's inception, the facility was experiencing an average annual erosion rate of 1.5 feet, causing approximately 12,000 cubic yards of sediment per year to enter the surrounding waterways. In the 1990s, shoreline erosion collapsed a road and threatened mission-critical infrastructure just 20 feet from the edge of a cliff bank. Wave action from human and storm activity, stormwater runoff, soil characteristics, and groundwater seepage all contributed to the high erosion rate.

In 2003, Hurricane Isabel took its toll on the shoreline at NSF Indian Head and Stump Neck Annex. As a result,

plan—a living shoreline of breakwaters, sills and native vegetation—has set the standard in the Chesapeake Bay region for environmental stewardship.

A cooperative agreement was developed with the Southern Maryland Resource Conservation and Development Board and the Charles Soil Conservation District. Federal, state and Navy permitting for the project began in October 2004; but it became clear that this would not be an easy process due to the number of issues that needed to be addressed, including essential fish habitat, submerged aquatic vegetation, infrastructure protection, cultural resources, endangered species restrictions, tidal wetlands, and explosive site approval.

In 2006, an Environmental Assessment (EA) was performed that resulted in a Finding of No Significant Impact. This gave the green light for the first phase, the initial repair of 4,800 feet of shoreline, which began in November 2007. Another EA was prepared in 2009—with the same permitting issues as before—for the remaining three phases, totaling approximately 12,300 feet along both the Potomac River and Mattawoman Creek.

Altogether, the project has constructed a series of sills and breakwaters along approximately 17,000 feet of shoreline along the Potomac River and Mattawoman Creek, along with 1,230 feet of cobblestone beach. A total area of approximately 18 acres has been filled behind the sills and breakwaters as intertidal wetland, shrub, and riparian floodplain habitats.

While the Navy provided funding for the construction of the living shoreline, volunteers from several organizations—led by the National Aquarium Conservation Team—played a key role in planting native vegetation that not only protects threatened land, but also provides habitat for river life. Over 500 volunteers through the course of the shoreline project contributed more than 5,700 hours to plant 89,000 trees and shrubs, plus wetland grasses.

“This is the largest and longest project the team has taken on,” said Charmaine Dahlenberg, project manager for the National Aquarium’s Conservation Team. Since construction began in 2007, volunteers from a diverse group of conservation-minded organizations, such as AmeriCorps and the Maryland Conservation Corps, partnered with the Navy and the National Aquarium

Conservation Team to turn the vision of a living shoreline into a reality.

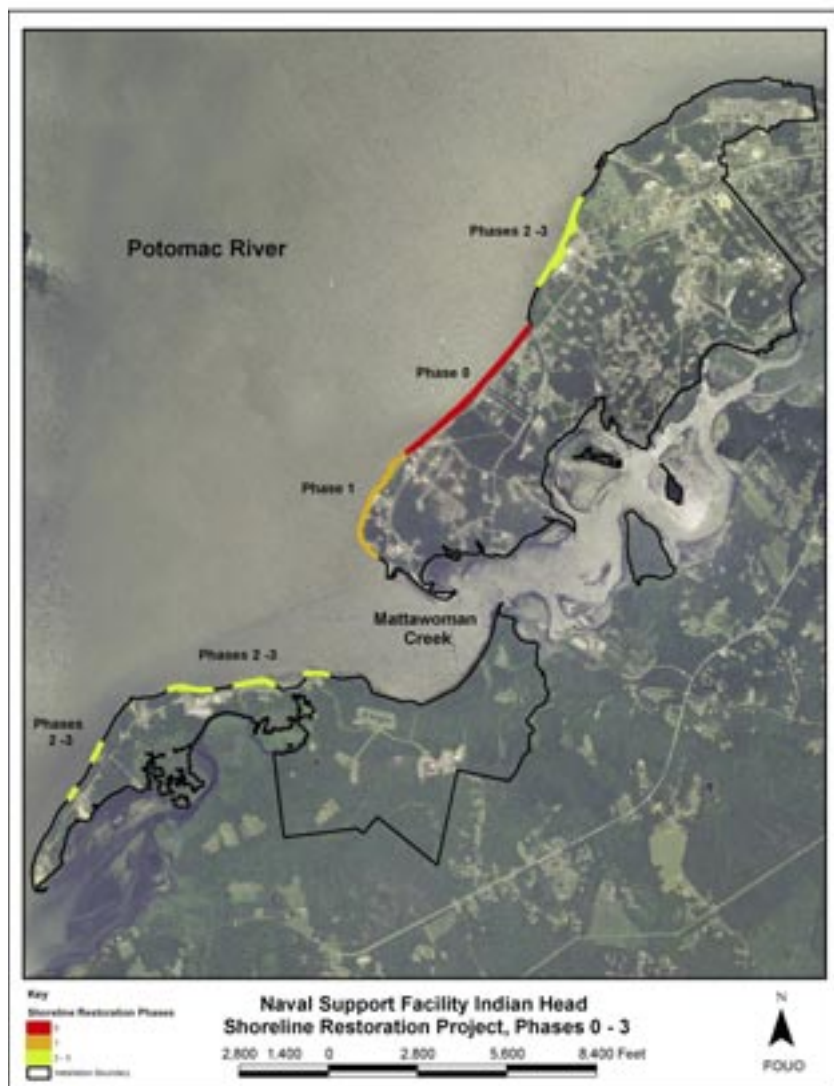
Dahlenberg praised the efforts of her organization and the volunteers who supported her. “The Conservation Department at the Aquarium is a team of five women and we do everything when it comes to logistically planning these events,” she said. “When it comes to the hard physical work, we would never get it done unless we had our volunteers... and it is extremely physical work.”

Volunteers worked through many challenges, not least of which were

planting and tending to native vegetation during the hot summer months. While the gratification is not quite instant, the project’s large scale and multiyear timeline allowed the conservation professionals and volunteers to witness the fruits of their labor.

“The grasses have taken off and they look awesome,” said Dahlenberg. “To see them grow so significantly in so short of time is amazing. When the tide comes in, we see the amount of wildlife, like fish swimming in the grasses. That is something that was not here before. “

Overview of the shoreline at NSF Indian Head showing the project’s phases.





Sediment fill is added behind the newly built stone sill structure.  
*Seth Berry*

## Creating a Living Shoreline

**THE CHESAPEAKE BAY** Trust defines a living shoreline as “shoreline stabilization techniques that use natural habitat elements to protect shorelines from erosion while also providing critical habitat for Bay wildlife.”

To create the living shoreline, NSF Indian Head combined stone stabilization structures with natural elements. The stabilization structures—sills and breakwaters—were built parallel to the shoreline to dissipate wave energy. In areas where sills and breakwaters were not feasible, revetments were built. Revetments are shoreline armoring systems that protect the base of eroding upland banks and usually are built across a graded slope.

Behind the stone structures, a total area of approximately 18 acres was filled, turning the area into intertidal wetland, shrub, and riparian floodplain habitats.

A series of openings in and between the stabilization structures allow for free movement of water and aquatic species between the river and the living shoreline.

In addition, some of the shoreline banks were graded to reduce the steepness of slope. This stabilizes the shore, greatly reducing the likelihood of shoreline slumping and future sediment erosion from wave activity.

The shoreline banks will now be able to reach equilibrium and naturally revegetate as they are protected from the continuous high-energy wave activity on the Potomac River.

“Seeing the wildlife utilize [the living shoreline] reassures us that this is needed and that we’re doing something really good for the environment and helping the base out as well,” emphasizes Dahlenberg.

Some of the volunteers who worked on the last day of planting were new to the project; for others, it was the last of several trips they made to Indian Head and Stump Neck throughout the project. Everyone that offered comment appreciated the opportunity to contribute to the region’s environmental health, and especially, to simply enjoy being a part of nature.

“It’s really cool to come back each year to see how the grasses and trees have progressed,” said Laura Cattell Noll, a conservation technician at the National Aquarium. Cattell Noll first came to NSF Indian Head as a volunteer; later, she was hired on to the aquarium’s Conservation Team.

The shoreline restoration helped Cattell Noll increase her knowledge about conservation. “The fertilizer stakes, the tree tubes, ordering the trees, having them delivered to multiple access points along the water and mixing the species, making sure [native vegetation is]

Laura Cattell Noll, conservation technician for the National Aquarium Conservation Team, checks trees during the final planting of native vegetation in October 2012.

*Andrew Revelos*

spread out and not clustered—there is a lot of finesse and planning and I’ve learned a lot,” she commented.

While Cattell Noll used the work at Indian Head and Stump Neck to turn her passion into a career, most volunteers simply wanted to serve the greater good.

Fire Controlman 1st Class Justin Turner already gives back to the community through his military service, but the Aegis Training and Readiness Center-assigned Sailor’s love of the outdoors guided him to the beach for the last day of planting.

“I like the environment,” he said. “When I was a little kid, I was outside playing in the mud. This was another opportunity to be outside.” Turner hoped to return to Stump Neck in the coming months to check up on his handiwork. “I put some big rocks beside the trees I planted, so I can come back later and see how they’re doing,” he said.



Trees, shrubs and grasses planted along the Potomac River shoreline are providing a biologically diverse habitat for wildlife.

*Gary Wagner*

## The Basics About Naval Support Activity South Potomac

**NAVAL SUPPORT ACTIVITY** South Potomac (NSASP) was established on 3 November 2005 as a component of Naval District Washington. NSASP is one of five regional commands within the district charged with providing shore installation management services for more than 20 separate locations within the National Capitol area.

NSASP has oversight of two geographically separate major Navy shore installations—Naval Support Facility Dahlgren, Virginia and Naval Support Facility Indian Head, Maryland. Altogether, NSASP serves as host to nearly two dozen Department of Defense, Joint and Navy supported commands and activities located on board NSASP installations.

The mission of the command is to provide effective and efficient shore installation management and support to military organizations resident on NSASP installations and, as a result, enable supported commands to sustain combat readiness. Shore installation management functions under NSASP authority encompass all land, buildings and support services. Shore installation support services managed by NSASP encompass the following functions:

- Personnel Support: Quality of Life: Morale, Welfare and Recreation, and Child Care
- Facility Support: Public Works

- Public Safety: Physical Security, Law Enforcement, Fire Department
- Environmental Protection and Waste Management
- Supply: Materials management, property disposal, and warehousing
- Public Affairs



John Sweet, a Department of Defense employee and Sierra Club volunteer, volunteered alongside his wife Meredith. As planting concluded, the Sweets enjoyed a picnic lunch on a scenic bluff overlooking the river. “I love what they’re doing here,” he said. “I’d love it if we could get more programs like this and include farmers. One of the Chesapeake Bay’s biggest problems today is stormwater runoff.”


Of all the volunteers who gave so many hours protecting Navy property

and the environment, Mary Sidlowski may have contributed the most. Respected by the conservation professionals and volunteers alike, she volunteered for the duration of the shoreline restoration.

Sidlowski’s perspective reflected the sense of the satisfaction volunteers enjoyed while restoring the shoreline. “It’s an absolutely wonderful feeling,” she said. “You can give money, but you never really see where it goes.”

Sidlowski also summarized the can-do attitude of the volunteers who

contributed so much. “Wherever the next project is, I’ll go.”

For more information about this project, visit [www.cnic.navy.mil/SPotomac](http://www.cnic.navy.mil/SPotomac). 

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