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# IHS Dredging and Port Construction

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# Dredging's a life preserver for **local business**

As the Newark Bay confined disposal facility finally closes after 15 years, USACE's JoAnne Castagna tells DPC how it helped keep New York & New Jersey's economy afloat

Illustration: Shutterstock/D Playford



Michael Falco



CDF was affordable – Caddell's Kalil

Michael Falco



Tug in Caddell drydock

Caddell Dry Dock & Repair Co

Summer is now a distant memory but boaters are still making their way in and out of the Robbins Reef Yacht Club in New Jersey's Newark Bay within the Port Authority of New York & New Jersey (PANY&NJ) region.

"We saw a significant increase in boating activity this summer and it's continuing this fall and this is because our members are able to access us with ease," said Jim Hickey, commodore of the Robbins Reef Yacht Club, which has been in existence for more than a century.

But this ease of access was not always the case, with natural mud build up in the bay severely restricting boating access and causing the business to suffer. Fortunately, the club was able to maintenance dredge its waterways and dispose of contaminated mud within the Newark Bay confined disposal facility (CDF) – an affordable and environmentally safe, man-made underground pit.

A CDF – also called a confined aquatic disposal site (CAD) – is designed and constructed to securely store contaminated dredged materials. A CDF can be built on land, along shorelines, and under water below the sea or river bed, depending on the region's land availability.

After 15 years of use the Newark Bay CDF

was closed in the summer of 2012 after it reached capacity. The site will be monitored by PANY&NJ for the next decade.

The Newark Bay facility's success demonstrates that CDFs can be an affordable and environmentally safe method for the marine support industry to dispose of contaminated dredged materials.

### Keeping businesses open

This is particularly important in the NY&NJ region because the port and marine support industry contributes approximately \$54Bn to the region's economy and is a source of thousands of jobs.

"If there wasn't a CDF it would be highly unlikely that a small club like ours would be able to afford other dredging disposal methods," said Hickey.

Steve Kalil, president of Caddell Dry Dock & Repair on Staten Island, New York, said his business, also in operation for over a century and located on the Kill van Kull channel, is in the same boat: "Without the CDF I might have had to close the business.

"If we hadn't had the CDF we would have had to truck contaminated mud away to be placed upland, which is very slow and expensive and also halts our drydock business for several days so we lose even more money. The CDF was affordable, close

by and easy to work with," Kalil stated.

The team of management involved with the creation and management of the CDF included PANY&NJ, the US Army Corps of Engineers (USACE) New York district, the New Jersey Department of Environmental Protection, the New Jersey Department of Transportation, and other organisations.

Helping PANY&NJ and the maritime support industry survive is of vital importance to the economy. The port is the third-largest in the United States and serves 35% of the nation's population.

In 2011 it provided 280,000 jobs in the New York & New Jersey region, nearly \$11.6Bn in personal income, \$37.1Bn in business income and almost \$5.2Bn in tax revenue, making it a critical economic engine for the region.

To keep this engine running smoothly the port requires large amounts of maintenance dredging to remove naturally accumulating material that flows down the rivers, settles in the berths and channels and can block ship access.

Dredged material has always been placed in the ocean but, since the late 20th century, stricter environmental laws limit what material can be placed there.

Approximately 25% of all dredged material isn't suitable for ocean placement because it's



GLDD's trailer *Terrapin Island* dredging sand to cap CDF

Linda Quentner



Pump barge at the CDF site, and...

Linda Quentner



...her captain, Anthony Stewart

Linda Quentner



Seebode – future possibilities

Solutions – Creamer

contaminated. Much of the contamination in the NY&NJ region today comes from the decades prior to the strict pollution laws. With these more stringent environmental laws, agencies and authorities have worked together to find innovative solutions to deal with contaminated dredged material.

### Creating the CDF

In the 1990s the region was witnessing a maintenance dredging crisis and the Clinton administration initiated an aggressive plan to re-establish the maritime economy that included dredging to deepen the port to 50ft (15.2m) and thus provide access for the next generation of container ships.

Deepening the port involved dealing with a great deal of dredged material, some of which would have been contaminated. So in 1997 PANY&NJ came up with the idea of creating the Newark Bay CDF to contain the contaminated material.

“A CDF was a good option because it would be near the port activity and because CDFs have been shown to be successful throughout the nation and the world,” said Christopher Mallery, USACE New York district’s chief of the western section of the regulatory branch, which performed an extensive review of PANY&NJ’s plan and provided it with a permit to perform the work.

It was originally believed that the CDF would be full within five years, but the agencies continued to collaborate after it was created and found additional methods to deal with contaminated dredged materials. As a result, less mud needed to be placed in the CDF, extending its life to more than a decade.

The agencies also started to see dredged materials as less of a burden and more of an asset: beneficial reuse included using some to remediate upland brownfields and landfills. At the same time, the CDF continued to provide a valuable safety net for those materials that were too

contaminated to be reused beneficially.

When it became full in summer 2012 “the CDF was closed by capping it securely with several feet of sand that was sprayed on top of the pit opening. The bay is naturally filled with clay sediment that’ll also help secure the pit and prevent any leakage of mud,” said Mallery, who was instrumental in working with the team on the closing process.

USACE New York district’s deputy engineer Joseph Seebode was the district’s regulatory chief when the CDF received its permit. He noted: “The successful closing of this CDF opens up possibilities for the port’s future. The CDF proved to be an innovative, economically efficient and safe way to store contaminated dredged material in one of the largest metropolitan regions in the country.”

An added benefit is that the port’s water quality has improved over the years and still continues to do so. “Our dredging not only provides navigation benefits, but we are also removing sources of contamination, which is improving the overall quality of the estuary,” Seebode noted.

Steven Schumach, regulatory project manager of USACE New York district, concurred, saying: “Newark Bay CDF has contaminated mud from 47 projects, keeping pollution out of our estuary.”

### What next?

The future removal of long term contamination from several highly polluted areas of the port, including the Lower Passaic River, Newtown Creek and Gowanus Canal, is expected. Commander of New York district at the time of the CDF’s closing, the now retired Colonel John Boulé, said: “Removing this contaminated mud would have a tremendous positive impact on the ecology of the estuary and CDFs should be considered as an option for containing this material.”

John Tavolaro, deputy chief of USACE New

York district’s operations division, was involved with the Newark Bay CDF since its inception: “As we look into dredged material management in the future, we have to consider the maritime support industries,” he said. “The port is not just about the big terminals, there are also the support industries that provide a place for tug boats, ferries, recreation and for marinas to co-exist. For a full service harbour you need all of these things.

“The port authorities and army corps of the world can afford to do what needs to be done to dredge, but some ‘mom and pop’ marinas, shipyards, boat yards, and drydock companies can’t,” Tavolaro stated.

Seebode noted: “Coming up with affordable and environmentally safe solutions will be critical. In the future we’re going to have to deal with a significant amount of dredged material. Trade in the port is expected to increase in the coming decades and the port will have to be maintained to safely receive larger vessels.”

### Finally...

Thomas Creamer, USACE New York district’s chief of the operations division, said: “One thing we continue to do successfully is work as a team of agencies to come up with solutions. Working on dredged material management solutions over the past 30 years has strengthened the partnership between the agencies and stakeholders. Because of this collaboration, the waterways for these maritime businesses have been dredged to be safe and to facilitate the local economy.”

Seebode agreed, concluding: “My hope is that the next generation will work for synergistic solutions that are close to the port, will allow us to maintain the quality of the port and keep costs down.

“It requires some risk taking and innovative thinking, but the CDF was one of those options where the risk was demonstrated to be fully worth it.” **DPC**

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