SUBASE New London Wetlands Undergo Remediation, Restoration

Contaminated Soil Removed, Invasive Species Tackled

NAVAL SUBMARINE BASE (SUBASE) New London environmental specialists and Public Works Department leadership have deemed the remediation efforts undertaken to restore and revitalize a base wetland area a success.

During a six-month project that completed at the end of December 2012, the wetland area in the northeast corner of SUBASE underwent remediation to remove ecologically harmful chemicals, and restoration to control the population of invasive plant species.

"We couldn't be more pleased with the result," said Mike Brown, SUBASE environmental director.

Base environmental specialists and representatives from project contractor Shaw Environmental and Infrastructure (Shaw E&I), conducted a final walk through of the site near the base's weapons compound and seasonal swimming lake on 9 January 2013.

"It really looks very different. We not only restored five Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) areas but also mowed quite a bit of phragmites outside of the restoration areas to provide more ecological lift to the entire area," said Tracey McKenzie, SUBASE natural resource manager.

In the 1950s, the 19.3-acre area was a dump site for dredge spoils from the Thames River. In the 1960s, dichlorodiphenyltrichloroethane (DDT) pesticide bricks were utilized there to control the mosquito population.

Site investigations on SUBASE following the CERCLA-established process, commonly referred to as Superfund, identified the wetland area as one of 25 sites for the base to focus on to mitigate the potential for any hazardous substance releases that may endanger public health, welfare, or the environment.

As greater priority areas on the base were tackled, additional site investigations at the wetlands through 2011, uncovered local, low concentrations of aromatic hydrocarbons, DDT, and polychlorinated biphenyls (PCB). Other chemicals of concern included polynuclear aromatic hydrocarbons (e.g., asphalt, waste oils, burning of fossil fuels),

Typical phragmite (invasive vegetation) coverage on SUBASE New London prior to remediation.

pesticides and metals posing unacceptable risk to plants and wildlife.

After comprehensive study, coordination with federal and state environmental agencies, and public input, the Installation Restoration program at SUBASE decided to pursue a two-pronged approach to the wetland's remediation and restoration:

1. Remove contaminated sediments
2. Curtail the growth of invasive plant species, such as phragmites

Some 6,800 cubic feet of sediment, from five separate areas totaling three acres, was excavated and removed.

A temporary road was created into the excavation area to minimize environmental impact.

To allow vehicle and machinery access to the site, contractors created a temporary road with a system of interconnecting composite mats, specially designed to minimize environmental impact.

Additionally, several wetland acres were mowed in the winter of 2012 to manage the invasive common reed *phragmites communis* (also known as *phragmites australis*) which threatens native wetland vegetation.

Denise Page, the lead wetland biologist with Shaw E&I describes *phragmites communis*: "The reeds can grow up to 15 feet tall. They came via ships from Europe to the ports; they were used as packing material and spread from there." The reed is now found in every one of the lower 48 states, but is most prevalent on the Atlantic coast and Northeast.

As remediation and restoration was completed, the wetlands became an even more attractive home to wildlife. Based on sightings or observations of tracks, a long list of animals now make themselves at home in the wetland, including white-tailed deer, amphibians, mallard ducks, coyote, snakes, raccoons, opossum, frogs, turtles, salamanders, and a variety of birds. Many species of trees, including swamp white oak, red and silver maple, black willow and river birch have been planted in the excavated areas.

The Basics About SUBASE New London

NAVAL SUBMARINE BASE New London, Connecticut is the Navy's first submarine base. Its mission is to deploy combat-ready submarines and to train professional submariners. Almost every submariner in today's Navy will be stationed at SUBASE New London for training.

The base began as a naval yard and storage depot on 11 April 1868. By 1898, its main use was as a coaling station. In 1912, as oil replaced coal in the Fleet, the base was scheduled for closure. Instead, due to the efforts of a local congressman, New London became the Navy's first submarine base in 1915.

Today, Naval Submarine Base New London stretches along the east side of the Thames River, straddling the communities of Groton and Ledyard. It occupies approximately 687 acres, and has ten submarine piers and 15 SSN (nuclear) submarines. The base also is home to more than 70 tenant commands and employs more than 9,500 active duty, reserve and civilian personnel.

Naval Submarine Base New London.
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Access into the site was provided by interconnecting mats, which formed a temporary road.

Newly planted shrubs and trees are protected by deer fencing.

Contaminated sediment is removed from the wetland area.

New topsoil is being placed after the contaminated sediment was removed.

In the spring of 2013, a wetland seed mix will be hydroseeded in the excavated areas.

The wetlands will be monitored annually for three years to ensure the establishment of healthy vegetation. The invasive reeds will be controlled with an herbicide that targets phragmites without harming other plant life. Otherwise, the area will be left alone to return to its natural state.

"The effective coordination between the base, the Public Works' Facilities Engineering and Acquisition Division, the U.S. Environmental Protection Agency (EPA), and the contractors was instrumental in the success of this project," stated Brown.

Remediation and restoration of the wetlands brings SUBASE one step closer to being removed from the federal Superfund list of the nation's most polluted sites, where it has been since 1990. If the current schedule holds and restoration remedies continue to move ahead on two other sites at SUBASE, the base could be taken off the list in 2014. ⚓

Photos by Shaw E&I.

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