

World DREDGING

M a i n i n g & C o n s t r u c t i o n

Volume 46, Nos. 7/8

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Sump Maintenance Dredging while a local
lobster lives undisturbed. *(See story on pg. 21)*

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Wildlife returns to Jamaica Bay, New York and so does Army Corps

JoAnne Castagna, Ed.D.

A few years ago, the **U.S. Army Corps of Engineers** and partnering agencies restored the degrading **Elders Point East**, a marsh island in **Jamaica Bay, New York** (NY). Last summer, **Melissa D. Alvarez**, a Senior Project Biologist with the Army Corps' New York District was inspecting the island.

"I saw movement in the water as the tide was draining one of the creeks. I looked closer and saw something I've never seen there. There were dozens of juvenile horseshoe crabs swimming within the tidal creek. They were the size of a quarter, but this meant so much more. It means that the restored island is now providing successful breeding for horseshoe crabs," said Alvarez.

She continued, "Later in the year, I also found a nest of Diamondback Terrapins, a New York State protected species. This once again represents the success we've had at Elders Point East and will soon have at Elders Point West."

With success on East, the Army Corps and partnering agencies is eagerly applying the important lessons they learned from this effort to neighboring island, Elders Point West. This new restoration effort with not only sustain the environment, but save taxpayers money.

A marsh is a low lying wetland with grassy vegetation that is usually in an area that's transitioning between land and water.

Elders Point East and Elders Point West is a marsh island complex located within the 26-mi.² **Jamaica Bay Park and Wildlife Refuge** that was the country's first national urban park and one of the Gateway National Recreation Areas.

The refuge is located in an urban area that includes portions of Brooklyn, Queens, and Nassau Counties, New York (NY). The area's shorelines are boarded by heavily developed lands including John F. Kennedy International Airport, the Belt Parkway and several landfills.

The island complex was once a single 132 ac. marsh island named Elders Point, but years of degradation split the island into separate islands that are now connected by muddy land.

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Wildlife returns to Jamaica Bay, New York
and so does Army Corps

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Native grasses being transplanted by hand out of historical marsh, Elders West. Photo courtesy Galvin Brothers, Inc.

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Today, a restored East is 49 ac. and West, is expected to be approximately 40 ac. after restoration is completed.

The once vibrant marsh islands in Jamaica Bay have degraded extensively over the last century, disappearing at a rate of 44 ac. per year and faster in the last decade. It's believed that a great deal of this degradation is due

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to regional urbanization.

If the degradation is not halted it is estimated that the marsh islands could be eliminated by 2012.

According to Alvarez, a certified Professional Wetlands Scientist, maintaining the health of the marsh islands is critical to the well being of the wildlife and the 20 million people that live and work in this urban region.

"The benefits of the Jamaica Bay marsh island ecosystem vary depending on scale. From a smaller scale per-



Dredged sand being placed and graded on Elders West. Photo courtesy USACE, New York District.

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Wildlife returns to Jamaica Bay, New York
and so does Army Corps

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Area Map of Jamaica Bay

spective, the marsh islands are a home for a variety of wildlife, including fish and shellfish which are an important food source for birds and help improve water quality by removing things like nitrogen and phosphates,” said Alvarez.

She continued, “From a larger perspective, the marsh islands provide stability and water storage during storm

and flood events. The islands also act as filters or natural cleanser to the water as the plants capture and cycle different nutrients and particles out of the water. By restoring Elders Point, and other marsh islands, we may even protect the more interior islands and hopefully slow their erosion.”

“For the public, this means less erosion to personal property, more species available for recreational fisheries, better water quality, and preservation of the Gateway National Recreation Area that is visited by mil-

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lions of people each year.

“Bottom line- The marsh islands are an irreplaceable natural resource that provide so many benefits to the surrounding region.”

To restore these islands, the U.S. Army Corps of Engineers, New York District, has teamed up with partnering agencies, including The National Park Service, Natural Resource Conservation Service, New York City Department of Environmental Protection, Port Authority of New York & New Jersey, and the New York State Department of Environmental Conservation.

In 2006, the agencies restored East. To restore the island they pumped 250,000 yd³ of dredged sand on the island, shaped the sand to simulate the proper elevations of a marsh island, and hand planted native plant species that included saltmarsh cordgrass, salt hay, and spike grass that were grown from seed collected within Jamaica Bay.

The sand they placed on the island came from the Army Corps’ beneficial reuse program that takes dredged sand from the New York District’s New York Harbor Program and area waterways and uses it to rebuild habitats. In the past, this sand would have been dumped into the ocean, so this program is a win-win for the environment and taxpayers.

West will be restored in a similar manner, but with much improvement because the team is going to apply the important lessons they learned from East.



Melissa Alvarez examining a clump of plant material (root mass and stems) that had been pulled out by the geese or brant. Photo courtesy USACE, NYD.

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Wildlife returns to Jamaica Bay, New York and so does Army Corps *from pg. 37*

Last fall the team began work on West. Recently they pumped 240,000 yd³ of beneficially used dredged sand onto the island, which is primarily composed of mud, and graded the island to the appropriate elevations for a marsh.

One thing the team learned from East is that when sand is placed on the island, it will settle differently in various areas, based on the composition of the mud in these areas.

If there is more sand in a sand placement area of the island, the placed sand will settle less and visa versa. Because of this, different amounts of sand will be placed at different areas of the island to achieve proper planting elevations.

The team also learned from East that the side slopes of the placed sand needs to be more gradual in order to prevent movement and loss of sand. Steeper slopes resulted in continuous erosion.

To build up East, the team placed sand by hand around existing plants and placed the newly grown nursery plants in this new sand.

They learned that this was not good for a number of reasons. Besides being time consuming and expensive, the island was very muddy and the new sand was not thick enough for the newly grown nursery plants and existing plants to grow successfully. When they planted the new plants their roots grew deeper then the new sand layer - chocking the plant.

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On West, the team decided they were going to handle the planting differently.

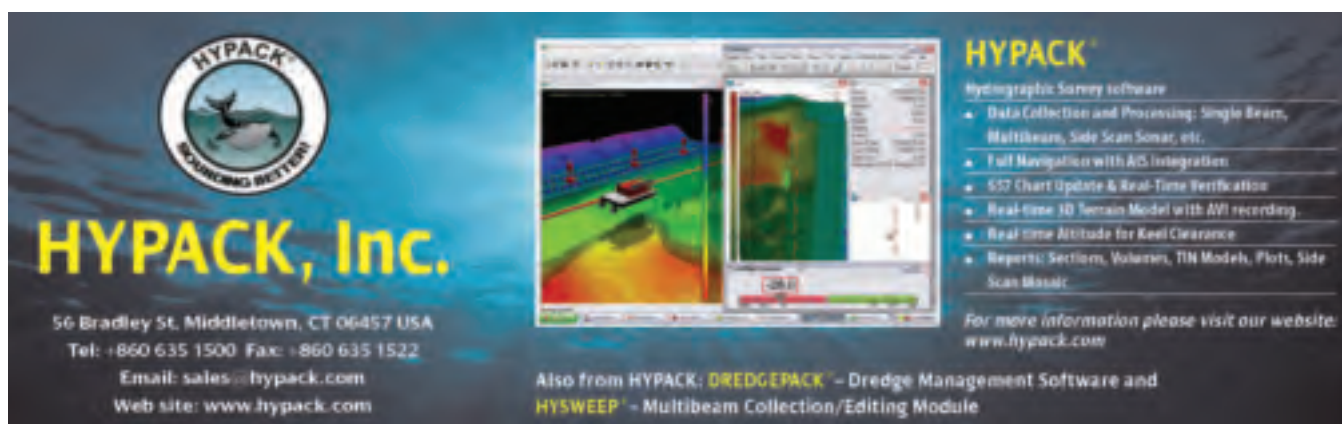
They are going to remove three acres of existing vegetation on the island, place enough fresh sand to ensure plant survival, than transplant these plants back into the fresh sand on the island's new, higher elevations.

At East, the team learned that relocating existing plants is just as effective as purchasing and planting vegetation grown in a nursery. They also learned that these transplants did better when they are removed from muddy, bay bottom and placed in clean sand.

On the higher elevations of the island, they're going to establish high marsh using plant vegetation that's been collected locally from surrounding islands within Jamaica Bay and grown at the Cape May Plant Materials Center, which is a part of the U.S. Department of Agriculture's Natural Resource Conservation Service.

On East, seeding was successful, so the concept will be expanded to a larger scale on West in the hopes of developing a large scale commercial method that can be replicated on future marsh island restorations. This method has the potential to save money and make marsh restoration more efficient.

On West, they are going to transplant more salt grass instead of seedlings and place the transplants further apart. This will save money because this will require fewer plants.



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The Diamondback Terrapins Alvarez found on Elders East. Photo courtesy USACE, NYD.



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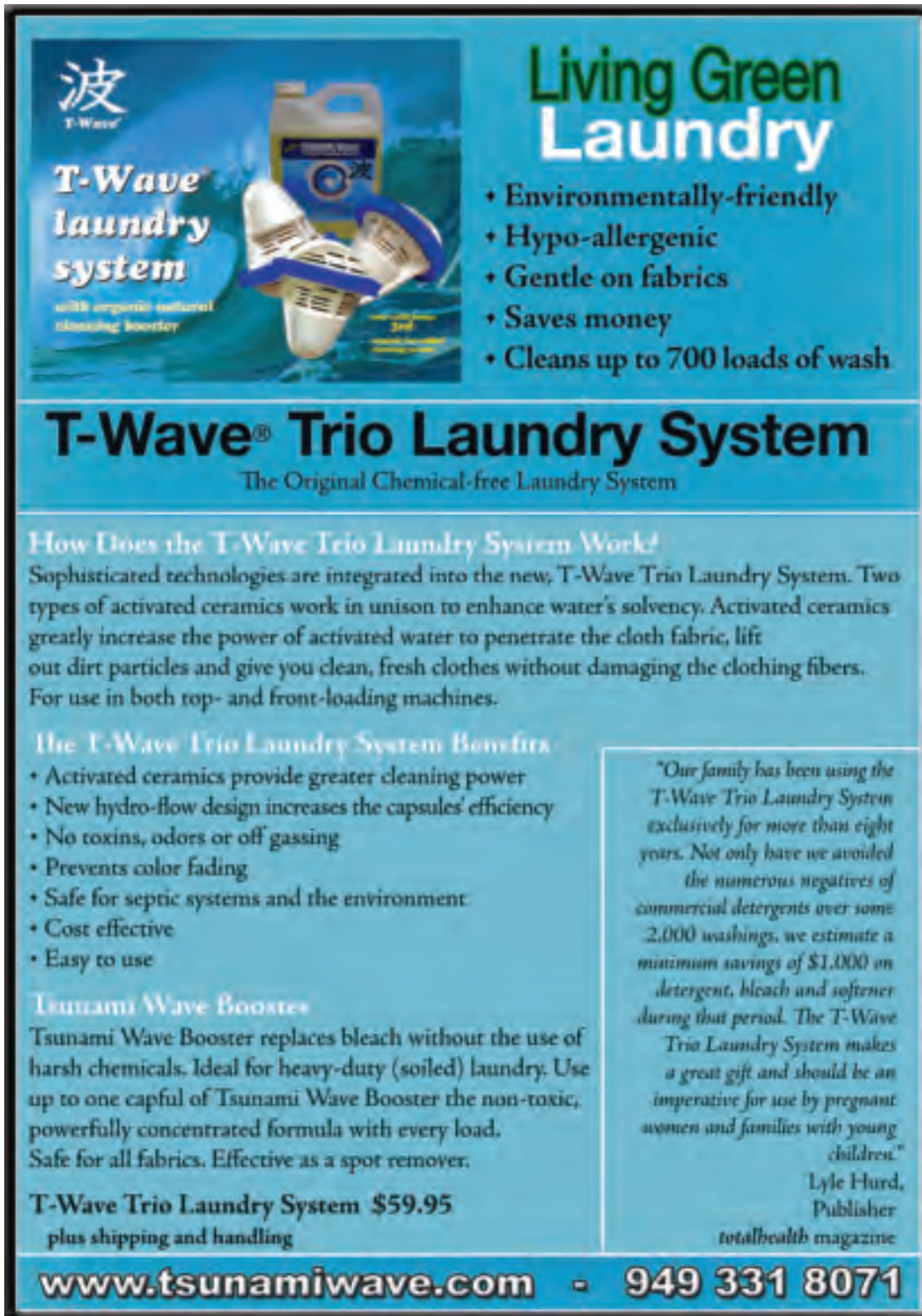
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Work on West will be completed by early summer.

Will the Army Corps and their partnering agencies return to Jamaica Bay again?



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Mark Lulka, project manager, U.S. Army Corps of Engineers, New York District, Harbor Branch believes restoration will continue, "As we obtain additional experience and funding, we hope to build a few other marsh islands as the years go by."

Marsh island restoration within Jamaica Bay advances the goals of the Hudson Raritan Estuary Comprehensive Restoration Plan. The primary goal of the plan is to develop a mosaic of habitats that provides maximum ecological and societal benefits to the region.

This plan was developed in partnership with the Army Corps' New York District and a diverse group of over sixty organizations and stakeholders.

To learn more about the Hudson Raritan Estuary Comprehensive Restoration Plan and the Elders Point Restoration projects, please visit www.TheWatersWeShare.org.

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