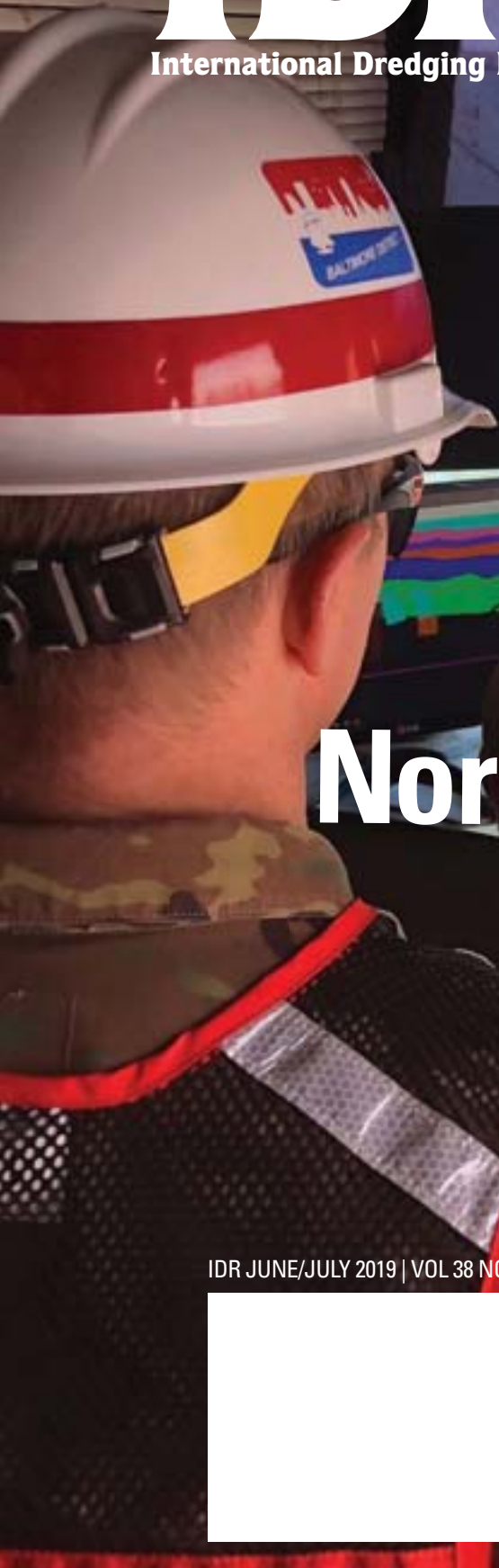




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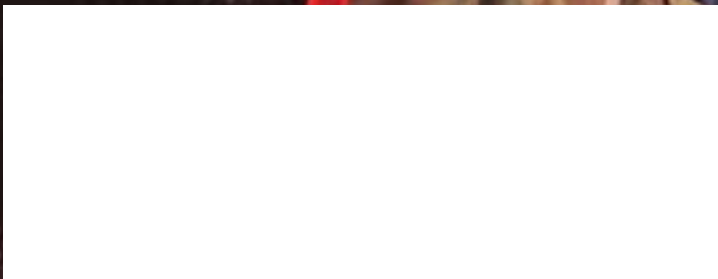
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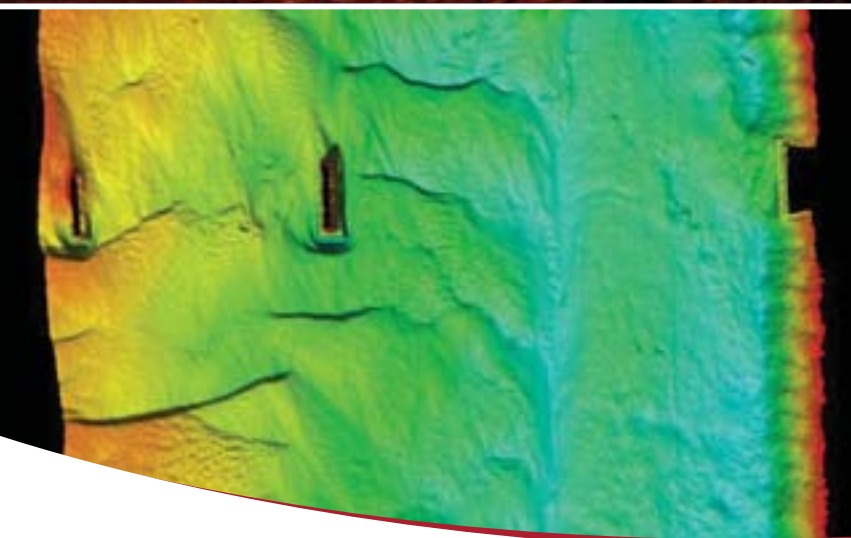
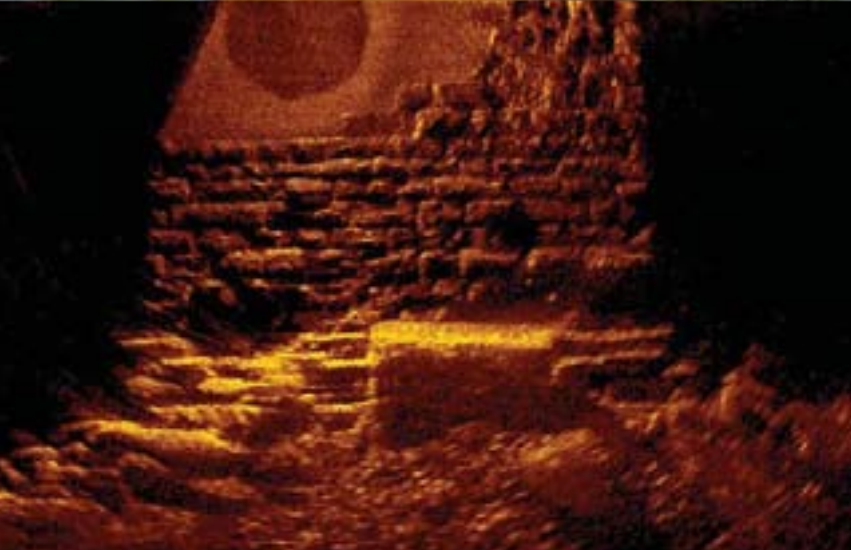
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**Jekyll Creek Beneficial
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**Hudson River
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Big Bend Channel Deepening



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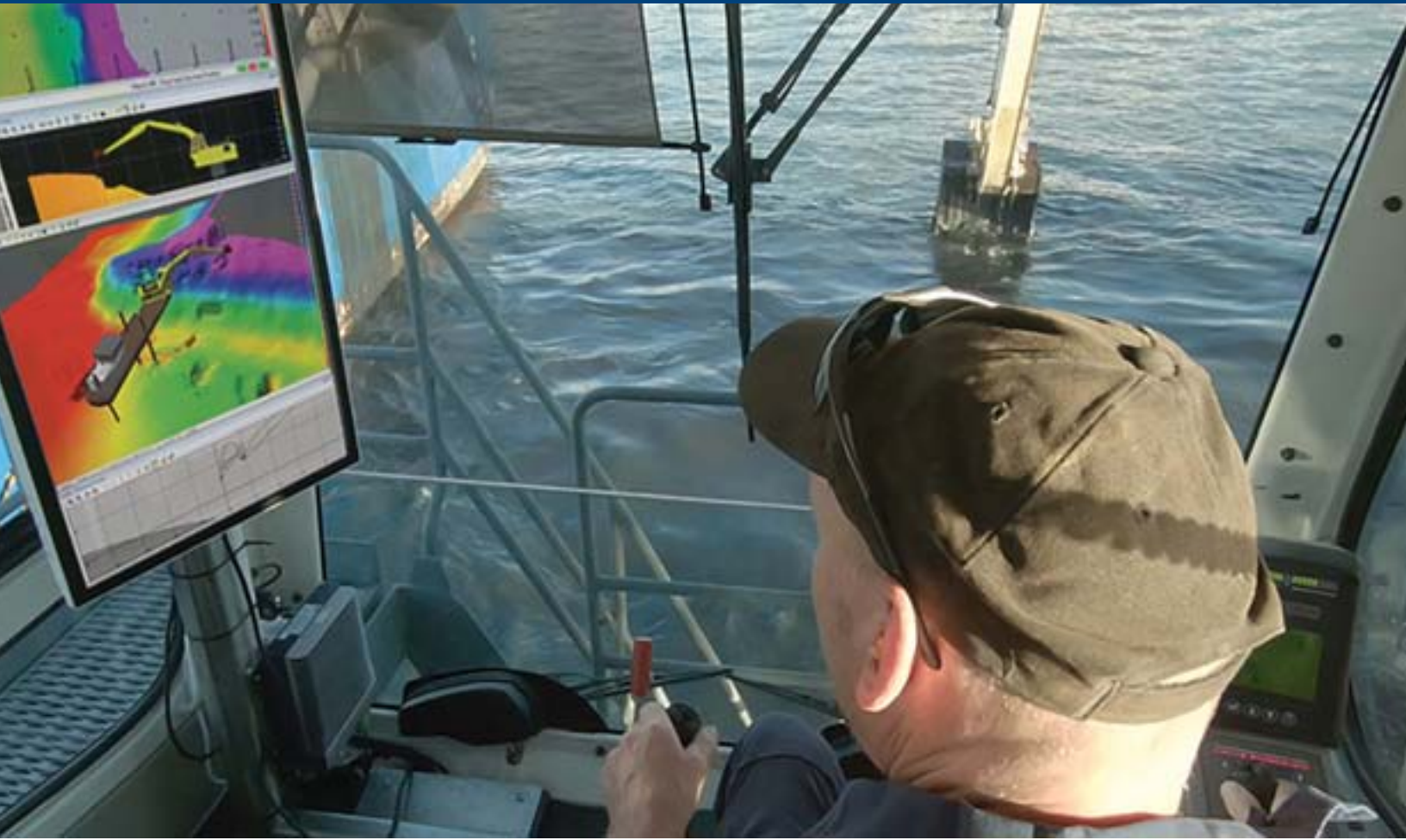
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On The Cover



U.S. Army Corps of Engineers Baltimore District Deputy Commander Lt. Col. Geoffrey Kuhlman looks on aboard a Norfolk Dredging Company dredge, as a load of material is pulled from the bottom of Curtis Bay Channel in Baltimore Harbor on March 19. The Corps contracted with the company for maintenance dredging of the channels associated with the Baltimore Harbor. Curtis Bay Channel was one of six dredged, during which crews removed nearly 2.6 million cubic yards of material from channels. (Photo Credit: Chris Gardner, U.S. Army Corps of Engineer Baltimore District)

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The Cost of Doing Nothing: T&I Committee Pushes Ahead with HMTF Reforms

The new Democratic leadership in the House has refocused infrastructure and funding discussions on the Harbor Maintenance Trust Fund (HMTF). On April 30, Chair of the House Committee on Transportation and Infrastructure (T&I) Peter DeFazio (D-OR), Committee Ranking Member Sam Graves (R-MO), Chair of the Subcommittee on Water Resources and Environment Grace F. Napolitano (D-CA), Subcommittee Ranking Member Bruce Westerman (R-AR), and Congressman Mike Kelly (R-PA) introduced the Full Utilization of the Harbor Maintenance Fund Act, to use the billions in already collected fees for ports and harbors as it was intended. The U.S. Treasury has approximately \$9.3 billion in already collected revenues, and the bill would ultimately unlock \$34 billion over the next decade for federal projects.

An executive summary of the bill explains: "This bipartisan bill ensures the Harbor Maintenance Trust Fund is used for its intended purpose—maintaining our federally authorized harbors. By providing a discretionary cap adjustment for full utilization of the Harbor Maintenance

Trust Fund for authorized harbor maintenance needs."

In 2016, the Corps estimated its dredging backlog at \$20.5 billion, and the crafters of this bill estimate the Corps' need is actually much higher. That estimate includes additional expenses related to navigation work, such as the construction of dredge material placement facilities, but it does not include other work identified by ports as needed to maintain or expand harbors, such as jetty and breakwater work.

The T&I committee also held a hearing that same day: "The Cost of Doing Nothing: Why Full Utilization of the Harbor Maintenance Trust Fund and Investment in our Nation's Waterways Matter." The hearing included testimony and questions from the bill's supporters, and those called before Congress, including Eugene Serocha, executive director of Port of Los Angeles, and Rick Goche, commissioner, Port of Bandon, Oregon, associations for the commercial fishing industry and corn farmers, and representatives from the Waterways Council Inc. and the Upper Mississippi River Basin Association. Phyllis Harden of Pine Bluff Sand and Gravel Co. from Pine Bluff, Arkansas, represented businesses

along the inland waterways, specifically the McClellan-Kerr Arkansas River Navigation System (MKARNS), where the company moves its product – primarily crushed stone and riprap delivered by barge on the Mississippi River and its tributaries. The company also does marine construction and transportation, commercial sand dredging, and ready-mix concrete and hot mix asphalt.

"Pine Bluff Sand and Gravel has been in business for over a century in part because of opportunities the nation's inland waterway transportation system provides," Harden said in her opening testimony. For transporting its bulk commodities and aggregates, she said the inland waterways are the most economical and environmentally friendly.

She praised the committee for its work in America's Water Infrastructure Act of 2018, and for navigation improvements at the Three Rivers Project, where the White and Arkansas Rivers meet the Mississippi River; changes to the Inland Waterways Trust Fund to increase the diesel fuel tax; and changes in the Water Resources Reform and

Continued on page 23



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Beneficial Use Pilot Project Underway for Jekyll Creek

BY WENDY LARIMER

Cottrell Contracting began dredging Jekyll Creek in Georgia on April 15 under a \$12,740,080 contract from the U.S. Army Corps of Engineers Savannah District. The contract, awarded January 23, includes both a beneficial use pilot project in Jekyll Creek and the regular maintenance dredging of other sites along the Atlantic Intracoastal Waterway (AIWW).

Cottrell, based in Chesapeake, Virginia, has deployed its 18-inch, 4,200 hp cutter suction dredge *Rockbridge* for the entire project. Three tender boats, two crane barges, survey boats and a booster pump are also on-site.

Devon Carlock, vice president of safety and government relations for Cottrell Contracting, said that the project also requires a total pipeline length of 35,000 feet because material is being discharged into very deep water. Staging, which included laying the pipe and coir logs began at the end of March.

The entire maintenance dredging project is removing approximately 900,000 cubic yards of material, with 220,000 cubic yards coming from Jekyll Creek.

The dredging and material placement for Jekyll Creek is part of a pilot project to develop

economically efficient and environmentally acceptable methods to manage the dredged material. Jekyll Creek is the shallowest point in the 160 miles of Georgia's portion of the AIWW and has not been dredged since 1998. The sediment in the creek is fine-grain with low sand content, known as "pluff mud," which has posed a disposal challenge and prohibited any dredging.

"There were no upland facilities that would hold the volume of material. The onshore and offshore containment facilities were not large enough nor could we afford to transport the materials the needed distance. The closest offshore site is about seven miles away," Georgia Federal Consistency Coordinator for Coastal Resources Division of the Department of Environmental Resources Kelie Moore said.

PROJECT PLANNING

In designing this pilot strategy, the Corps' Jacksonville and Savannah districts worked with the Corps' Regional Sediment Management Center of Expertise, as well as other federal, state and nonprofit agencies to come up with a plan. The research (and this project) was funded entirely by the Corps, which worked with state partners to come up with monitoring protocol, and placement sites.



Coconut coir logs are placed around the wetland disposal area to keep the material from running off into adjacent waterways and marsh. The coconut coir logs for this project required the use of a biodegradable netting instead of plastic to ensure the coirs completely degraded.



Material dredged from Jekyll Creek is being rainbowed onto this wetland area to raise the elevation of the land while maintaining marsh grass growth.



Dredging of Jekyll Creek is part of a pilot program where material will be sent via pipe to both a deep hole in the channel and onto nearby wetlands.

Planning began in 2016 with a visit to the site by the Corps' South Atlantic Division commander. In subsequent months, the Corps held stakeholder meetings and public hearings while coordinating with the state Coastal Resource Division and Jekyll Island Authority (JIA). Other agencies brought in for assistance included The Nature Conservancy, the National Oceanographic and Atmospheric Administration, the U.S. Fish and Wildlife Service and the U.S. Environmental Protection Agency.

In 2017, the Coastal Resource Division conducted side-scan sonar and water quality surveys of the deep hole site and followed with additional surveys of the potential upland material placement sites that included collecting imagery and elevation data.

"We gathered background data to help the Corps come up with parameters on the placement of material and to help with their engineering. We used a tow behind side scan to get depth measurements, and we did a two-year study to measure the biological parameters like marsh grass stem density and height, and micro benthos, like mussels, density and habitat distribution," Moore said.

Following the research, two placement options were chosen for the pilot program—in-water placement in the "Deep Hole" and upland spraying of material on marshland. Work on Jekyll Creek includes removing approximately 200,000 cubic yards of sediment from the eastern 75 feet of the channel bringing the channel to a depth of 10 feet.

"The removed material is being placed at two locations using methods that have never been used in Georgia to help keep sediment in the coastal system and maintain the health of adjacent marshlands. The goal of the pilot project is to explore whether these techniques can be used in the future to build coastal resiliency in the state," Moore said.

DEEP HOLE PLACEMENT

The first sediment-placement location is north of Jekyll Creek in the St. Simons Sound. This location is known as the "Deep Hole," since at 60 to 80 feet deep it is naturally deeper than surrounding areas in the sound that are dredged to just 38 feet deep. About 97 percent of the dredged sediment is being placed in the Deep Hole, where tides naturally spread materials. This sediment is being deposited by pipe near the bottom of the Deep Hole, about five feet from the sea floor. Tracers are being placed on the river bottom with the dredged materials, so scientists with Jacksonville, Florida-based LG2 Environmental Solutions can monitor the movement of the placed sediment for up to two years.



Cottrell Contracting had to minimize the use of heavy equipment as they laid pipe in the wetland disposal area.

Cottrell has previously placed materials in deep channels along the James River in Virginia, but the hole for this project is deeper and more challenging since it sits in open water instead of in a protected river. Weather is a bigger factor as is safety.

"We're working near the center of the inlet, so our main concern is safety of the crew. We're monitoring the barges that run through here constantly, mostly car carriers heading into Brunswick. We want to make sure they see us and we see them," Carlock said.

The remaining dredged sediment is being placed on nearby marsh using a spray technique called "rainbowing." Cottrell is using a small dredge pump equipped with a special nozzle to spray the material in an arc, so that it leaves a thin layer over five acres of marsh. About 5,000 cubic yards of sediment is scheduled to be pumped onto the marsh north of the Jekyll Island Airport. This area of marsh has a lower elevation, which makes it susceptible to saltwater inundation as sea level rises. The goal of spraying dredged sediment into this area is to raise the elevation one to two inches in some places and up to one foot in others, allowing new marsh grass to grow atop it at higher elevations.

"We're learning that the more you traverse on the material on the marsh the deeper it gets so we're trying to minimize the impact on the marsh itself by not using heavy equipment but still filling the site effectively. We pump for a set amount of time, stop, let the material settle in place and then start back up," Carlock said.

Carlock also said the work has to be done at low tide otherwise the water can come in higher than the coir logs. This placement is unique for Cottrell, which has not used coir logs before.

SEDIMENT CONTAINMENT

Coconut-fiber containment logs or coir logs were put in place by Nichols Construction Inc. from Hortense, Georgia, to prevent the material from running into the waterway. According to

Moore, these coconut coir logs are 100 percent biodegradable as was required by the Corps. The densely packed coconut fibers are covered in a biodegradable natural fiber netting instead of the usual plastic netting. The logs will degrade in place within about a year.

Another 5-acre location to the north is acting as a control area for the project. Scientists from Georgia Southern University and the University of South Carolina will monitor the placement and control areas for a two-year period to see how long it takes for the marsh grass to regenerate and how it performs in the future in the higher elevation.

“They will be monitoring vegetation to see how quickly the marsh recovers. They have done many similar investigations and studies, not with the Corps, but for marsh health monitoring in general. We hope to be able to use this method for coastal resiliency and sea level rise as something that could augment other low-lying coastal areas,” Moore said.

JIA and The Nature Conservancy purchased an elevated monitoring camera system to provide imagery of the project to the public as it progresses.

Once work is completed on the Jekyll Creek portion, the *Rockbridge* and associated

equipment will be moved further down the AIWW for regular maintenance dredging at Fields Cut, Hell’s Gate and Buttermilk Sound areas in both Georgia and South Carolina.

Material from Field’s Cut will be placed in Jones Oysterbed Disposal Area adjacent to the channel. The Hell’s Gate material will be placed on Tract 15 and material from Buttermilk sound will be placed in Tract 42 B or Tract 43. The areas will be dredged to -12 feet MLLW with a 2-foot allowable overdepth and up to one vertical on three horizontal side slopes. Dredging of these areas is expected to be completed in September. ↩

Dredge Yard Delivers Ball Joints for Capital Project in the Middle East

BY ANNA TOWNSHEND

In early 2019, Dredge Yard, based in The Netherlands, delivered a second batch of 50 heavy-duty dredge ball joints to a customer in the Middle East. Dredge Yard delivered the first group of ball joints in late 2018, for a capital dredging project already in operation in the Gulf region. The ball joints are joining pipeline that covers about 1.5 kilometers (about 0.93 miles).

Dredge ball joints are used as a flexible connection or coupling between steel pipelines.

“Steel pipelines need flexible connections for two reasons. First, it is a floating pipeline, which is exposed to many natural forces, such as waves, currents, wind, etc. Therefore, it must be flexible in order to endure the movement and natural forces under different operation conditions,” said Michel Debo, Dredge Yard operations manager. Secondly, cutter suction dredges that use pipelines must swing in all different directions, and the pipeline must mimic the same flexibility.

Ball joints also function during dredging operations as easy coupling and decoupling connection points in the pipeline, allowing the contractor to shorten or lengthen the pipeline as need, as the operation moves closer and farther from the discharge area.

The ball, which is placed inside the dredge ball joint casing, is what gives the pipeline its flexibility and allows it to tilt in all directions.

A dredge ball joint is made of many different parts – the case, ball, gland, liner and seal. Each part is manufactured individually and joined together. The liner and rubber seal are mounted on the case. Then, the ball is placed in position and locked using a gland (locking ring). View an animation of this process here: <https://youtu.be/6Zl4beHi8iA?t=101>.

Debo said the case and ball are made of carbon steel, providing high elongation and impact value. The gland is made of chromium, nickel and a molybdenum alloy, providing high tensile, high yield and high hardness value. The liner is made of ductile manganese iron or hard chromium iron for wear resistant properties. The seal is an NBR 70.

“The production of ball joints begins by creating patterns made of aluminum or hard wood,



Dredge Yard delivered 50 dredge ball joints for ongoing dredging work in the Middle East.

in order to ensure that all parts cast are identical and interchangeable,” Debo said. After casting, the components are heat treated to International Organization for Standardization (ISO) and American Society for Testing and Materials (ASTM) standards.

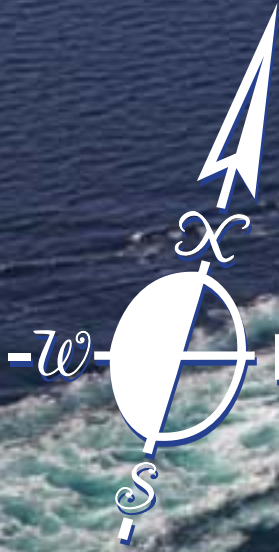
He said the heat treatment achieves the mechanical properties required for international standardization. “More specifically, heat treatment changes the properties of the material (for example, making it harder, more durable), until it reaches the standard international requirements. This ensures ball joint durability and quality,” Debo said.

Each dredge ball joint is cast in the required shape with extra machining allowance. A high accuracy vertical CNC machine is used to shape each component. “The CNC machine is necessary to provide accuracy, ensuring that each part is identical and interchangeable,” Debo said. This process will also smooth the surface of each component for low friction operation.

It took about three months to machine 50 dredge ball joints. Dredge Yard manufactures the part at its manufacturing facility in collaboration with its partners in the Republic of Turkey.

Dredge Yard and some third-party operations then perform a number of quality control tests. The chemical composition and mechanical properties tests are performed by a third party. Dredge Yard also performs measurement tests of all dimensions after casting and after machining. It runs a hardness test and assembly test for all parts.

Additional testing includes ultra-sonic testing for 20 percent of all surfaces, magnetic particle tests and dye penetrant inspections, which are used to make sure that the casing material meets quality standards. A surface roughness test ensures that the surface is smooth enough to allow optimal flexibility in the pipeline. A locking fix and release test on multiple joints inspects the functionality of the locking ring (gland) by locking and unlocking it.



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Dredge ball joints are used as a flexible connection or coupling between steel pipelines.

Before delivery, the ball joints underwent a number of tests, including a dynamic test to mimic the movements of a dredging operation.

In addition to quality control tests, static and dynamic tests look at the ball joints under standard operational conditions. A static test will pressure the joint to 30 bar, the required operational pressure. The dynamic test involves applying movement to the joint (simulating the movement during dredging operations), while the joint is pressurized.

The ball joints for this project are suitable for a continuous pressure of at least 30 bar, and Debo said the standard range for a ball joint is 10 to 30 bar. The ball joints have been designed using FEM (fine element metal) analysis, which uses computer software to model how the product reacts to different physical effects/forces, such as heat, pressure, vibrations and motion, to simulate how the ball joint would perform under different conditions.

In the field, two parts of the ball joint are welded to the steel pipeline. Thick heavy welds

ensure the system can withstand the needed pressure.

While the standard range for ball joints is 10 to 30 bar, Dredge Yard is currently working on a new project for the delivery of high pressure joints, suitable for up to 50 bar.

Dredge Yard produces ball joints and other dredge components, such as dredge pumps, valves, pipes, auger heads and cutter heads. Dredge Yard also manufactures small to medium-sized dredges – plain suction, water injection, auger and cutter suction dredges. ↩

WEDA-TechNotes Program Suggested to Provide Industry with Detailed Information on Dredging Topics

BY JUDITH POWERS

The Western Dredging Association (WEDA) Environmental Commission Chair Craig Vogt will present his idea for a WEDA-TechNotes program at the Environmental Commission meeting on Tuesday, June 4 at the WEDA 2019 Dredging Summit and Expo in Chicago. The proposed plan will facilitate the position of WEDA as the center of excellence in technical knowledge regarding dredging, dredged material management, and marine construction by producing technical notes on topics of interest to the dredging industry, and making them available as PDFs on the organization's website.

The TechNotes would be two to four-page summaries of technical information on dredging technologies, engineering aspects of navigation and environmental dredging, dredged material management, and environmental and safety issues on dredging, navigation, marine engineering and construction projects.

The information in each WEDA-TechNote would interest those in the dredging, navigation, marine engineering and construction community, i.e., dredging contractors, equipment manufacturers, consultants, academics, students, regulators, the public, media and other stakeholders. Each TechNote would be drafted by one or two WEDA members and be peer-reviewed by two other WEDA members that are selected by the chair of the WEDA Environmental

Commission, the WEDA Safety Commission or other WEDA commissions or committees. The WEDA Board of Directors, or their designee, would conduct the final review before placing the final TechNote on the WEDA website.

The WEDA Environmental Commission would initiate development of WEDA-TechNotes related to environmental concerns and issues, the Safety Commission would steward safety issues and concerns, and topics in Dredging 101 would serve as the basis for developing the first WEDA-TechNotes.

Initial plans for the TechNotes call for a summary of information and not in-depth engineering and technical reviews of information. Key references will be cited for more comprehensive and detailed information.

Depending upon the subject and who is preparing the WEDA-TechNote, the ideal timeframe from initiation to posting on the website is four to six months. The program will be introduced and initiated during the Environmental Commission meeting in Chicago. At that meeting, the Environmental Commission will seek volunteers to prepare WEDA-TechNotes on the following topics:

- What is Dredging-Types and Characteristics of Dredging Projects
- Benefits of Dredging
- What are Dredges: Hopper Dredges, Pipeline Dredges, Mechanical Dredges
- Dredged Material Disposal and

Management (open water, CDFs, CADs, Upland)

- Beneficial Use of Dredged Material
- Regulatory Roles of Federal and State Agencies in Dredging
- Navigation Dredging: Regulatory Overview
- Dredged Material Characterization and Testing
- Permit Terms and Conditions in Dredging
- Environmental Issues Associated with Dredging
- Environmental Monitoring of Dredging
- Mitigation and Dredging
- Engineering with Nature

The plan is to prepare and post the first notes by the end of 2019, with a long-term schedule including the production or revision of four to six WEDA-TechNotes (from the Environmental Commission) every calendar year. Regular review of previous publications would be incorporated into the overall schedule. When WEDA-TechNotes are placed on the website, members will be notified.

Vogt referenced the International Association of Dredging Companies (IADC) Facts About series, and the U.S. Army Corps of Engineers TechNotes as templates for the WEDA program. Websites for these programs are:

IADC: <https://www.iadc-dredging.com/84/dredging/facts-about/>

USACE: <http://www.wbdg.org/ffc/army-coe/technotes>. ↩

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Corps Tests Mini-Robotic Submersible Dredge for Future Military Operations and Precision Projects

BY WENDY LARIMER

Earlier this year, the U.S. Army Corps of Engineers Engineer Research and Development Center (ERDC) took delivery of a new mini-robotic submersible dredge (MRSD) built by EDDY Pump. The dredge was a collaborative effort between ERDC and Eddy Pump. ERDC and Eddy started with Eddy's initial design and worked together to re-engineer and design it to the military specifications needed for this project.

ERDC is conducting tests on the Subdredge at its Vicksburg, Mississippi, facility. The tests will run through this year, to ensure the MRSD meets the needs for the Corps.

Thad C. Pratt, research physicist at ERDC with the Field Data Collection and Analysis branch of the coastal and hydraulics laboratory, said the Corps had reviewed Eddy Pump's products in-depth and then fabricated something that would better meet the needs of the Corps.

Funding for the prototype and testing came from the U.S. Transportation Command under the Department of Defense, which had a logistical need for a dredge that could work near wharfs, channels and beachheads for moving material to where they needed to go. For the Corps, the dredge's ease of transport to remote locations is crucial for many of its missions both military and disaster recovery.

"The Army may want to land on a beach to unload humanitarian aid, or military supplies, but usually there is an offshore berm about 100 yards off that's shallow and waves break on it so they can't get boats past it. This dredge could be deployed off the beach or from landing craft to dredge a deeper channel to shore to allow boats to get to shore to unload," Pratt said.

He further explained that the value of this 6-inch model the Corps is testing is that it can easily be packed in just four boxes and sent anywhere in the world.

Pratt said that often smaller foreign ports don't have ambitious dredging programs and sections of channels have shoaled in due to wave action. The MRSD could be deployed to dredge the section needed, instead of undergoing a full channel dredging project, which is time consuming and costly.

Pratt said the company has various style pumps. It has 12- and 16-inch that produce higher production rates. "We chose the 6-inch because we wanted to be able to pack and fly anywhere. It is easy to transport and has low mobilization costs," he said.

The MRSD can pump material 1,200 feet from the dredge without the use of a secondary booster pump. It has a 300-foot umbilical cord that connects to the hydraulic pump unit (HPU). The rear part of the unit is the HPU that delivers pressurized hydraulic fluid to drive the pump and the tracks, while the front part is the dredge that sits on the tracks. It has an



The MRSD came equipped with a cutterhead (shown here) but the Corps has been testing the unit with different types of heads to further expand how the dredge can be used.

8-inch intake line and a 6-inch discharge, making it capable of passing nearly a 6-inch object through the dredge. It can pump 200 cubic yards per hour.

A RTK GPS on a surface float and IMU (inertial measurement unit) on the dredge tell the operator where the dredge is and how it is moving in relation to the seafloor. All underwater video and acoustic cameras provide real-time operational and performance monitoring and send data to the mobile control room via Wi-Fi linked to the topside HPU. An operator can be more than a mile away when driving the dredge, using a small joystick control module to adjust speeds and rates. Control and monitoring software are from HYPACK's DredgePack®.

The Corps model was made with many sensors for different levels of operation said Dan Wahlgren, chief engineer at Eddy Pump. On-board sensors measure hydraulic pressure, tank line pressure and hull water intrusion with topside and visual alarms. Sensors for vessel orientation that have a magnetic heading work in coordination with GPS and sonar to allow the unit to operate in blind conditions.

Wahlgren said the unit took about a year to build with most of that time waiting for parts to arrive.

He continued that the Corps wanted the system to be wireless, easy to use with minimal training required, and modular so the unit could be used for multiple purposes. Wahlgren said the MRSD was made as a platform that can continue to evolve as new needs arrive.

"This is actually the third unit we've made.

We conducted testing in-house on the first two. We tested in canals and near dams that get heavy silt. The dredge could easily be used next to dams without having to drain the water and because it's autonomous it solved the problem in areas next to dams where people were not allowed," Wahlgren said.

Operation of the MRSD takes about two people – one controller and one tender for the pipe and miscellaneous support functions.

CIVIL USE

Outside of the military's immediate need for easing the transportation of supplies, the dredge will have multiple civil capabilities that will benefit the Corps dredging programs.

"It lends itself well to dredging along a port facility or a wharf. When cutting along by a wharf you want to be precise to not cut into wharf structure. Our MRSD has high resolution sonar, letting you see in black water what you're dredging so you can do surgical removal of material without damaging infrastructure you're trying to preserve. The real merit is in getting in where a regular dredge can't," Pratt said.

He said that larger vessels have suction engines that bring cooling waters up into the system, but they need clearance over the bottom of the waterway so they are not sucking up mud. The MRSD doesn't have this and so it can ride right along a dock structure to clean up materials without risking clogging the intake for the engine.

With the ability to pump material long distances, the MRSD is also capable of sending

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The Corps has been taking the MRSD to several locations to test both launch and dredge capabilities.

sand ashore for beach nourishments, for use in roadbeds or to fill geo tubes.

TESTING THE MRSD

Testing of the Subdredge is underway with tentative completion next fall. ERDC is asking for changes and improvements based on the various tests it is completing, as well as from feedback from different Corps divisions on what type of work the MRSD will perform.

ERDC is testing maneuverability and the

dredges ability to deploy across soft ground to get to a waterway or launching it off a landing vessel and directly onto sea floor.

“The unit could load easily into containers for shipping,” Wahlgren said. However, ERDC noticed when driving the unit with the dredge towed like a trailer, the power unit didn’t move well because it was on tires instead of tracks. “They wanted tracks and we are able to do that,” he said.

Eddy Pump delivered the dredge with a

cutterhead, which pumps silt, clay and coral, but ERDC is exploring other options, since the MRSD allows for interchangeable heads, such as a water jet. The modular pump/head can be adapted to different platforms, such as an excavator, crane or cable.

“It has some kinks. We built new heads for it, so it can work inside a lock chamber or inside concrete to suck out mud and blow it away without damaging the structure,” Pratt said.

A unique feature for the Eddy Pump unit is that it comes with a self-cleaning rotating head that has a stationary rake on top that scrapes off debris or sticky clays, things that might foul a traditional head with every rotation.

Testing is also being done to gauge the pump and production rates and sensing capabilities. At this writing, testing was being done in a sump with fine grain sand. Later, the MRSD will be taken to some of the Corps managed reservoirs to pump fine grain silt and clay and determine potential production rates. According to Pratt, ERDC might also try to deploy it from a vessel in a confined space, something that would be challenging with traditional dredging technology.

Wahlgren said a commercial version of the MRSD or Subdredge will soon be available for purchase or rental. He sees it having many uses in industries such as mining, wastewater, dredging, and various others. One of the large applications will be usage in cities and towns needing to dredge near wharves or bulkheads, users who may need to dredge under bridges or large ships, or even for small harbors that may want to dredge marinas without having to move the boats. ↗

EPA Releases Second Report on Hudson River Superfund Project

BY ANNA TOWNSHEND

On April 11, EPA released its second five-year review report for the Hudson River PCBs Superfund Site. The report looked to determine if the remedy was successful, as outlined by the 2002 Record of Decision (ROD). For now, EPA will defer its final determination about the protectiveness of the remedy until it can review more years of fish tissue data.

EPA completed its first five-year review in 2012, while dredging was still ongoing. EPA released a draft of the second report in June 2017 for public comment. The latest April report is the culmination of additional research, including an in-depth review of more sediment samples. In January 2018, the New York State Department of Environmental Conservation (NYSDEC) provided a number of samples collected during 2017, and EPA spent the next year reviewing and compiling the new data.

In a separate action, along with the latest review report, EPA issued a Certification of Completion of the Remedial Action for General Electric (GE). This is the second of three certificates needed to complete GE’s part in the project. The first certification came for phase one of

the project in 2012. This second certifies that the work, as it was originally defined by the ROD, has been completed, and does not release GE from liability. EPA Director of the Office of Regional Counsel, Eric Schaaf said of the third and final certification for completion of the remedial action, “that’s not even on the table for decades.”

Over three decades ending in the 1970s, GE discharged an estimated 1.3 million pounds of PCBs into the Hudson River from two factory sites in Fort Edward and Hudson Falls, about 40 miles south of Albany. In 1984, EPA added about 200 miles of the Hudson River to the Superfund list, covering the entire stretch from Hudson Falls to the southern tip of Manhattan in New York City.

In 2002, after much study and debate, EPA chose a plan to dredge a 40-mile stretch of the Upper Hudson River between Fort Edward and Troy. The dredging plan was detailed in the Record of Decision (ROD). The project addressed the most highly contaminated areas in the Upper Hudson River. After dredging, the river would need time for natural attenuation, which, over time, will continue to reduce PCB levels throughout the river. The full process will take at least five decades.

In 2006, a federal judge finalized the agreement between GE and EPA, requiring GE to carry out the work under the 2002 ROD. GE performed dredging between 2009 and 2015. It dredged a total of 2.75 million cubic yards of contaminated sediment from the 40-mile stretch of the Upper Hudson River.

DATA ANALYSIS AND LONG-TERM TRENDS

It will take time to show that the remedy has been fully effective through fish, water quality and sediment data. Post-dredging data does show PCBs continue to decline in the water and sediment.

EPA Regional Administrator Walter Mugdan said fish data has been collected since the 1970s. “We have a long and robust data sheet,” he said. EPA collects those samples twice a year, in the spring and fall at various locations and EPA may expand the number of sample collection locations in the future.

Sediment sampling has also been a large part of the ongoing monitoring process, and the first sediment samples date back to the 1990s. EPA Policy Advisor for the Hudson River Gary Klawinski said water quality data is the easiest to collect, fish and sediment data collection are

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GE performed dredging at the Hudson River PCBs Superfund Site between 2009 and 2015. It dredged a total of 2.75 million cubic yards of contaminated sediment from the 40-mile stretch of the Upper Hudson River.

more complex. EPA has seen some encouraging water and sediment data, Klawinski said. “For fish, we statistically need about eight years of data to establish a trend,” he said.

For sediment analysis, the project had some early data sets to consider. After 2016, a standardized format for sample collection was established to facilitate data comparison and trend analysis, but data prior to 2016 had been done in different ways for different purposes. NYSDEC adopted this same methodology in 2017 for its samples, making comparing data and integrating sets together much easier.

In 2016, GE collected/analyzed 215 sediment samples. In 2017, NYSDEC analyzed 1,162 samples.

Sediment sampling will continue every five years. The next five-year review will include at least six years of post-dredging sediment data. “We need to space the sampling events because we want the concentrations in the sediment to change, so you can measure the change,” Klawinski said.

RIVER SECTIONS VS. RIVER REACHES

EPA Regional Administrator Pete Lopez said the robust review process and the collaboration with NYSDEC “signify that our goal was to be rigorous and exhaustive with state partners and others.”

The review process also allowed EPA to evaluate its methodology to better understand the river’s recovery. In its public comments to the June 2017 draft report, NYSDEC encouraged EPA to consider data in different river reaches.

The ROD divided the 40-mile stretch of the

river from Fort Edward to Troy into three sections. “That’s been a controversy since we made that decision,” Mugdan said.

River Section 1 is about 6 miles and includes one reach. River Section 2 is about 5 miles and includes two reaches. River Section 3 is about 29 miles and includes five reaches. Looking at data from individual river reaches will provide a more detailed look at the health of the river, and the growing data set has made this easier. “This allows us to have a common vocabulary between the two agencies and gives us the ability to be more attentive to the performance of the remedy,” Lopez said.

CONTAMINATION HOT SPOTS AND TRI-PLUS PCB CONCENTRATION

The sediment analysis so far has not discovered any contaminated hot spots. “We did identify three geographic areas of interest,” Mugdan said. The data shows slightly elevated levels of PCBs. Those areas will receive additional focus moving forward, but no action is required at this time.

In River Section 2, further upstream, EPA identified one area of interest around an island, where erosion had exposed sediment to the water that was previously inland. The other two areas of interest lie in River Section 3, further downstream, very close to each other. The levels of PCB in fish are generally reflective of the average of PCBs in the sediment, Mugdan explained. The three areas are very small, compared to the larger project, and are unlikely to affect fish data.

Collective analysis of the data show that

more than 99 percent of the sampled locations are below the surface sediment criteria set in the ROD, in both dredged and non-dredged areas.

The primary purpose of the Hudson River project is to reduce PCB levels in fish, in order to protect humans and other species that consume fish. The ROD set a remediation goal of 0.05 mg/kg of PCBs in the fish (a level that would allow people to eat fish from the river once a week) – a process that will take decades to reach.

Data analysis also looked at both total PCB concentration and Tri-Plus PCB concentration, which is an important subset of total PCBs known to bioaccumulate in fish. Bioaccumulation is the driving force for the remedy and the measurement of health. “The fish become symbolic of the river’s recovery,” Lopez said.

Although the river’s full recovery needs more time, the EPA report said dredging was very effective in removing the contaminated sediment.

“The Hudson River is pretty dynamic and fairly fast flowing,” Klawinski said. Other areas are separated by reaches, locks and dams, where the river is more calm. “We get some high flows and it’s dynamic enough to move sediment around,” he said.

Overtime, as the river runs and shifts, it could uncover contaminated sediment or move contaminated sediment into a clean area. EPA will continue to monitor the project for many, many years to come. So far, no recontamination of the dredged areas in the Upper Hudson River has taken place, and recovery of the sediment, water and fish has made significant strides, as it is predicted to do in the future. ↩

Jacksonville District to Study Sediment Transport Along Southeast Florida Coast

BY ANNA TOWNSHEND

In March, the U.S. Army Corps of Engineers Jacksonville District awarded a \$4.4 million contract to Environmental Tracing, LLC for a Sediment Morphodynamic Assessment Project to examine sediment transport in southeast Florida over the next two years. The project will include in-water measurements of sediment transport, waves and currents, numerical modeling and sediment tracing, in order to analyze the hydrodynamic, sediment transport and morphology changes across the region.

During storms or high wind and wave events, sediment is constantly moving in the system, north and south along the beach, in the nearshore east to west, and in and out of inlets and harbors.

"Understanding and being able to predict how the system is moving the sediment naturally," said Corps Jacksonville District Project Manager Laurel Reichold, "will allow us to better predict shoaling concerns inside our inlets and harbors and in predicting the erosion of our beaches."

She said the district's flood risk management and navigation missions require the analysis of sediment movement around southeast Florida's inlets and harbors. "In addition to knowing

where and how sediment is moving naturally, the projects also require an understanding of sediment movement during or as a result of dredging, how dredged sediment that is secondarily dispersed into the water column behaves, and optimal channel features and beach placement design," Reichold said.

Protecting the nearshore and offshore hard-bottom habitat ecosystems requires the Corps to evaluate the potential impacts of displaced sediment to those resources.

Reichold said another challenge for the Corps' mission in southeast Florida is a lack of sediment for flood risk management projects. "Given the scarcity of resource, extraction and relocation of existing sediment, resources must be evaluated to determine the secondary and long-term effects and ensure the sustainability of flood risk management projects," she said.

Numeric modeling will fill the gaps between the existing and planned monitoring data. It can simulate scenarios under different hydrodynamic conditions within the study area. "Hydrodynamic, sediment transport, and morphology change monitoring and modeling that includes a large area, will provide the requisite information to evaluate multiple missions and authorized projects in the area," Reichold said.

Environmental Tracing, LLC will monitor

sediment transport using sediment tracers, to mimic silt and sand, to map the movement of material over time in different locations. It will use DELFT – 3D numerical modeling software, which specializes in hydrodynamic and sediment transport predictions.

In addition, field data for turbidity, salinity, wind, waves, current magnitude and directions, will be used to formulate a conceptual understanding of the system and existing conditions, Reichold said.

The project will concentrate on three primary study areas: Lake Worth Inlet, Port Everglades Harbor and Miami-Dade County. For each area, Reichold identified the problem with each location, the goal for the study, and how the Corps plans to achieve that goal.

LAKE WORTH INLET: CHANNEL SHOALING

Problem: Chronic shoaling plagues Lake Worth Inlet. Material typically encroaches into the channel from the north, filling the existing sediment traps and eventually, impacting the navigation channel.

Goal: To understand ambient sediment transport and suggest engineering solutions to minimize shoaling within the channel.

Objectives: To collect measurements to describe the ambient sediment transport processes

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in and around Lake Worth Inlet; to identify where shoaled material ends up in the channel; and to suggest specific improvements to prolong dredging requirements, such as the optimal locations for sediment traps or other maintenance measures to decrease shoaling in the channel.

PORT EVERGLADES HARBOR: DREDGE PLUME DYNAMICS

Problem: Port Everglades requires routine maintenance dredging and is also undergoing final review for an authorized capital improvement project (deepening and widening portions of the channel). A non-federal sand bypass project is undergoing regulatory review. Dredging projects in Port Everglades could deposit sediment on nearby hardbottom resources.

Goal: To understand dredge plume dynamics within Port Everglades to better inform capital dredging operations.

Objectives: To collect measurements to describe the overall circulation and ambient sediment transport processes, including fine grain material, which may be released during

dredging; to leverage any dredging events in the area to collect information on dredge plume dispersal and spillage; in order to better understand the potential of sediment movement and dredge plume dispersal, develop a calibrated and validated sediment transport model for Port Everglades for simulating proposed dredge events; to use numeric modeling to suggest mitigation strategies to protect local resources.

MIAMI-DADE COUNTY: SEDIMENT RESOURCE ATLAS

Problem: Miami-Dade County suffers from beach erosion that degrades the barrier island's main storm protection feature, which has been routinely renourished for the last 40 years (the Beach Erosion Control and Hurricane Protection Project). More recently, offshore sediment sources have been depleted, requiring sand from elsewhere for the beaches, which increases cost and does not provide a long-term solution. The Corps needs to know from where and why the sand is eroding, where it is going, and what sustainable management techniques can better

manage sediment resources. Baker's Haulover Inlet and Government Cut Inlet also require maintenance dredging to remove shoaled material and little is known about how these two inlets are hydrodynamically connected and how those dynamics may be influencing sediment transport throughout the county.

Goal: To produce a Miami-Dade County sediment resource atlas, which details sediment pathways and possible sediment resources, serves as a model of county-wide hydrodynamics and offers sustainable management techniques.

Objectives: To collect measurements to describe the overall county-wide circulation and wave climate and ambient sediment transport processes in and around the inlets and beaches; to develop a sediment transport and morphology model for the county; to identify and report any previously released sediment tracers from Miami Harbor; to evaluate best management techniques (i.e., nearshore berms, coastal structures, inlet management, backpassing) to reduce renourishment needs, frequency and cost via numeric modeling and other analysis. 🐦

Norfolk Dredging Completes Maintenance Dredging at Port of Baltimore

BY ANNA TOWNSHEND

In April, Norfolk Dredging Company (NDC) finished dredging 2.6 million cubic yards from the shipping channels leading to the Port of Baltimore. The U.S. Army Corps of Engineers Baltimore District awarded the \$24.6 million contract. Work began in December 2018 and was completed on April 14.

The work is part of the regular maintenance of the multiple channels that go from the mouth

of the Chesapeake Bay in Virginia into Baltimore Harbor. The current project dredged material from six federal channels.

The channels were dredged to 51 feet and vary in width from 400 to 700 feet. Cutoff Angle was last dredged in 2014, Craighill Upper Range in 2009, Craighill Angle in 2017, Craighill Channel in 2007, Craighill Entrance in 2016, and Curtis Bay in 2009.

Corps Baltimore District Project Manager Jeremiah Spiga said the channels generally shoal

about two feet or more along the outside quarter of the channel.

Norfolk Dredging did the work with two Cable Arm clamshell bucket dredges, the 38-cubic-yard *Atlantic* and the 30-cubic yard *Virginian*. The *Vicksburg*, a 24-inch hydraulic barge unloader; two, 4,500-cubic-yard hopper barges (scows); three, 6,500-cubic-yard scows; one 6,000-cubic-yard scow, three tender tugs, four to five tugs, a support tug, drag barge and two crew boats joined the dredges on the project.

Norfolk Dredging also brought various land based equipment, including thousands of feet of HDPE pipeline, recirculation pumps, bulldozers, front-end loaders, extended boom forklifts, generators, air compressors and welding machines.

The material consisted mainly of mud, silt, sand and shell and was placed at two sites. Norfolk Dredging placed approximately 500,000 cubic yards of material from Curtis Bay Channel at the Masonville Dredge Material Containment Facility (DMCF), located in Anne Arundel County. Approximately 2.1 million cubic yards of material dredged from the Chesapeake Bay channels, including the Craighill Entrance, Craighill Channel, Craighill Angle, Craighill Upper Range and the Cutoff Angle channels, was beneficially reused at the Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island, located in the eastern Chesapeake Bay near Tilghman Island in Talbot County, Maryland.

Mike Bushery, Norfolk Dredging project manager, said the dredged material was loaded by the clamshell dredges into the scows and then towed by tugboats to the disposal sites, where the *Vicksburg* unloaded the barges.

The Poplar Island site was about 25 to 35 miles away from the dredging site. The average tow distance to Masonville DMCF was about 1.5 miles. At Masonville, Norfolk Dredging



A U.S. Army Corps of Engineers contracted dredge operated by Norfolk Dredging lifts material out of Curtis Bay Channel in Baltimore Harbor Tuesday March 19, 2019 as part of maintenance dredging of channels associated with the Baltimore Harbor and Channels Project. Curtis Bay Channel was one of six dredged during the Fiscal Year 2019 maintenance cycle, during which crews removed nearly 2.6 million cubic yards of material from channels to ensure continued safe navigation for vessels traveling to and from Port of Baltimore facilities. (U.S. Army photos by Becca Nappi)

could not pump slurry water from the bay, so it used recirculating pumps.

“Early on in my career with NCD, I was on the project that helped build the Masonville DMCF. It was great being able to see the area again and how much it’s changed,” Bushery said.

At Poplar Island, Norfolk Dredging placed material at four different discharge points in three cells to facilitate testing being done by the Corps at the site.

The dredges worked simultaneously in the channels. “In the lower bank areas, we only kept one dredge in a section because it would go fast. The dredges teamed up on the angles because there was more bank and enough room for both dredges to work together, without being on top of each other,” Bushery said.

He said one of the biggest challenges for the project was logistics and coordination. “It takes a lot of moving parts, spread out over 35 miles by water (1.5-hour drive by land), to make the dredging and unloading process come together. While it’s all one project, you basically have three separate work areas operating simultaneously. With the extensive amount of equipment and personnel, it’s hard to keep everything running smoothly, and a breakdown at one of the three sites affects the rest of the project. For instance, if the unloader breaks down, or if it’s too rough to unload scows, then the dredges shut down a few hours later because all the hopper barges get filled but have nowhere to go. And vice versa, if a dredge breaks down then we’re not feeding the unloader enough to keep it operating, and it shuts down for large parts of the day or longer,” Bushery said.

Work in the Northeast during the winter is usually challenged by extreme cold and rougher seas than the summer months. Bushery said the weather was fair, but the project experienced its fair share of “nasty days.”

He said when Norfolk Dredging performed maintenance dredging in the channel in 2014 and 2015, the entire bay froze solid from the C&D Canal to south of the Bay Bridge, which shut the project down for about 20 days.

“On this project, I commend our entire team for doing an excellent job of safely, overcoming the many hazards of performing heavy construction in the harsh marine environment, including winter weather,” Bushery said. In total, the project logged more than 160,000 exposure hours without accruing a single lost-time injury.

“Whether people realize it or not, the Port of Baltimore is one of the key economic engines for Baltimore, the state of Maryland and really the whole region, and maintaining shipping channels like we’re doing with this work is extremely important,” said Baltimore District Commander Col. John Litz. “We’re happy to be able to carry out dredging on six channels this year coordinating closely with our partners in the Maryland Port Administration to maintain the depths of these vital channels and ensure the port of Baltimore can continue to serve the region.”

The Baltimore District works closely with the Maryland Port Administration (MPA) on projects in the channels and harbors. “A significant part of [MPA’s] role is to help coordinate for placement sites for the material. They are a cost-sharing partner in the Paul S. Sarbanes

Ecosystem Restoration Project at Poplar Island and work closely with the Maryland Environmental Service, who perform day-to-day operations on the site,” Spiga said.

The Masonville Dredged Material Containment Facility, where material dredged from the Inner Harbor area was placed, is an MPA facility.

Funding for the project came from fiscal year 2018 (FY18) Corps annual funds. Poplar Island Construction General (CG) FY18 funds were used for approximately 45 percent of the dredging work for material that was sent to Poplar Island.

The Baltimore District expects to award another dredging contract later this year for the removal of material from the York Split Channel,

an approach channel for the Port of Baltimore in Virginia waters of the Chesapeake Bay.

In 2018, the U.S. Department of Transportation also dedicated \$6.6 million in grant funding for a project to deepen a second container berth to 50 feet at the Seagirt Marine Terminal. The State of Maryland will contribute \$7.8 million and Ports America Chesapeake, which operates the Seagirt Marine Terminal, will add \$18.4 million for a total project cost of about \$32.8 million.

The Port of Baltimore had a record year in 2018, handling 10.9 million tons of general cargo. Container was also a record for 2018, at 1,023,152 TEUs (twenty-foot equivalent units), up six percent from 2017. ↗

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Great Lakes Wraps Up Big Bend Channel Project a Year Early

BY WENDY LARIMER

Great Lakes Dredge & Dock Company (GLDD) completed the \$63 million deepening and widening of Big Bend Channel in April, more than a year ahead of schedule. Work started in October and was scheduled to take 18 months. The U.S. Corps of Engineers Jacksonville District awarded the contract in September 2018.

The Big Bend Channel deepening is part of the overall Tampa Harbor project that encompasses approximately 64 miles of waterways. Big Bend is located in the upper east portion of Tampa Bay and feeds into the terminals of Port Redwing (part of Port Tampa Bay), Mosaic and Tampa Electric Company.

According to Liz Fiocchi, Jacksonville District navigation program manager and Port of Tampa project manager, the Big Bend contract was originally split into four areas: the main access channel that runs east to west, the turning basin at the end of the channel, private berthing areas, and the north to south channel that feeds the Tampa Port Authority. The fourth item, however, was removed from the scope of this project but could be completed at a later date.

"Big Bend Channel is the first new federal channel that the Jacksonville District has built in over 30 years. While there was a channel there, it was much smaller and not federally maintained," Fiocchi said.

The dredging removed approximately 3.5 million cubic yards of material with the majority of the dredged material coming from the main access channel, and the second largest amount from the turning basin.

The dredging widened the channel by 50 feet and deepened it so it could accommodate larger class vessels. The entrance channel, east/west channel, inner channel, turning basin and private berthing areas off Big Bend were deepened from 34 to 43 feet. The entrance channel was widened from 200 to 250 feet for a length of 1.9 miles.

The project was completed early due to a combination of equipment, manpower and weather.

According to Bill Hanson, vice president of government relations for GLDD, the company got an early start. "We were actually mobilizing in anticipation of the project award, so were

able to get started in a matter of days. Although Hurricane Michael did set us back for a bit since many of the FDEP (Florida Department of Environmental Protection) folks based in Tallahassee who needed to approve some of our operational plans were away from their homes. We thank them for working above and beyond the call

Its cutter power is 3,000 hp. The *Alaska* is 220 feet in length, has a dig depth range of 11 to 87 feet, suction diameter of 34 inches and discharge diameter of 30 inches. The *Alaska's* cutter power is 1,500 hp.

While the original contract anticipated blasting would be needed to get through clay, rock and seabed materials in the East Channel and berthing areas, the power of the cutterheads on the dredges made blasting unnecessary and further quickened the completion.

Material dredged from the Big Bend Channel project was deposited at the port-owned 500-acre spoil island in Hillsborough Bay known as Dredge Material Disposal Area 3-D.

GLDD placed pipe under the channel and on top of the disposal site for close to a 1.5-mile pump distance. The placed material created 100 acres of bird nesting and roosting area.

"The intent was that the 14 million cubic yard capacity island would need to be improved and raised in order to accept the 3.5 million cubic yards from this project. While we knew the area would create habitat, we never expected the sheer number of birds. That was a nice unexpected benefit," Fiocchi said.

Dredging was completed on April 1.

"Great Lakes dug so well, dredging to the required depth plus some level of advanced maintenance, plus allowable overdepth, that in some areas the channel was at 48 feet. Engineers estimated that full maintenance dredging won't be needed for ten years," Fiocchi said.

Outside of how quickly the work progressed, Hanson said the project was unique in other ways.

"This project was unique in a lot of ways in that the state and port picked up 90 percent of the

costs. It took a lot of hard work by state folks and by Port Tampa leadership under Port Director Paul Anderson. Interestingly as well is that the port and Corps took part in our safety leadership team meetings to make sure we focused on getting everyone home safe at night," Hanson said.

A group of partners paid for the project. The Corps portion was \$47 million, while the Port Tampa Bay, Florida Department of Transportation and two of the largest users of the channel, Tampa Electric Company and Mosaic, a global fertilizer company, contributed the remaining. ✎



TOP: GLDD was able to maneuver the cutter head on the dredge *Carolina* into the berthing areas in Tampa Harbor getting within five inches of the bulkhead without damaging the structure.

BOTTOM: The 220-foot cutter suction dredge *Alaska* was used to remove material from the Big Bend channel in Tampa Harbor. The powerful dredge, used in tandem with the *Carolina*, was so efficient the project was completed a year ahead of schedule.

when they were taking care of their families as well," Hanson said.

Along with setting pipeline and bringing in tugs, barges and derricks, GLDD deployed two of its most powerful dredges, and two of the largest cutter suction dredges in the U.S., the *Alaska* and the *Carolina*, to get the work done quickly and efficiently.

The cutter suction dredge *Carolina* is the third-largest vessel in the Great Lakes fleet of ten hydraulic dredges. It is 263 feet with a dig depth range of 14 to 84 feet, suction diameter of 34 inches and discharge diameter of 30 inches.

GLDT Technical Committee Meets to Discuss Beneficial Use Manual Draft Ahead of Annual Conference

On May 14, the Great Lakes Dredging Team (GLDT) Technical Committee held a meeting to review the 2018-2019 workplan, including discussion of a draft of the Regional Beneficial Use Testing Manual.

Members also gave updates on ongoing beneficial use projects, issues with converting confined disposal facilities (CDFs) into processing and reuse facilities or private contractors taking direct receipt; and exploring a multi-state policy for regulating environmental dredging windows in Lake Michigan.

The meeting was a precursor to the full GLDT 2019 Annual Meeting, June 10 and 11 in Buffalo, New York.

The Great Lakes Dredging Team is a partnership of federal and state agencies created to assure that the dredging of U.S. harbors and channels throughout the Great Lakes, its connecting channels and tributaries is conducted in a timely and cost effective manner, while meeting environmental protection, restoration and enhancement goals.

Karen Keil of the Corps Buffalo District led the discussion of the *Environmental Evaluation and Management of Dredged Material for Beneficial Use: A Regional Manual for the Great Lakes*. In March 2019, the GLDT team published this

first draft. The development of the manual was funded by the Great Lakes Restoration initiative and the Dredging Operations and Technical Support program of the Engineer Research and Development Center at the U.S. Army Corps of Engineers. In short, the manual was developed to simplify and promote widespread opportunities for beneficial use of dredged material. It was developed on a regional platform to increase

“In short, the manual was developed to simplify and promote widespread opportunities for beneficial use of dredged material. It was developed on a regional platform to increase collaborative problem-solving and endorse scientific practices for the evaluation of dredged material for any beneficial use.”

collaborative problem-solving and endorse scientific practices for the evaluation of dredged material for any beneficial use.

The manual provides the best available technical guidance on how to evaluate dredged material for beneficial use, not interpret or validate regulatory authority granted to the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency or Great Lakes state resource agencies.

The manual continues the work done in a series of guidance documents created jointly by the Corps and EPA. The series, *“Evaluating Environmental Effects of Dredged Material Management Alternatives — A Technical Framework”* (Technical Framework, U.S. EPA/USACE 1992/2004), provides guidance for evaluating and selecting alternatives for the full range of management options: water placement, confined disposal facility (CDF) placement, and beneficial use applications.

The U.S. Army Corps of Engineers also developed the *“Regional Beneficial Use Manual”* to be consistent with and support the *“Technical Framework”* by providing detailed procedures for assessing physical and chemical properties that could limit the suitability of dredged material for specific end-use goals or result in unacceptable risks.

The *“Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. — Testing Manual,”* commonly referred to as the *Inland Testing Manual* (ITM, U.S. EPA/USACE 1998a), provides the basis for evaluating environmental compliance for aquatic beneficial uses.

The *“Evaluation of Dredged Material Proposed*



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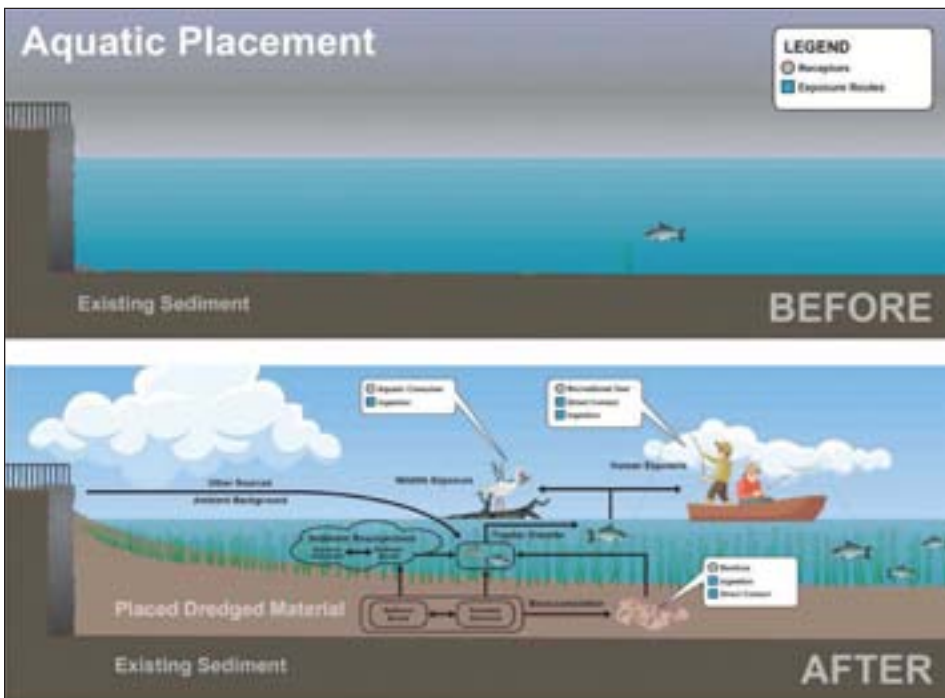
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beach nourishment; shallow water placement for wetland or marsh development; unconfined in-water placement (river, lake, and estuary); confined in-water placement for beneficial purpose; upland placement for land development; upland placement for ecological habitat development; upland placement for soil reuse; and island placement. It includes detailed conceptual models for each type of placement option and approaches for testing and evaluating each.

In order to characterize the risks and benefits associated with potential beneficial uses, the GLDT manual provides an overview of approaches and methods for evaluating dredged material.

“Having a holistic and consistent process for evaluating beneficial use alternatives can be difficult. The development of a conceptual site model (CSM) is recommended because it supports the holistic evaluation and communication of project benefits and risks. It is important to note that different alternatives may require different conceptual risk models due to the difference in potential organisms at risk and the prevalent exposure pathways. The development of a conceptual site model is the initial step necessary to determine how dredged material should be evaluated and the information that may be required for the evaluation,” the report said. As an example, the figure on this page represents a generalized conceptual model for dredging operators at beneficial use aquatic placement sites.

The GLDT technical team will continue to review the draft manual for discussions at the

for Disposal at Inland, Nearshore, or Upland Confined Disposal Facilities—Testing Manual,” commonly called the “Upland Testing Manual” (UTM, USACE 2003), provides testing guidance to evaluate potential risks associated with contaminant migration pathways, including groundwater, surface water, volatilization, and plant and animal bioaccumulations.

The *Regional Beneficial Use Manual* draws from these existing testing manuals to the extent possible for beneficial use assessments to avoid unnecessary additional testing or duplication of testing.

The manual defines eight different categories for beneficial use in the Great Lakes: beach or nearshore placement for shoreline protection or

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upcoming conference, with an expected final report done later this year.

Physical and chemical testing of the sediment is also necessary to provide an initial baseline assessment to determine whether that material is suitable for beneficial use.

Updates and revisions to the *Regional*

Beneficial Use Manual will be made as additional research developments and regulatory updates are completed and practical implementation experience is gained. Users are encouraged to obtain the most recent version of the manual, maintained on the Great Lakes Dredging Team website: <https://greatlakesdredging.net/>. ↗

Continued from page 5

Development Act of 2014 that has significantly accelerated project delivery on the inland waterways system. But she had lots more to say about the work still needed and how it has affected her business.

In 1998, Pine Bluff Sand and Gravel joined the effort to deepen the MKARNS from 9 to 12 feet. "After 13 years, we reluctantly had to move our primary source of rock from the Arkansas River to a more competitive location. In 2010, we purchased the Cumberland River Quarry on the Cumberland River above Paducah, near Salem, Kentucky. Therefore, our quarry on the Arkansas River is now operating at a much smaller scale, and numerous employees were laid off. Sadly, this could have been one of the largest quarries in the region. However, the additional cost of the shallow channel was simply too much for us to continue subsidizing. Our cost and bidding are extremely sensitive to competition, and we have lost jobs by a penny or nickel per ton. We could not afford the cost of doing nothing," Harden said.

The ports, large and small, shared differing but important views on the necessity of harbor maintenance. At the Port of Bandon in Oregon, Commissioner Rick Goche said the dredging of dangerous bars that form in the area can mean life or death. Goche has also been a commercial fisherman for most of his life. In the Pacific Northwest, the bar is the term used for the point where the harbor entrance, normally near the mouth of a river forms a hump, where sediment builds up, as the downstream river water comes up against the ocean waves.

"During ebb tides, river and tidal flows combine to create a stronger current that comes up against the incoming ocean swell. If the swell is large and the bar is shallow, the energy of the swell is tipped over, resulting in a breaker. Breakers are dramatically steeper than the swell, and the life threatening danger is when a boat is attempting to come into the entrance, and the boat encounters a sneaker wave that is larger than expected – the wave steepens and the boat goes out of control as it essentially turns into a surfboard, goes broadside and rolls over. This dangerous condition is referred to as breaking bar," Goche said.

One way to minimize the threat of a breaking bar, and the need for maintenance dredging, is to build jetties that steer the current off the direction of the dominant swell. Many decades ago, Goche said this was done for every bar in the Pacific Northwest, but most of those jetties are now in need of repair or regular maintenance dredging of the channels.

The Port of Los Angeles provided a different perspective of port needs. As the largest and busiest container port in the country, its cargo generates more than \$200 billion in economic

impact for our country. With regard to HMTF, the Port of Los Angeles is also known as a donor port, meaning it puts in much more money to the fund in taxes than it receives back in project funding. Eugene Seroka, executive director at the Port of Los Angeles, thanked the committee for its work in the Water Resources Reform and Development Act (WRRDA) of 2014 and the Water Infrastructure Improvements for the Nation (WIIN) Act of 2016 and the ways in which that legislation recognized the needs of donor ports. Historically, he said cargo into the Port of Los Angeles generates more than \$200 million in HMTF revenues, but it receives about \$3 million in spending.

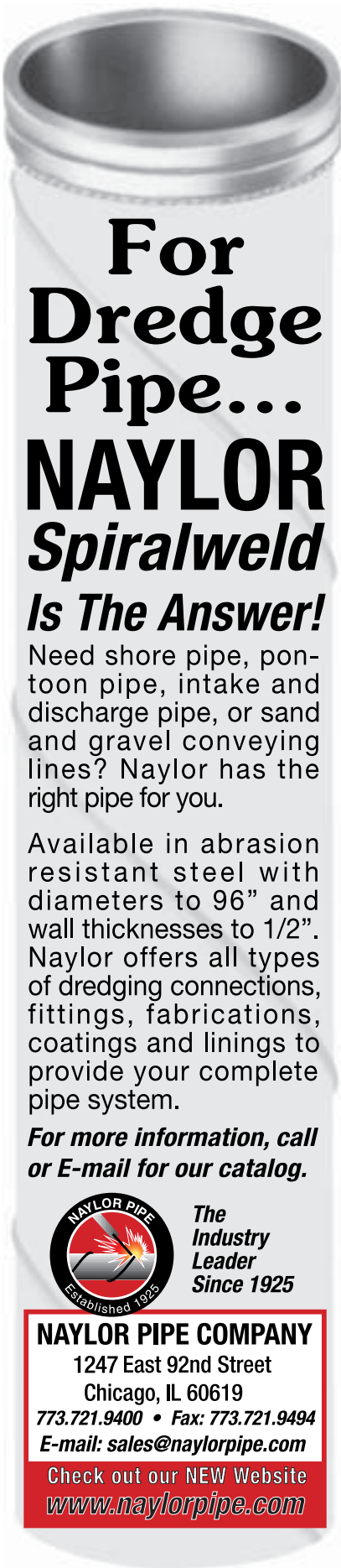
In addition to full utilization of HMTF, Seroka supports a few other measures for donor ports to push reform further. "A fair and equitable allocation framework ensures every port region of the country – including traditional dredge ports, emerging harbors and donor ports alike – receive a share of HMT [Harbor Maintenance Trust] funds each year," Seroka said. He also calls for a limited expansion in the types of projects eligible for HMTF money. While the federal channel at the Port of Los Angeles does not experience sedimentation and need regular dredging, the port has other in-water infrastructure needs, Seroka said, which currently can't be met with HMTF money.

It was mostly strong support all around for full utilization of HMTF money for ports, large and small. The Utilization of the Harbor Maintenance Trust Fund Act (H.R. 2440) passed a committee voice vote on May 8.

At the hearing in April, Chairman DeFazio said that twice before the T&I committee has passed similar legislation unanimously with WRDA bills and twice the Rules Committee has removed it before the full bill went to the floor. He specifically credited former Speaker of the House Paul Ryan with the removal, noting that's he's hoping for a different outcome now that Ryan has retired. "I hope for a better treatment by the Rules Committee this year when we move similar legislation," DeFazio said.

Infrastructure seems to be one of the few issues that receives bipartisan support. However, Congress, on a bipartisan basis, has also underspent that money. DeFazio hopes this Congress will finally change that.

While that money is theoretically sitting at the Treasury in a trust fund, it's currently being used to offset the deficit in the budget elsewhere. That's not a call against full utilization of HMTF, just a reminder that nothing is free (or without sacrifice elsewhere), and the appropriators will need to make changes as well. It's a good step forward for waterways and gaining the funding needed to maintain them, but the budget battle is ongoing and ports and its supporters will need to fight for their rightful share. ↗




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Deepening Dredging Expected for Brazil's Port of São Francisco do Sul

BY LÉO SIQUEIRA

The Santa Catarina state-owned Port Administrator for the Port of São Francisco do Sul, in southern Brazil (APSPS), which manages single purpose venture (SPV) SCPar Porto de São Francisco do Sul SA, plans to release a deepening dredging tender for the local port near the local Babitonga Bay.

The project is yet to obtain the needed environmental permitting and may cost BRL 231.15 million (\$58.3 million US).

"There's no timeline set for (dredging works) to begin, since there aren't yet funds for this," said João Batista Furtado, president at SCPar Porto de São Francisco do Sul.

The project's Environmental Impact Assessment (EIA) and Environmental Impact Report (RIMA) documents forecasted dredging works to take about 8.5 months using trailing suction hopper dredges. However, Furtado said works could take up to a year.

"The project's completion for a dredging project like this depends on the type and capacity of equipment used. We believe works that large, and with such a profile and proximity with the inert landfill would take as long as one year," he said.

Furtado said the project, which has no date set to be tendered, would dredge the access

channel of the Port of São Francisco do Sul's maritime infrastructure.

Environmental consulting company Acqua-plan completed both the EIA and RIMA studies, which are now under review by Brazil's environmental watchdog, IBAMA. Local media had estimated that the studies cost BRL 30 million (\$7.5 million US).

The dredged volumes for the project are estimated to reach about 15.6 million cubic meters (20.4 cubic yards).

The deepening dredging project, which also aims to readjust dredging at the port, expects to modernize waterways for the Port of São Francisco do Sul complex, improving navigability and increasing the port's competitiveness before other Brazilian ports.

The Port of São Francisco do Sul is one of Brazil's eight largest ports, according to data from the nation's Ministry of Infrastructure.

The Port of São Francisco do Sul's improved waterway system, as envisioned by SCPar and designed by Acqua-plan, would allow the port to receive larger vessels with a 14-meter (45.9 feet) draft and a 366-meter (1,200 feet) length.

The project plans to "adjust" and extend the curve of the Port of São Francisco do Sul's access channel, near the Das Graças Archipelago until the Port of Itapoá section, to deepen it to

16 meters (52.4 feet), from 14 meters (45.9 feet). It would also extend the geometry curve of the access channel to 400 meters (1,312 feet) from 220 meters (721.7 feet).


Commenting the specific profile of equipment to be used, Furtado said dredges would need to have a 10,000 cubic-meter capacity.

According to the project's study, two hopper dredges would be needed for the dredging works. The project is estimated to generate 94 jobs.

Furtado said the Port of São Francisco do Sul dredging project will use federal government funds. "The project can only be executed if there is the federal government's aid," he said.

"The cargo growth forecast for the port complex for the next year demands the port authority to effectively work on issues, such as waterway access, docking berths and supporting infrastructure for operations," the executive said.

"(Otherwise,) we'd be under the risk of limiting larger vessels (to dock), making operations for (these) larger vessels and their cargo more expensive. That would represent a serious impact for both the importing and exporting markets the port complex serves."

The Port of São Francisco do Sul complex includes the port, a private terminal, and the Santa Catarina state Grain Terminal (TGSC) or the Terminal Graneleiro de Santa Catarina. 



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DEME AWARDED CONTRACT TO DEEPEN THE ELBE

DEME has been awarded a contract to deepen the Elbe fairway in Germany. The Waterways and Shipping Administration Cuxhaven (WSA Cuxhaven) has awarded the EUR 238 million (\$265 million) contract to DEME Group's subsidiaries Nordsee Nassbagger und Tiefbau and Dredging International.

DEME will deploy its trailing suction hopper dredges, backhoe dredges and spreader pontoons for the dredging, transportation and relocation of around 32 million cubic meters (35 million cubic yards) of material. The project consists of the widening and deepening of the 116-kilometer (72-mile) long fairway between Cuxhaven and Hamburg to a level of -14.5 meters (-47.6 feet). This will allow ships with a draft of 13.5 meters (44 feet) to sail the River Elbe to and from the port of Hamburg. Right now sailing is restricted to ships with less than a 12.5-meter (41-foot) draft.

DEME has worked in construction of marine infrastructure in Germany since 1968 through its subsidiary Nordsee Nassbagger und Tiefbau GmbH, which is based in Bremen. Since 2004, DEME's hopper dredges have been regularly deployed on the River Elbe for maintaining the fairway from Cuxhaven to Hamburg.

Christopher Iwens, general manager German Subsidiaries said in a statement: "Securing this contract is a great team achievement as it proves that our local expertise - based on a combination of high tech, know-how and many years of dedicated entrepreneurship - is the key to success for consolidating the company's presence in Germany. We are pleased to partner with our client WSA Cuxhaven and look forward to working closely with them to ensure the successful execution of this project. The preparatory phase of this important project is now in full swing and is taken care of by our specialist teams located in our offices in Bremen."

JAN DE NUL ORDERS THREE WATER INJECTION DREDGES

The Jan De Nul Group has contracted with Singapore-based Pax-Ocean Shipyard to convert three recently purchased offshore supply vessels into Water Injection Dredges (WIDs). The first one to be delivered was *Giovanni Venturi*, which will be mobilized for a project in Argentina. The other dredges, *Henri Pitot* and *Henry Darcy*, are in the process of being converted and will be delivered later this year.

The WIDs are fitted with power jetting systems used for the low-pressure injection of water into sediments, which causes them to fluidize and naturally move horizontally, just above the seabed, through natural sediment streams. Because the sediments do not need to be transported by means of a hopper, barge or pipeline, Jan De Nul said water injection dredging is also a cost-efficient dredging technique.

The dredges have Dynamic Positioning (DP), swell compensation for stable working conditions at sea, and diesel-electric drives to reduce the carbon dioxide emissions.

These vessels are smaller than traditional dredges and have high maneuverability and a limited draft, making them suited to maintenance dredging in smaller ports, and for other services, such as levelling the seabed for other installation services or for post-lowering of pipelines and cables in the seabed.

RH MARINE TO SUPPLY MONITORING AND POSITIONING SYSTEMS FOR DUTCH LNG DREDGE

RH Marine is supplying its Rhodium Alarm Monitoring System (AMS) and Dynamic Positioning and Tracking control system (DPT) for the first LNG Dutch dredge, the *Ecodelta*.

The trailing suction hopper dredge is owned by dredging and contractor company Van der Kamp, which will use the dredge to keep the ports of Rotterdam and Eemshaven at the right depth. The ship is 134 meters (440 feet) long, 21 meters (69 feet) wide and can dredge up to 37 meters (121 feet) deep. It has a capacity of 5,500 cubic meters (7,194 cubic yards). The *Ecodelta* has five LNG engines and four electric motors. The *Ecodelta* has four Dual-Fuel engines and an on-board gas engine. All drives are operated by four electric motors.

For its classification, the *Ecodelta* requires an alarm and system to monitor all operations, like propulsion and dredging, via sensors. Operating systems can be monitored on screens on the bridge, in the engine



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control room, and on other workstations.

Van der Kamp also opted for RH Marine's DPT system, which was initially developed for the dredging sector. This system keeps the dredge on a pre-set heading automatically adjusting to compensate for water depths, draft and speed.

"In the past dredging was done by using an ordinary autopilot, keeping the speed constant by manual control. The reason for Van der Kamp to purchase the DPT system is that in the future there may be orders for precision dredging or dumping. The ship must then be able to keep its position more precisely," said RH Marine's consultant Ehab El Amam.

Experts from RH Marine trained personnel from Van der Kamp on how to work with the systems.

BOSKALIS AWARDED TWO DREDGING CONTRACTS IN INDONESIA

Royal Boskalis Westminster N.V. (Boskalis) has been awarded two contracts in Indonesia. On the island of Sulawesi, Boskalis will expand the Makassar New Port container terminal, and on the island of Java, it will prepare land for a new petrochemical complex. Both projects will be executed in the second half of 2019 and carry a combined value of approximately EUR 75 million (\$84 million US).

The first project, awarded by construction company PT PP, entails the expansion of a new terminal for the Makassar New Port of port operator PT Pelindo IV by 45 hectares (111 acres). The dredging scope includes the removal of soft clay followed by land reclamation work, which requires the dredging and supply of sand. The port is a strategic maritime infrastructure project for the Indonesian government and designated as the gateway to the Eastern Indonesian Archipelago for international container carriers. One of Boskalis' trailing suction hopper dredges will be deployed on this project for about six months.



For a new petrochemical complex of Lotte Chemical, which will be located in the coastal city of Cilegon on the island of Java, Boskalis will prepare 95 hectares (235 acres) of land for construction purposes by supplying sand and improving the soil by means of vertical drainage executed by Boskalis subsidiary Cofra. This project will be executed for the engineering and construction arm of the South Korean conglomerate Lotte. Boskalis will deploy a trailing suction hopper dredge for the dredging work.

BOSKALIS ISSUES TRADE UPDATE

In May, Royal Boskalis Westminster N.V. (Boskalis) released a trading update, indicating its market picture and developments for the first three months of the year are in line with the expectations outlined at the publication of the 2018 annual results. The picture includes higher revenue compared to the first quarter of 2018 with a comparable result; reasonable fleet utilization both at Dredging and Offshore Energy, and a stable order book.

Revenue at the Dredging & Inland Infra division rose compared to the first quarter of last year. Notable projects in progress include Duqm (Oman), JNPT (India), Nordvikudden (Sweden), Pulau Tekong Polder and Tuas Terminal 2 (both in Singapore) and various medium-sized projects in the Netherlands.

Given the market conditions, the use of the hopper fleet was good, Boskalis said. Partly as a result of planned repairs of a mega hopper, the utilization rate was lower than the annual utilization rate for 2018. Utilization of the cutter fleet was strong in the first quarter, due in part to the deployment of the mega cutter *Helios* on the Duqm project.

The order book of Dredging & Inland Infra was virtually stable compared to the end of 2018. Notable new contracted projects include the expansion of the Port of Adelaide (Australia) and various smaller projects in Europe. After the close of the quarter two projects were contracted in Indonesia as well as a large infrastructural project in the Netherlands (Rijnlandroute sub-project).

VAN OORD OPERATES FIRST LNG ONLY CRANE

Van Oord's first vessel to run entirely on LNG, *Werkendam*, started work on its first project in May. The world's first LNG-powered crane vessel is carrying out maintenance work in the port of Rotterdam.

Van Oord said the client, the Port of Rotterdam Authority, is pleased with this initial deployment.

"We are encouraging the transition from fuel oil to LNG as a fuel for shipping. It is good that operational ships are taking the lead," said Ronald Paul, COO of the Port of Rotterdam Authority.

With a storage tank on the aft deck, the *Werkendam* can store enough LNG to sail and operate for fourteen days without refuelling. Compared to a diesel-powered vessel, the *Werkendam* emits 80 percent less particulate matter and 70 percent less nitrogen. It also boasts a CO2 reduction of 25 percent.

Van Oord will deploy the crane vessel mainly on Dutch projects for its subsidiary Paans Van Oord. The *Werkendam* is co-financed by the European Union. ✈

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PORT OF HOUSTON AUTHORITY MEETS TO ACCELERATE CHANNEL WIDENING PROJECT

On April 8, the Port Commission of the Port of Houston Authority met in a special session to accelerate the widening of the Houston Ship Channel.

The port authority is working with the U.S. Army Corps of Engineers and other representatives of the federal government, as well as the Port of Houston and Houston Ship Channel stakeholders, to obtain authorization and accelerated funding to complete a deepening and widening of the ship channel. This project will be the eleventh significant widening and deepening of the channel since its conception.

The commission was briefed on measures to make sure widening of the entire Galveston Bay reach of the ship channel is part of the next Houston Ship Channel dredging project. The commission also directed staff to bring it proposals for port authority and industry funding to support this accelerated effort.

The Houston Ship Channel is experiencing tremendous growth. Houston is home to the largest petrochemical manufacturing complex in North and South America. Energy production and the export of crude oil, and the increasing global demand for chemicals produced in the region, are major drivers of this success.

Expansion of the Panama Canal, the growth of vessel sizes, and the region's population growth have also resulted in record container

demand, both for imported consumer goods and exported manufactured products, further driving the need for improvements to the channel.

Under the terms of this new business rule, only one vessel, which imposes "one-way traffic" on all deep-water ships transiting the Houston Ship Channel within Galveston Bay to call facilities within the Port of Houston, may call on a port authority terminal in a given week, an interim solution intended to ensure unencumbered access to upper channel reaches.

The commission also budgeted \$500,000 to support a traffic efficiency group for the channel. This newly formed advisory committee representing multiple channel stakeholders will meet regularly and work in partnership with the U.S. Coast Guard Houston Area Vessel Traffic Service, the Lone Star Harbor Safety Committee, the Houston Pilots, and others. The goal of the group will be to share data and insights and help optimize traffic flow on the channel, in response to continued requests for larger vessels to serve the fast-growing demand for containerized consumer imports, resin and agriculture exports, and the needs of the energy industry.

REP. POSEY VISITS NEARLY COMPLETED CANAVERAL HARBOR SAND BYPASS PROJECT

In April, U.S. Rep. Bill Posey (FL-08) toured the soon-to-be-completed Canaveral Harbor Sand Bypass Project (Phase 5).

Rep. Posey praised the project as a unified



U.S. Rep. Bill Posey (FL-08) speaks at press conference at Port Canaveral's Jetty Park in April. Photo credit: Canaveral Port Authority

effort that keeps Port Canaveral's economic engine running, while restoring 3.5 miles of shoreline south of Canaveral Inlet to the pre-inlet levels of the early 1950s.

Canaveral Port Authority Commission Chairman Micah Loyd led a tour by water of Port Canaveral for the Congressman to review progress on the nearly completed Sand Bypass Project and to highlight critical current and future port infrastructure projects. Joining the tour was U.S. Army Corps of Engineers Col. Andrew Kelly, commander and district engineer for the Jacksonville District. The Corps is the federally authorized agency that funded, administered and managed the project.

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Completed in early May, the six-month long Canaveral Harbor Sand Bypass Project – the largest volume effort in the Port Canaveral area since the first in 1995 – will have pumped almost 1.4 million cubic yards of sand. The sand was dredged from the shoreline north of Port Canaveral along Cape Canaveral Air Force Station to beaches south of the Canaveral Inlet from Jetty Park to less than a half-mile south of the Cocoa Beach Pier. Locally sponsored by the Canaveral Port Authority and funded and administered by the U.S. Army Corps of Engineers, the federally authorized \$18 million effort is replenishing the Jetty Park shoreline and points south in Cape Canaveral and Cocoa Beach to pre-port levels of the 1950s. The latest sand bypass project at the port is the fifth such effort since 1995.

PORT OF HOUSTON AUTHORITY RELEASES RESULTS OF ECONOMIC IMPACT STUDY

On April 23, Port Houston released the full results of the nationwide economic impact study of the Houston Ship Channel. Results show that the private and public terminals of the greater Port of Houston account for 10 percent of all jobs supported by the U.S. coastal ports in 2018.

The results also showed that the economic values supported by cargo activity at these facilities to the State of Texas represent nearly 21 percent of the state's gross domestic product (GDP) for 2018.

Economist John Martin, Ph.D., of Martin

Associates, provided the Port Commission of the Port of Houston Authority highlights from the full report during the commission's regular monthly meeting in April.

In 2018, the Houston Ship Channel generated nearly \$802 billion in U.S. economic value, supported 3.2 million jobs, and provided \$38 billion in tax revenue. In the state of Texas, it generated \$339 billion in economic value, sustained 1.3 million jobs, and generated \$5.6 billion in state and local tax revenue.

SECOND PHASE OF BOSTON HARBOR PROJECT REACHES SEDIMENT MILESTONE

On April 5, the U.S. Army Corps of Engineers New England District reached a project milestone on the Boston Harbor Navigation Improvement Project, removing 4 million cubic yards of dredge material as part of phase two of the project.

Approximately 7.7 million cubic yards of dredge material and weathered rock, and 200,000 to 500,000 cubic yards of hard rock remain to be removed before the project is fully completed by December 2021.

This is a three-phase project. Phase 1 (completed) involved constructing a Confined Aquatic Disposal (CAD) cell by dredging 1,000,000 cubic yards of material and disposing of that material at the Massachusetts Bay Disposal Site. Once the CAD cell was constructed, maintenance dredging of approximately 800,000



On April 1, the Dale Pyatt, a large class bucket dredge of contractor Cashman Dredging works in Boston Harbor in Massachusetts. The dredging work is a joint venture between two companies, the Dutra Group and Cashman Dredging.

cubic yards of silty material from portions of the 40-foot Main Ship Channel, the 40-foot deep Inner Confluence, and portions of the 35-foot deep channel, were placed into the newly constructed CAD cell. The \$12.8 million contract was awarded to Great Lakes Dredge and Dock in September 2016. Construction started in July 2017 and was completed in December 2017.

Phase 2 (ongoing) involves dredging 11.7 million cubic yards of silt, blue clay, till and weathered rock. The \$122.2 million contract was awarded to the Joint Venture of Cashman Dredging Inc. and Dutra Group in February 2018. Construction started in July 2018 and is anticipated to be completed in October 2021.

Approximately 11 million cubic yards of material will be removed from the following components of the Boston Harbor Federal Navigation Project: deepening and widening the Broad Sound North Channel to -51 feet Mean Lower Low Water (MLLW); deepening and widening the Main Ship Channel to the Conley Terminal, including the turning basin to -47 feet MLLW; and deepening the President Roads Anchorage and deepening the lower Reserved Channel to -47 feet MLLW.

The dredge material is being placed in the Massachusetts Bay Disposal Site (MBDS), approximately 20 miles offshore of Boston Harbor, with the exception of a small fraction of the material that was placed as a cap to the Main Ship Channel Confined Aquatic Disposal (CAD) cell, just downstream of the inner confluence of the Chelsea and Mystic Rivers.

Phase 3 (future work) will involve removing approximately 200,000 to 500,000 cubic yards of hard rock. The contract solicitation is anticipated to be released in spring 2020 with the work getting underway later that year. This final contract, when finished, will complete the entire Boston Harbor Improvement project. Completion of the entire project is expected by December 2021.

Improvement deepening of Boston Harbor was authorized for construction by the 2014 Water Resources Reform and Development Act (WRRDA). WRRDA referenced a Chief of Engineers Report, signed Sept. 30, 2013, which was transmitted to Congress on Feb. 26, 2014. 🐦



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PORT OF MANZANILLO TO DREDGE NAVIGATION CHANNELS

Mexican state-owned port administrator Administración Portuaria Integral de Manzanillo S.A, also known as (API Manzanillo), said in late April it plans to “immediately” dredge the facility’s access and secondary channels to improve navigability at the port. Captain Héctor Mora Gómez, the port administrator’s general director, said dredging must bring the port’s access channel to a 17-meter depth (55.7 feet). The depth was based on conversations with vessel operators, as well as the port administration’s own calculations and insights from its engineering team. The API Manzanillo didn’t disclose a specific timeline for dredging works to begin but said those would include two separate phases: maintenance dredging and “construction dredging” in very specific sections of the port’s access and secondary channels. “The Port of Manzanillo currently demands navigability for vessels between 300 and 367 meters (984 and 1,204 feet) of length and 48 and 52 meters (157 and 171 feet) of width,” API Manzanillo said in late April. While the Mexican port can still handle vessels that large, the dredging works were labeled as “preventive” and aim to make the port’s navigation and access channels deeper and able to handle higher capacity. The Port of Manzanillo is one of Mexico’s largest ports, and a key gateway to Latin America and the Caribbean.

ARGENTINIAN PORT ADMINISTRATOR TO FUND 2020 DREDGING PROJECT

Argentinian Port Administrator Consorcio Portuario Regional de Mar del Plata (CPRM) plans to use its own money to fund an estimated \$3 million US dredging project, which is expected for 2020, CPRM’s president, Martín Merlini, told local media *Pescare*. Merlini said the port administrator expects to release a dredging tender by either the second half (H2) of 2020 or early 2021. In the past few years, CPRM has been responsible for both planning and financing the dredging works. In the past, the port administrator used to get financial aid from either the local province or the federal government. As previously reported by *International Dredging Review (IDR)* in 2017, Spanish dredge operator Canleamar SL won a maintenance dredging tender for the Port of Mar Del Plata back in February 2017. Canleamar SL was awarded the project for about \$3.5 million US. The Spanish company completed the maintenance dredging project in 2018. Merlini labeled the Spanish dredge operator’s performance as “impeccable.” Canleamar SL used its *Omvac 10* to dredge the local port. Merlini said CPRM is still paying Canleamar SL for the works, with two installments are left out of six.

PORT OF RIO GRANDE DREDGING 65 PERCENT COMPLETE

Maintenance dredging at the Brazilian Port of Rio Grande, in the southern state of Rio



Fernando Estima, superintendent at the local state-owned Port Administrator, SUPRG, comments on dredging challenges at a lunch meeting. Maintenance dredging in Brazil’s southern Port of Rio Grande is more than half way complete.

Grande do Sul, is 65 percent complete, said Fernando Estima, superintendent at local state-owned port administrator, the Superintendence of the Port of Rio Grande, SUPRG. He made his remarks in late April during a lunch meeting promoted by a local trade chamber. A consortium made up of Jan de Nul and DEME Group’s

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PANAMA CANAL WELCOMES 6,000TH NEOPANAMAX VESSEL

In late April, the Panama Canal welcomed its 6,000th Neopanamax vessel through its expanded canal, local canal authority, ACP said. The milestone was reached after the LNG vessel *Energy Liberty* completed the transit. It traveled southbound from the Atlantic to the Pacific Ocean. “Once again, we are proud to celebrate this achievement alongside our world-class workforce and LNG industry partners, who have swiftly adopted the waterway since the inauguration of the expanded canal less than three years ago,” said Panama Canal Administrator Jorge Quijano. The expanded canal has been seen as a competitive route for U.S. gas shipments to major Asian importers. ACP said that out the 6,000 Neopanamax vessels that have transited to date, more than 50 percent have been from the container segment. Liquefied petroleum gas (LPG) vessels accounted for another 26 percent, and LNG vessels for 11 percent, ACP said. The remaining are made up of dry and liquid bulk carriers, car carriers and cruise ships.

Brazilian subsidiary, Dragabras, was allowed in mid-December 2018 to resume maintenance dredging at the Port of Rio Grande. The SUPRG executive also addressed some of the project’s issues. He said the halt in the maintenance dredging initiative, as well as legal issues, considerably increased the project’s cost. “The legal issues made everyone review our proceedings to make sure we are doing the (dredging) project within the (scope) of what has agreed upon,” he said. Estima estimated dredging works to finish by June 2019. Estima said the SUPRG management will work on three key topics, including a review of the existing management model, a continuous dredging plan, and the port’s traffic control.

ARGENTINIAN BANKS FINANCE PORT OF QUEQUÉN DREDGING

Argentinian development bank BICE and local commercial bank Banco Macro agreed to provide \$32.2 million US in financing for port administrator Consorcio de Gestión de Puerto Quequén to fund a maintenance dredging project

at the local port, BICE said in March. Jan De Nul will perform maintenance dredging to bring the port’s basin and its inner channel to 50 feet. Out of the combined \$32.2 million US loan, Banco Macro will provide \$20 million US with a 60-month pay period, while BICE will aid \$12.2 million in a 80-month timeline. The dredging project is expected to be completed in multiple phases. In mid-April, Jan De Nul’s TSHD *Kai-shuu* arrived. In April, Arturo Rojas, president of administrator Consorcio de Gestión de Puerto Quequén, estimated that the maintenance dredging project will take about four to six months.

CARP COMPLETES PHASE 1 OF PLATA RIVER DREDGING

The Rio de la Plata Port Administrator Commission (CARP), a bi-national commission between Argentina and Uruguay, said in late February it completed phase one of a deepening and maintenance dredging project for the La Plata River channels between kilometers 37, near Barra del Farallón, and kilometer zero. CARP said it awarded the five-year dredging works in August 2018 to a consortium made up of Boskalis International B.V, and DEME Group’s Dredging International. The project will dredge to depths of 34 and 38 feet in hard bottom areas. As a result of the completed deepening dredging, CARP declared the Barra del Farallón and the kilometer zero areas to now have “regulator navigability.”



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GATOR DREDGING BEGINS LAKE SEMINOLE RESTORATION

On November 19, 2018, Gator Dredging started construction on a four-year \$18 million lake restoration project for Pinellas County's Lake Seminole in Florida. The project is removing approximately 900,000 cubic yards of sediment from the lake.

Lake Seminole, the second largest lake located in Pinellas County, was created in the late 1940s by damming off the estuaries of Long Bayou fed by the tidal flows of Boca Ciega Bay. The lake has seen organic sediment accumulate, which is causing degraded water quality and making cleaning necessary to restore the health of the lake.

The material will be hydraulically dredged with an Ellicott 670 14-inch swinging cutter-head dredge. At the longest length, the sediment will be pumped through 11,000 feet of temporary pipeline to shore where the material will be dewatered and disposed.

Gator Dredging headquartered in Clearwater, Florida, will make improvements to the 684-acre lake, by building a 27-acre dredged material management area disposal cell, where the 900,000 cubic yards of nutrient-rich organic sediment will be placed. The construction of the dredged material placement site is expected to take approximately nine months with completion slated for August 2019. Once completed the hydraulic dredging will begin in the North



In late 2018, Gator Dredging started work at Lake Seminole in Florida. Construction of a dredged material placement site will be completed in August 2019, after which dredging will begin.

Lobe of the lake progressing south to the Park Blvd. vicinity. The dredging is expected to take 18 months to complete around February 2021.

Gator Dredging said the Pinellas County Commissioners top priority for this project is to improve the water quality of Lake Seminole as well as the surrounding wetlands. The nutrients removed from the lake are significant as they relate to the water quality of Boca Ciega Bay where the lake outfalls. The nutrients to be removed contribute to algae growth, including algae found in red tide. The algae growth depletes

the resources needed to maintain healthy populations of aquatic life and in turn, this negatively impacts the surrounding environment.

Red tide serves as an example of what nutrient-enriched sediment can lead to. Red tide is fueled by nutrient-enriched sediments containing high levels of phosphorus and nitrogen. Removing the nutrients that algae need to thrive, will help reduce the environmental and economic impacts harmful algae blooms have on the Tampa Bay area. The result of removing these nutrients will be improved water quality and in turn,

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a healthier environment for the surrounding ecosystem, improving the lake's aquatic life and the wildlife surrounding Lake Seminole.

Together with the Southwest Florida Water Management District and Florida Department of Environmental Protection, funding for the project has been approved and a contract awarded.

Since the start of this project, Gator Dredging has increased its workforce through the creation of 20 plus positions with the potential for more as the project progresses.

JACKSONVILLE DISTRICT AWARDS WEEKS MARINE SHORE PROTECTION CONTRACT

The U.S. Army Corps of Engineers Jacksonville District awarded Weeks Marine a \$6,428,820 contract for sand placement on Gasparilla Island. The Corps anticipates it will take about two months to complete the project, which is scheduled to start in late May.

The Gasparilla Island segment of the Lee County Shore Protection Project is 100 percent federally funded by the Flood Control and Coastal Emergency (FCCE) Act and Bipartisan Budget Act of 2018.

Located along the southwest coast of Florida, the Lee County Beach Erosion Control Project authorizes sand placement on three barrier islands, including Gasparilla. Hurricane Irma impacted Gasparilla Island in 2017, reducing sand volume and eroding the northern portion of the project. The contract work includes re-nourishing approximately 1.4 miles of shoreline on the north reach and approximately 0.4 miles of shoreline on the south reach.

Weeks Marine will dredge and place about 161,000 cubic yards of sand on the eroded beach, bringing it to full restoration. Project work also includes beach tilling, pipeline corridor hard-bottom mapping, construction/vibration control and monitoring, turbidity and environmental species monitoring, beach fill remediation and incidental related work. The contractor will dredge beach material from a borrow area located slightly north of Boca Grande Pass, and pipe it onto the beach.

The contractor will temporarily close a portion of the beach in active construction and build pedestrian crossovers over the pipeline in intervals to enable public access to the Gulf.

Without delays, the Corps said construction should move an average of about 500 feet (one to two city blocks) along the beach each day.

The U.S. Army Corps of Engineers received disaster recovery funds provided in Public Law 115-123, the Bipartisan Budget Act of 2018. The act provides nearly \$17.4 billion to the Corps for disaster recovery. Jacksonville District received \$3.348 billion for long-term recovery investments in its area of responsibility, which includes Florida, Puerto Rico and U.S. Virgin Islands. This funding will go toward 13 studies and 22 projects that will reduce risk to communities damaged by storm events. The total Federal funding allocation for Jacksonville District recovery efforts so far, including six FCCE projects, exceeds \$4 billion.

BUFFALO DISTRICT AWARDS TWO CHANNEL MAINTENANCE CONTRACTS TO RYBA MARINE

The U.S. Army Corps of Engineers Buffalo District awarded a \$1.5 million contract to Ryba Marine Construction Company for dredging the federal navigation channel and harbor areas of Oswego harbor in New York. The contract was awarded March 21, and the contractor anticipates starting work in June 2019.

The channel was last dredged in 2016, when 171,000 cubic yards were removed. The Corps said the frequency of dredging in Oswego Harbor is subject to the availability and timing of funds. The Corps of Engineers schedules dredging every three to four years at the Oswego Harbor in order to maintain federally authorized depths, which include 21 to 24 feet in the Oswego River channel, 25 feet in the outer harbor, and 27 feet in the lake approach channel.

"Serving as the first U.S. port of call and deepwater port on the Great Lakes from the St. Lawrence Seaway, the Port of Oswego is a critical economic engine for Oswego County and all of Central New York," said Rep. Katko. "I have worked closely with the U.S. Army Corps to advocate for this funding and appreciate their continued commitment to the port and our region. Dredging in the navigation channel and harbor areas of Oswego Harbor will allow for increased traffic at the port and will bolster our regional economy."

Oswego Harbor is a deep draft commercial harbor interconnected with seven commercial ports, supporting more than 250,000 tons annually.

"We are grateful for the advocacy of Senator Gillibrand, Senator Schumer, and Representative Katko, as well as other state and local partners, who have worked hard to secure funding for the effort," said Lt. Col. Jason Toth, U.S. Army Corps of Engineers Buffalo District commander.

On April 10, the Buffalo District also awarded Ryba Marine a \$1.1 million contract for dredging of the federal navigation channel and harbor areas in Ashtabula Harbor in Ohio. Under this contract and a subsequent November 2018 \$1 million contract, approximately 430,000 cubic yards of material is to be dredged this year. The contractor expects to begin work in July 2019 with dredging to be performed in the outer harbor and lake approach channel.

Ashtabula Harbor was last dredged in 2017, removing approximately 175,000 cubic yards of material. The Corps of Engineers schedules dredging every two to three years in Ashtabula Harbor in order to maintain federally authorized depths. The outer harbor has authorized depths between 22 and 30 feet, while the Ashtabula River channel has authorized depths between 16 and 30 feet.

As a major receiving and shipping port on the Great Lakes, Ashtabula Harbor supports transportation of 4.3 million tons of commodities such as coal, iron ore, limestone, chemicals, ores and minerals.

FIND SPONSORS ICW MAINTENANCE DREDGING PROJECT

The Florida Inland Navigation District (FIND) is sponsoring a maintenance dredge project of the Intracoastal Waterway (ICW) channel to -10 ft Mean Lower Low Water (MLLW) — its federally authorized depth — in a 4.5-mile section from the Port of Palm Beach to the Town of Palm Beach Docks.

This portion of the ICW channel has not received maintenance dredging since its original construction in the 1960's; the project will restore shoaled areas (presently

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Orion Marine Construction is dredging a portion of the Intracoastal Waterway channel to its federally authorized depth.

impeding navigation) to their federally authorized depths. Approximately 90,000 cubic yards of material from the ICW channel is being mechanically dredged and placed into a self-contained hopper barge, and transferred to the Palm Beach County Tarpon Cove Restoration Area. Orion Marine Construction Inc. is doing the dredge work, and Taylor Engineering is administering the project.

Dredging began in early March, will run 24 hours a day and is expected to continue through the end of May 2019.

JACKSONVILLE DISTRICT AND COUNTY SIGN PPA FOR ST. JOHNS BEACH PROJECTS

The U.S. Army Corps of Engineers Jacksonville District and St. Johns County finalized a critical agreement on April 23 for construction of the St. Johns County Coastal Storm Risk Management Project – South Ponte Vedra Beach and Vilano Beach areas.

The Project Partnership Agreement (PPA) is the next step toward construction of the project. It is a legally binding agreement between the government and non-federal sponsor that serves to define responsibilities, cost-sharing and execution of work.

The 3-mile long project will build a 60-foot beach berm, including the restoration of critically eroded dunes. Initial construction includes placement of 1.3 million cubic yards of sand, with three periodic nourishment events

occurring in 12-year intervals. The periodic nourishments will place an average of 866,000 cubic yards of sand on the beach. Sand will be dredged from the St. Augustine Inlet System (shoals and channel).

The Corps said this project addresses critically eroded areas along St. Johns County's shoreline. The completion of the project will improve community and environmental resilience by reducing damages to infrastructure, including the major hurricane evacuation route State Road A1A. It will protect and enhance habitat and environmental resources, by providing a minimum of 3.15 acres of continuous nesting habitat for sea turtles and shorebirds, maintained over 50 years. In addition, the project maintains existing recreation, and protects and enhances beach/dune interaction.

The project cost-share for initial construction is 23 percent federal, and 77 percent non-federal. Periodic nourishments are 17.7 percent federal, and 82.3 percent non-federal. Advertisement for the construction contract is anticipated for January 2020, and contract award scheduled for March 2020. Construction is anticipated to take approximately six months (weather pending).

NORFOLK DISTRICT AWARDS MANSON THIMBLE SHOAL CHANNEL PROJECT

In early March, the U.S. Army Corps of Engineers Norfolk District awarded a maintenance

dredging contract to Manson Construction Co. for the Chesapeake Bay Thimble Shoal Channel in Virginia.

The dredging is slated to maintain 11 miles of the channel to a depth of 52 feet for the average height of the lowest tide, with 1 foot of allowable overdepth. Manson will use a hopper dredge.

According to Steve Powell, Norfolk District project manager, removal of the maintenance material will assist deepening projects in the near future for the Virginia Port Authority – the project's local sponsor.

About 1.73 million cubic yards of dredged material will be placed at the Dam Neck Ocean Disposal Site. The fine-grain material is unsuitable for beach nourishment and instead is slated for ocean disposal.

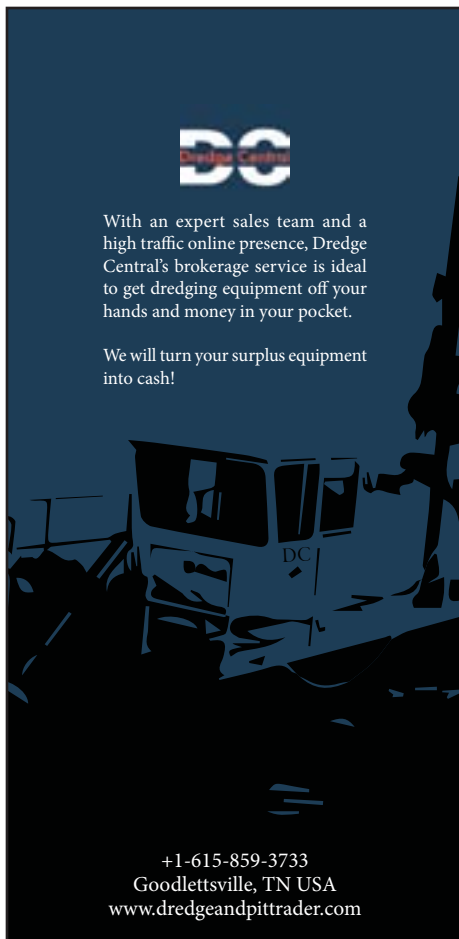
Powell said the district's next step is issuing a notice to proceed, anticipating the contractor will commence shortly thereafter.

The federal navigation channel project is expected to finish by the end of August.

PORTLAND DISTRICT CLOSES COMMENT PERIOD ON CHANNEL DREDGING

On May 1, the Portland District closed a public comment period on a draft Environmental Assessment (EA) for the federal navigation channel dredging and dredge material placement.

The Corps is proposing operations and



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maintenance dredging and dredge material placement for four federal navigation channels at Skamokawa Creek, Westport Slough, Old Mouth Cowlitz River, and Upstream Entrance to Oregon Slough. The dredged material would be placed in the Corps' existing network of upland placement sites and in the Columbia River from River Mile 3 through 145 where water is 20 feet deep or greater.

The Corps preferred plan, identified in the EA, would perform maintenance dredging with mechanical and hydraulic dredges.

The typical volume of dredged sediment removed per year and authorized channel depth for each project site includes: Skamokawa Creek, 6.5 feet, 15,000 cubic yards; Westport Slough, 20 feet, 30,000 cubic yards; Old Mouth Cowlitz, 8 feet, 40,000 cubic yards; Upstream Entrance to Oregon Slough, 10 feet, 75,000 cubic yards.

The Skamokawa Creek area has not been dredged by the Corps since 1992. In 1993, local interests dredged approximately 5,000 cubic yards from the channel. Based on recent river depth surveys, approximately 60,000 cubic yards of material has shoaled in the authorized channel to the advanced maintenance depth of 8 feet.

Based on input received from river users, the Corps is proposing to dredge Westport Slough to a channel depth of 20 feet below CRD (Columbia River Datum) to allow ocean-going

barge access. Westport Slough is authorized to a depth of 28 feet below CRD and a width of 200 feet, but has recently been maintained to a depth of 9 feet below CRD for the Wahkiakum Ferry. The Corps anticipated that Westport Slough may be dredged two or three times every five years. Based on recent river depth surveys, approximately 195,000 cubic yards of material has shoaled in the authorized channel to the advanced maintenance depth of 22 feet.

The Old Mouth Cowlitz River is at river mile 67 on the north side of the main-stem Columbia River in Longview, Washington. The site is no longer an active component of the Cowlitz River drainage and serves as an access channel for chip barges at the local WestRock paper mill (formerly Kapstone Kraft Paper Corporation and Longview Fibre) as well as the heavy civil marine construction company J.E. McAmis facilities.

The Old Mouth Cowlitz River channel is authorized to a depth of 8 feet below CRD and 150 feet wide. A private contractor for Longview Fibre dredged the area three times from 2009 to 2014. In 2018, a private contractor for the Kapstone Kraft Paper Corporation partially dredged to a depth of -10 ft CRD plus 2 feet of over dredge.

The Corps is proposing to dredge this area two or three times every five years. Based on recent river-depth surveys, approximately 80,000 cubic yards of material has shoaled in

the authorized channel to the advanced maintenance depth of 10 feet.

The Oregon Slough area was last dredged in 2001 when a clamshell dredge removed 55,799 cubic yards of material. The current project would like to revisit the area one every five years. The authorized depth is 10 feet below CRD.

Based on recent river-depth surveys, approximately 130,000 cubic yards of material has shoaled in the authorized channel to the advanced maintenance depth of 12 feet.

COTTRELL CONTRACTING STARTS WORK AT VIRGINIA NAVIGATION CHANNEL

The U.S. Army Corps of Engineers Norfolk District awarded a 120-day period of performance contract to Cottrell Contracting Corp. for the Lynnhaven Inlet federal navigation project in Virginia. The new contract started in May, with completion projected for September.

Approximately 170,000 cubic yards of dredged material will be placed on Cape Henry and nearby beaches for secondary storm-risk reduction and recreational benefit. More than 2 miles of beach are expected to be beneficially impacted.

Of the district's 65 shallow-draft federal navigation projects, Lynnhaven Inlet is one of only three to receive annual congressional funding. Dredging and placement operations will be 24/7 during the period of performance. ↴



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Contracts

Dredge Goetz Oil and Lubrication Products Delivery. To Schaeffer Mfg. Co. for \$865,772.50 on April 10, 2019 by the St. Paul Engineer District. W912ES-19-T-0006/W912ES-19-D-0005.

Maintenance Dredging, Lynnhaven Inlet. To Cottrell Contracting Corporation for \$2,850,080, line items 101, 102, 2, 301, 302, 303, 4, 5, 6, 601, 602, and 7 on April 11, 2019 by the Norfolk Engineer District. W91236-19-B-0001/W91236-19-C-0009.

Fire Island Maintenance 3B2. To Weeks Marine for \$37,039,250 on April 19, 2019 by the New York Engineer District. W912DS-19-B-0002/W912DS-19-C-0010.

Fairport Harbor Maintenance Dredging. To Luedtke Engineering Company for \$1,326,500 on April 30, 2019 by the Buffalo Engineer District. W912P4-19-B-0006/W912P4-19-C-0008.

Dredge Boat Basin at U.S. Coast Guard Station South Padre Island Texas. To Dredgit Environmental Corp. for \$344,900 on April 30, 2019 by the USCG Civil Engineering Unit Miami. 70Z082-19-B-PACP0700/70Z082-19-C-PACP0700.

Regional Indefinite Delivery Indefinite Quantity Multiple Award Task Order Contracts in Support of Dredging and Shore Protection

Projects Within the Boundaries of the South Atlantic Division. To Group 1: Callan Marine Ltd., Cashman Dredging and Marine Contracting Co., Cavache Inc., Continental Heavy Civil Corp., Cottrell Contracting Inc., Great Lakes Dredge and Dock, LLC, J. T. Cleary Inc., Manson Construction Co., Marinex Construction Inc., Norfolk Dredging Company, Orion Marine Construction Inc., Southern Dredging Co. Inc., The Dutra Group, Waterfront Property Services, LLC, D.B.A. Gator Dredging, and Weeks Marine Inc. (not to Exceed \$450,000,000); and to Group 2: Cavache Inc., CJW Construction Inc., Coastal Dredging Company Inc., Cottrell Contracting Inc., Florida Dredge and Dock, LLC, Southern Dredging Co. Inc., Southwind Construction Corp. and Waterfront Property Services, LLC, D.B.A. Gator Dredging (not to Exceed \$45,000,000), line items 1 to 5, on May 1, 2019 by the Jacksonville Engineer District. W912EP-18-R-0029/W912EP-19-D-0023, W912EP-19-D-0024, W912EP-19-D-0025, W912EP-19-D-0026, W912EP-19-D-0027, W912EP-19-D-0028, W912EP-19-D-0029, W912EP-19-D-0030, W912EP-19-D-0031, W912EP-19-D-0032, W912EP-19-D-0033, W912EP-19-D-0034, W912EP-19-D-0035, W912EP-19-D-0036, W912EP-19-D-0037, W912EP-19-D-0038, W912EP-19-D-0039, W912EP-19-D-0040, W912EP-19-D-0041, W912EP-19-D-0042, W912EP-19-D-0043, W912EP-19-D-0044, W912EP-19-D-0045. ↗

Events

MAY

Inland Marine Expo, May 20 to 22, America's Center, St. Louis Missouri. For more information, visit <http://inlandmarineexpo.com/>.

JUNE

2019 Dredging Summit & Expo—Waves of Change, June 4 to 7, Hilton Chicago, Chicago, Illinois. For more information, visit <https://dredging-expo.com/>.

Great Lakes Dredging Team Annual Meeting, June 10 to 11, Buffalo Grand Hotel, Buffalo, New York. For more information, contact Reilly Manz at rmanz@glc.org.

European Environmental Ports Conference 2019, June 12 to 13, Antwerp, Belgium. For more information, visit <https://www.wplgroup.com/aci/event/environmental-ports-conference/>

SEPTEMBER

Ports 19, September 15 to 18, Wyndham Grand Pittsburgh Downtown, Pittsburgh, Pennsylvania. For more information, visit <https://www.portsconference.org/>.

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Jacksonville District Begins Study Process for Future Miami Harbor Project

BY WENDY LARIMER

The U.S. Army Corps of Engineers Jacksonville District held a conference call on April 26 to provide an update on the progress of the Navigation Improvement Study for the Miami Harbor in Florida.

The area being examined includes the outer entrance channel, Fisher Island turning basin, Fisherman's Channel and Lummus Island turning basin; however, the exact footprint of any deepening project has not yet been determined as the Corps is still studying where problems exist.

Corps Planning Lead Ashleigh Fountain said the study is examining how to reduce transportation costs to and from Miami over a 50-year period beginning in 2025. Fountain said questions the Corps is looking to answer include, "Is there a federal interest in how existing navigation is contributing to delays and cost problems? Is depth, width restricting vessels and what vessels are restricted? Is there a federal interest in going forward with the improvement? How is Miami Harbor contributing to national economic development?"

A tentatively selected plan is on schedule to be completed by January 2020 with a draft report available to the public in April 2020.

The Corps will study problems with transportation from the ship's origin to the Miami Harbor to determine if vessels traveling through the Panama Canal, Suez Canal and along the eastern seaboard face impediments traveling into the harbor. Next, the study will consider harbor congestion from cruise ships and commercial traffic, not only the number and size of vessels using the harbor, but also at what time of day or under what loads the ships have issues safely navigating. Finally, the study will look at means to minimize the environmental impacts of any navigation solutions.

The Corps is in the beginning of the study phase collecting data and information.

"Right now we're in the engineering phase where we are collecting geotechnical information, grab samples, to find what is the subsurface for where we might be removing materials,"

Fountain said. "We have done some data collection in the field looking at water level and currents to find what are the hydrodynamics interacting with ships."

She said the Corps is also exploring information on the salinity of the water to find if it might change if the area is dredged, and how

much material might need to be removed; however, all that work is preliminary as the footprint for the project has not yet been defined.

The Corps' Engineer Research and Development Center (ERDC) is conducting the ship simulations to see what various

types of vessels require when moving around the harbor. "They have a pilot simulate a ship getting into the harbor in various scenarios. He'll cover all facets of movement like docking and turning, so we can see what is needed for each type of vessel," Fountain said.

Once ship simulations are well underway, work can begin on the economic analysis using HarborSym, which looks at the national economic benefit of the harbor and whether there is a transportation cost savings with any deepening. To do this, researchers examine how the harbor is operating today and forecast how it might look in the future with both improvements to the harbor and none.

Fountain said that the last deepening project, where the studies for it began in 1999, didn't wrap up until 2015, around the same time the Panama Canal finished its expansion, and the world fleet responded with larger vessels with deeper drafts. The new project will try to figure out how the harbor will function in the future and how it can respond to changes.

The last part of the study will include the environmental analysis, which will involve cultural resources surveys, benthic and hardbottom surveys in coordination with the National Marine Fisheries Service, habitat assessments and more.

Overall the team is working to be more transparent on this deepening project than they may have been previously. Plans are to hold public calls quarterly to release information about the project and take comments or questions. The Corps hopes to hold another call in August. ➔



The Jacksonville District is beginning the study process for a future deepening project at Miami Harbor. The last deepening project at the port was completed in 2015.

DREDGING HIGHLIGHTS FROM THE PAST

40 YEARS AGO – 1979

A jet pump bypass system newly developed at the Waterways Experiment Station (WES) in Vicksburg, Mississippi, was installed at the entrance to the marina at Santa Cruz, California to eliminate chronic shoaling.

35 YEARS AGO – 1984

Canamont, Inc. of Montreal was performing a 1, 200,000-cubic meter dredging project, including the blasting of 20,000 cubic meters of rock to build a 260-meter-long, 14-meter-deep dock at the Port of Sept-Iles on the St. Lawrence River.

30 YEARS AGO - 1989

Jolijne Viergever was the first woman to receive a degree in Mechanical Engineering with a specialty in Dredging Technology from the Delft University of Technology in its 50-year existence.

25 YEARS AGO - 1994

William F. "Willie" Zenga was named WEDA Dredger of the year in recognition of his 53 years of service to the dredging industry. As business manager of Local 25 Marine Division of the International Union of Operating Engineers, he was a strong advocate of maintaining a working relationship between labor, the dredging industry and government. During his career he was an employee of most of the dredging contractors in the U.S.

20 YEARS AGO – 1999

L.W. Matson, Inc. was rebuilding its 18-inch cutterhead dredge *Sandpiper* to work on a Bureau of Reclamation job in Arizona and Mexico that included a 40,000-foot discharge line and three booster pumps, all supplied by Matson. Scheduled to start on July 1, 1999, the value of the contract was \$4,728,282.

15 YEARS AGO - 2004

Manson Construction Company reported "a significant reduction of soot into the exhaust" of the cutterhead dredge *H.R. Morris* after installing Algae-X magnetic fuel conditioners on the diesel engines and treating the fuel with a fuel catalyst. The measure was to prepare for new California emission requirements going into effect in 2005 and even more stringent requirements to begin in 2007.

10 YEARS AGO – 2009

Knudsen Engineering Limited received a contract to supply arctic sensors for two ISE Explorer Class autonomous underwater vehicles. The sonar systems were used to collect survey data from two mini submarines.

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