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319 N. 4th Street, Suite 650, St. Louis, MO 63102
Phone: 314-241-4314 • Fax: 314-241-4207
www.dredgemag.com

E-MAIL INQUIRIES

Editorial: anna@wjinc.net
Advertising: jason@wjinc.net
Subscriptions: pat@wjinc.net

EDITORIAL DEPARTMENT

EDITOR
Anna Townshend
Email: anna@wjinc.net

ASSOCIATE EDITOR
Heather Ervin

CONTRIBUTING WRITERS
David Murray
Frank McCormack
Judith Powers, Founder
Léo Siqueira
Marsha Cohen
Peter Downs
Tom Black

BUSINESS & SALES DEPARTMENT

PUBLISHER
Nelson Spencer, Jr.

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CLASSIFIED ADVERTISING
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CIRCULATION
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ACCOUNTS RECEIVABLE
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ACCOUNTS PAYABLE
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SHIPPING
Cindy Bequette

WEBMASTER/GRAPHICS
Marie Rausch

POSTMASTER: Send change of address to IDR, Circulation Department, 319 N. 4th Street, Suite 650, St. Louis, MO 63102

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This KELLER gearbox was shipped from Bonn, Germany to China for the dredge Tian Kun.. see story on page 18.

Departments

On the cover

On the Cover: Cashman Dredging Company's backhoe dredge Captain A. J. Fournier works in the Atlantic Intracoastal Waterway at Fort Lauderdale, as seen by attendees at the WEDA Eastern Chapter Meeting in November. The "Captain" dredged 180,000 cubic yards of material during the project, which started in early May and was completed on December 22, from the 17th Street Causeway to Sunrise Boulevard. Steve Tobin was project manager. Photo by Marsha Cohen.

Committed to the Coast


Bayou Dupont: Before

On the Louisiana Coast - Many Weeks Marine employees call Louisiana home. For some of us living at the water's edge for weeks at a time, the Louisiana coast is a second home.

Weeks has worked to **re-establish land lost to coastal erosion** for over twenty-five years, and has completed many of the state's large scale restoration projects. Recently, Weeks' Dredging Division put the finishing touches on two major, high profile contracts at **Bayou Dupont** and the **Caminada Headland**. Both challenging projects involved the transport of sediment over exceptionally long distances.

For many advocates seeking a beneficial use of **Mississippi River** sediments, pumping sand across parish lines up to 13 miles away and creating hundreds of acres of restored marsh in the Bayou Dupont footprint represent significant accomplishments.

At Caminada Headland, the 800+ acre **beach and dune restoration** projects are protecting bustling **Port Fourchon**, Highway 1, and "sensitive landward marshes and maritime forests from erosion and saltwater influences," according to the Oil Spill-underwritten Gulf Environmental Benefit Fund.

With more reliable funding now available, the successful completion of Bayou Dupont and Caminada is a testament to the return on investment realized through **Long Distance Sediment Transport** in coastal Louisiana.

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President Signs WIIN Act, Including WRDA 2016 Provisions and More

U.S. Senator Jim Inhofe (R-OK), chairman of the U.S. Senate Environment and Public Works (EPW) Committee, and U.S. Representative Bill Shuster (R-PA), chairman of the House Transportation and Infrastructure Committee, were both outspoken and confident that a Water Resources Development Act (WRDA) for 2016 would become reality this Congressional session, and on December 16, President Obama signed the bill.

Before the final Congressional recess of the year and the last session before a new Administration, the House and Senate had already passed their versions of WRDA 2016 with bipartisan support on September 15 and 28.

On December 5, Inhofe and Shuster, along with Rep. Fred Upston, (R-MI), chairman of the House Energy and Commerce Committee, and Rep. Rob Bishop (R-UT), chairman of the Natural Resources Committee, announced an agreement on comprehensive water resources infrastructure legislation. A conference committee worked to merge the two House and Senate WRDA 2016 bills.

The new legislation includes WRDA, and dubbed the Water Infrastructure Improvements Acts for the Nation (WIIN) Act, also included legislation for the safety of drinking water and wastewater regulations, and addresses significant tribal and natural resources issues.

Considered bicameral legislation, Chairman Shuster said the legislation "is the result of hard work and collaboration among our committee and will strengthen the nation's transportation and water infrastructure, and our economic competiveness."

On December 8, the House of Representatives passed the WIIN Act by a vote of 360 to 61. On December 9, the Senate voted 78-21 to pass the legislation.

Each respective bill, before the combined WIIN Act, passed with more overall votes, than the final. It was still an overwhelming majority that passed the legislation, but perhaps a little less bipartisan than touted.

The WIIN Act reestablishes Congress on a two-year schedule to reauthorize water resource legislation. The act has other important directives, in addition to WRDA 2016, which address provisions to improve drinking water infrastructure, control of coal combustion residuals, improve water storage and delivery to help drought-stricken communities, federal dam maintenance backlogs, and approve longstanding water settlement agreements for taxpayers and Native Americans.

Sen. Inhofe was very vocal about using WRDA 2016 to help people facing water infrastructure crisis, like in Flint, Michigan, and other places with drought or water level issues.

In September, after the Senate passed its WRDA bill, Inhofe said: "The Senate passed WRDA bill not only provides the critical support that Flint needs but it also will help to prevent future water and wastewater infrastructure crises across the nation. WRDA is the right vehicle, and I am committed to getting this bill to the president's desk with Senator Boxer and my good friend Senator Stabenow by the end of year." Title I of the WIIN Act addresses water resources development, Title II and III address the other additions.

THE WINS FOR DREDGING

The WIIN Act does a number of good things for the dredging industry too. It works to assist non-federal interests and advance public-private partnerships for water resource projects. Section 1113 says that the Corps can permit

Editorial, continued on page 20

WEDA Eastern Chapter Annual Meeting, Day One, Covers Broad Terrain with Diverse Speakers

BY MARSHA COHEN

Back to back meetings of the Western Dredging Association (WEDA) Eastern Chapter and the U.S. Army Corps of Engineers Eastern Region Dredging Conference on consecutive days drew a large audience of some 90 participants from the Corps and the private dredging sector.

As members of WEDA's Eastern Chapter gathered for the annual meeting on October 25, 2016, at the Broward County Convention Center in Fort Lauderdale, Florida, the camaraderie of the group became clear at the registration desk and during the welcome breakfast. This yearly gathering is one of the many ways WEDA reaches out to the Corps on behalf of its members. The meeting was officially opened by Michael Gerhardt, president of the WEDA Eastern Chapter, with "a special thank you for the support of the partners and contractors and to all of WEDA's strategic partners, gold and silver sponsors and media partners." Gerhardt also predicted that the line-up of this year's speakers would provide "some insightful, perhaps unexpected, information." And indeed it did.

Tim Murphy, deputy district engineer, Corps Jacksonville District, was next up to welcome the group on behalf of the Corps, mentioning that the Corps of Engineers work represented $452 million in the Jacksonville District, that new jobs are coming up and that Jacksonville is growing. "The dredging industry and the Corps are focusing on the hard stuff and that no matter what anyone says, there is nothing routine about routine maintenance," Murphy said.

About 90 participants gathered for the two-day event. The first day for the WEDA Eastern Chapter meeting topics included a focus on Florida dredging issues and other environmental and safety issues, as well as Corps updates.

CORPS UPDATE: NAVIGATION PROGRAM

Jeff McKee, chief of the Navigation Branch, navigation program manager at Corps Headquarters, followed with a "Navigation Update." McKee explained that "the movement of commerce and navigational safety have been the Corps' focus in recent years and that recreation has been low keyed." He reminded the audience that the United States water network consists of "13,000 miles of coastal waters, 12,000 miles of inland waterways, 800 bridges and 900 other structures."

He added, "We are all awaiting the next appropriations in the form of the continuing resolution due in December. Meanwhile draft bills for Fiscal Years 2017 and 2018 are in the process of being developed and defended state by state." These will address Operations and Maintenance for critical infrastructure, including funds for the Mississippi River and Tributaries (MRT), for Flood Risk Management, Aquatic Ecosystem Restoration, navigation and other multipurpose uses. McKee also emphasized the President's "We Can't Wait" Initiative for the ports of New York/New Jersey, Charleston, Savannah, Jacksonville and Miami for post-Panamax port projects and studies. WRDA 2016 also provides for the assessment of breakwaters and jetties. A positive note is that "contributed funds" can sometimes eliminate the need for prior appropriations, which means that projects can start up much more quickly. This is a good change in cost sharing, according to McKee, however, "we are still constrained by funding, it's a challenge to do studies, and the cost of business – except for fuel – is increasing. This all makes it a challenge to reach state-of-the-art depths in the context of the deep-draft vessels traversing the Panama Canal." He did mention, however, that supplemental funds were pending for damage caused by Hurricane Matthew. Matthew, which mostly bypassed Florida and primarily devastated North Carolina, was a recurring subject of concern during the meeting.

McKee's final message concerned stakeholders and partners, asking them "to keep working together to communicate the value of Corps programs, engage end-users and advocate toward our decision makers."

FLORIDA FOCUS: PORT EVERGLADES, INTRACOASTAL WATERWAY, FIND

The focus turned to Florida when Dr. Natacha Yacinthe, seaport planning manager at Port Everglades, just 15 minutes from the conference venue, took the podium. Port Everglades, she recounted, "is an economic powerhouse" pointing to "its seaport-airport connection, and its ranking as the number three cruise port in the world." It is also the largest container port in Florida, and capital improvements at the port will reach $1.6 billion in investments in the next few years, including plans for deepening the navigation channels.

Florida stayed in the picture when the next speaker Brad Pickel, executive director of the advocacy group Atlantic Intracoastal Waterway Association (AIWA), stepped up. Pickel's vision is to see the 1,100 miles of the Intracoastal Waterway, stretching from Norfolk to Florida Bay as "a marine interstate highway, the backbone of marine transportation." He maintains that the country "has an unrealized capacity on this East Coast waterway that can provide clean freight transportation, with many products that can best be shipped by water instead of trucks."

Dylan Davis, navigation program manager, Corps South Atlantic Division, addressed the impacts and response from Hurricane Matthew.

Mark Crosley, executive director of the Florida Inland Navigation District, provided a general overview of operations in Florida, picking up on the AIWA theme of a 12-foot deep and 90-foot wide intracoastal maritime highway. Crosley traced the history of the waterway, which was first privately owned and then purchased by the state of Florida for development in the late 1920s. He clearly wishes that "government would be proactive, not reactive" in this way. The legacy of Florida's proactive policy is that the state remains one of the few states – North Carolina being another – that have a non-federal funding stream for dredged material management.

OTHER TOPICS ADDRESS ENVIRONMENTAL, SAFETY AND TRAINING ISSUES

Attention then returned to the impacts and response to Hurricane Matthew. Dylan Davis, navigation program manager of the Corps South Atlantic Division, explained how the Corps Emergency Management Group, which includes the Coast Guard, NOAA and FEMA, swung into action during the category 4 hurricane, holding seven briefings a day, coordinating survey boats, and the Corps tag teaming with the Coast Guard. North Carolina's coast and inland waters are going to need a great deal of repair work and "Congressional money

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The BAE Systems (North) shipyard operation involved dredging to depths from -20 to -70 feet MLLW and the removal of approximately 100,000 cubic yards of sediment for upland disposal, then covering inaccessible areas with gravelly sand, and treatment and disposal of a total of 855,000 gallons of decanted water from the barges. All in-water operations are scheduled for completion at the BAE Systems (North) facility by March 2016.

In late 2015, R.E. Staite Engineering completed the Redwood City Harbor Channel Maintenance Dredging project for the USACOE, San Francisco District, with a contract value of $10,337,056 which involved the dredging of contract volumes of 248,340 CY of material to a design depth of -30 MLLW. The project was completed ahead of schedule.

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From left, Mark Sickles, Chris Champigny, Chuck Broussard and Keith Lindsay, all of Weeks Marine, with Tim Rooney, Corps Philadelphia District.

is being requested as a storm supplemental for jetty overwash, jetty stone displacement and severely eroded beaches," Davis said. Other areas, like Jacksonville and Flagler beaches in Florida, where the A1A collapsed, are obviously going to need help as well.

Moving on to an issue which may not be an emergency, but nonetheless requires long-term planning, was Doug Piatkowski's presentation on "Partnering with Industry and Sea Turtle Technical Experts in the Development of a Decision Support Tool to Reduce Dredging Entrainment Risk." Piatkowski is a physical scientist at the U.S. Department of the Interior, Bureau of Ocean Energy Management (BOEM) and is midway through a two-year study as part of the Marine Minerals Program. This program seeks to establish the whereabouts of sand resources and at the same time manage risk factors to sea turtles, by "getting industry and turtle people together to identify risks and develop a suite of mitigation measures." Again, this is a multi-agency initiative with NOAA, BOEM, U.S. Fish and Wildlife Survey and the U.S. Navy.

Turning to specific technical subjects, Pete Weber, chief operations officer, of DOC (Depth of Cover) Mapping, and Jonathan Sperka, technical director at Ordnance Holdings, Inc. explained the need for knowledge about underwater hazards before and during dredging. Speaking of his company, Weber emphasized, "All we do is mapping and looking for underwater pipelines and other cables, using probes and sub-bottom profiling. We employ acoustic instruments like multibeams or electromagnetic remote surveys and modeling which vary in price and accuracy." Admittedly, such data collection can cost upwards of $10,000 per day, but it is crucial, he stressed. "While developing a dredge plan, authorities should get in touch with utilities companies and save time by getting information as far as possible in advance." Aware that no national system exists, Weber's group DOC advocates for a minimum standard for dredging safety.

Sperka's Ordnance Holdings, Inc. also works on underwater obstacles but in the specialized area of unexploded ordnance (UXOs). In his presentation, "The Right Tool for the Job: A Review of Techniques and Technologies for Locating Buried Underwater Utilities at Dredging Sites – Managing UXO/MEC during Dredging Projects," he pointed out the variety of dangerous materials lying on the seabed off the East Coast. UXOs can be chemical weapons or old ammunition that was innocently dumped at sea at a time when people didn't know better. Munitions and Explosives of Concern (MEC) are dangerous and dredging contractors should be aware that they should "never say never. When authorities say there is ordnance, there is. But if they say there isn't, it remains questionable."

On the banner, WEDA's Strategic Partners: Port Everglades, Atlantic Intracoastal Waterway Association (AIWA) and CIP-OAS; Gold Sponsors: JF Brennan, Cashman Dredging, Cottrell Contracting, DCA, Dutra Dredging, Manson Construction, Marinex Construction, Mobile Dredging and Pumping, Norfolk Dredging, Weeks Marine; Silver Sponsors: Clean Earth, DSC Dredge, EA Engineering, GBA, JT Cleary, Ryzhka, and Southern Dredging; and Media Partners: DredgingToday.com, IDR, IHS Markit, and World Dredging Mining and Construction.

On a less technical, more human note, Ms. Lee Goldman, business manager of the Mid-Atlantic Maritime Academy, spoke to the audience on "Training the Next Generation of the Maritime Workforce." Goldman's academy is a non-profit that has been helping military personnel transition to commercial jobs. The organization also helps dislocated workers and out of school youths to train for the maritime industries. After intensive training, students are placed in internship programs, and Goldman hopes, "that the dredging industry might be able to find some of their future employees from engineers to deck hands" among her trainees. She directly asked any dredging companies that might have an internship available to step forward.

DREDGING IN SOUTH AMERICA

The last two sessions of this fully packed day took an interesting turn, focusing on South America and the ongoing and potential dredging works of interest to the industry. Ernesto Fernandez, senior international trade consultant at the Inter-American Committee on Ports of the Organization of American States (CIP-OAS) headquartered in Washington, D.C., started the conversation. Highlighting the mutual concerns of human rights and security among the 34 OAS nations in the Western Hemisphere, he pointed out that dredging stretches across a number of waterbodies. It covers corporate social responsibility and gender equality in the maritime area, the risk assessment of ship wrecks and hazardous materials and fuel in the region. And of course, he underscored the importance of the Panama Canal expansion to the hemisphere. But not only Panama is on the radar. "Transshipment through the area means the Bahamas, Jamaica and Brazil are also vying to become regional logistics hubs."

Continuing this focus was John S. Kavulich II, president of the U.S.-Cuba Trade and Economic Council. The council is a non-profit that seeks to open business doors between the United States and Cuba. Pointing out that the Port of Mariel, Cuba has more than 11 million citizens and is only 45 minutes from Havana, the idea that "Cuba as a transshipment port could surpass other Caribbean Sea countries is not a dream." Mariel has been growing steadily and, according to Kavulich, is posed to make a big jump in trade capacity by 2019. Indeed legislation is changing, exports to and from Cuba are evolving and U.S. companies – including dredging contractors – should be taking a good look at "the infrastructure that will be necessary to accommodate hundreds of thousands of U.S. visitors."

This was an inspiring peek into the future of dredging operations in the Western Hemisphere and a great way to end a day of in-depth presentations. Luckily, the day was not quite over. A networking reception was held, giving everyone a chance to relax and make further contact with the speakers and other attendees.

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Sevenson Completes Gowanus Canal Pilot Project

BY JUDITH POWERS

Sevenson Environmental Services has completed a project to remove debris and collect sediment from a segment of the Gowanus Canal. The project is part of a pilot study required in the Environmental Protection Agency's (EPA's) Record of Decision (ROD) for the cleanup of the 1.8-mile-long, 100-foot-wide canal in Brooklyn, New York. The pilot study began the last week of October and ended on November 14 of this year.

The Gowanus Canal Remedial Design Group, composed of potentially responsible parties (PRPs), is conducting the study, and Sevenson is the dredging contractor.

The pilot study was conducted in the 4th Street Turning Basin, a short spur off the main canal. An initial sonar scan located the debris prior to removal, and Sevenson used floating cranes to remove more than a century's worth of debris, including sunken boats, sheet piles, tires, concrete rubble, timbers, and general trash. After washing the debris down aboard the barges, the crew transported it to a nearby staging area for temporary storage and evaluation for archeological importance.

Sevenson then dredged several feet of silt with each of four digging tools, testing them for possible use in the final canal cleanup. The dredged silt was transported to the staging area, where Portland cement was added as a stabilizer prior to stockpiling onshore. The stockpiles are being monitored for possible use as capping material.

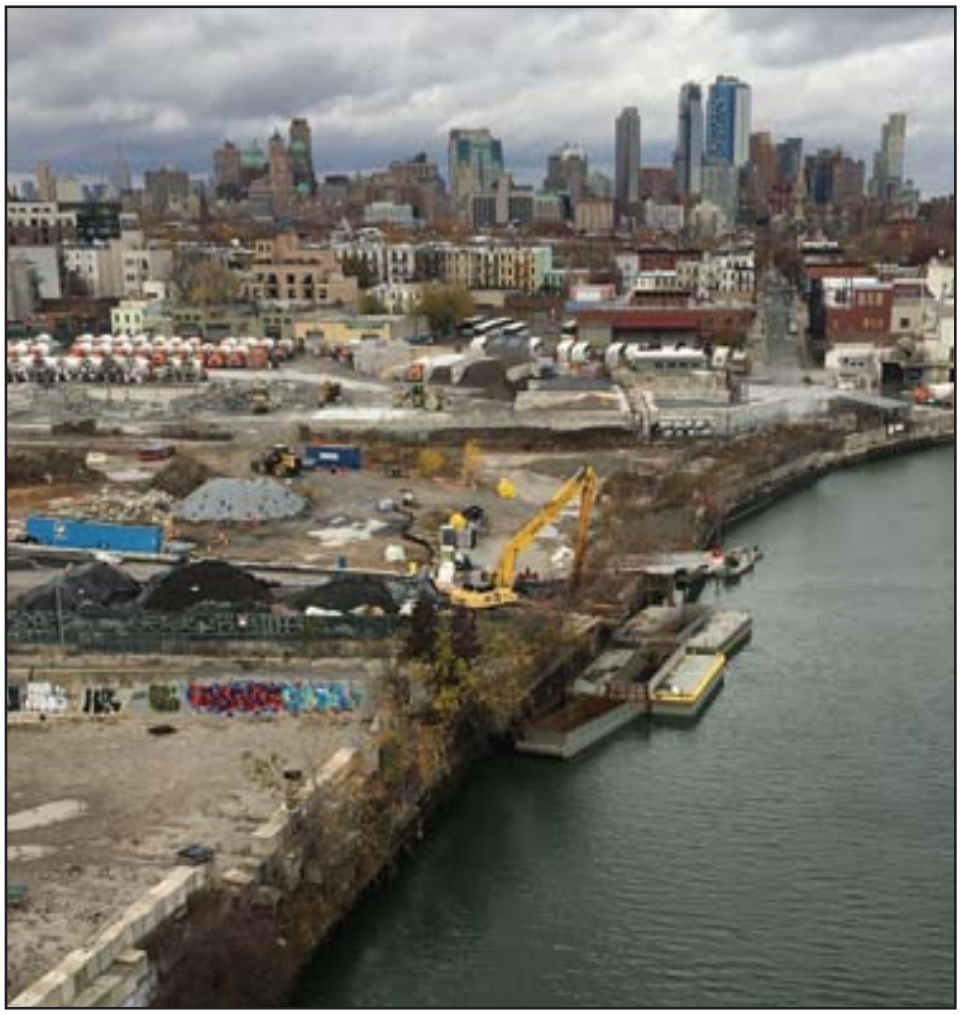
A second pilot study took place in the summer of 2015 to test the stability of the native material for use as a cap in tidal conditions.

"The pilot studies resolve the issues that come up so when we get to the main canal, all issues and technical questions will be answered," said Christos Tsiamis, EPA Region 2 Remedial Project Manager. "We are now in the design stage," he said.

"The project went smoothly. We achieved our goals for the debris removal," Tsiamis said. Included in the evaluation was the impact of the project on the surrounding community, and control of turbidity. A full-scale dredging test will take place in the 4th Street Turning Basin next summer.

The pilot projects are being paid for by the Gowanus Canal Remedial Design Group, led by the City of New York and National Grid. The latter is the owner of former manufactured gas plants (MGPs) lining the canal. On March 21, 2014, EPA issued the unilateral administrative order (UAO) to the PRPs to conduct the remedial design for the dredging portion of the cleanup, at a cost pf $35 million.

Crew members watch as a clamshell bucket deposits dredged material into a barge. This bucket is one of four that were tested in a pilot study that will enable finalization of a remedial design for the cleanup of the entire 1.8-mile-long Gowanus Canal. Photo courtesy of USEPA.



At the staging area on the left bank of the canal, the black piles of sediment treated with Portland cement are curing and tested periodically for stability. Beyond them a bray tarp covers some of the debris that was removed from the 4th Street Turning Basin. This view is of the main canal. The 4th Street Basin is farther upstream. Photo by Michael Cykoski.

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A worker prepares to wash down debris removed from the 4th Street Basin in front of the Whole Foods store. All items removed from the basin have been stockpiled at a nearby staging area and will be evaluated for archeological value before being hauled to a disposal site. Photo courtesy of USEPA.

The Gowanus Canal is one of the nation's most seriously contaminated water bodies. It is a tidally influenced, dead-end channel that opens to Gowanus Bay and Upper New York Bay. Built in the mid-1800s, it was used as a major industrial transportation route, to flush away sewage, and receive stormwater. Manufactured gas plants, paper mills, tanneries and chemical plants operated along the canal and discharged wastes into it. In addition, the canal receives overflows from sewer systems that carry sanitary waste from homes, rainwater from storm drains, and industrial activities. More than a dozen contaminants, including polycyclic aromatic hydrocarbons, polychlorinated biphenyls, and heavy metals, including mercury, lead and copper, are found at high levels in the canal's sediment.

The ROD describes the sediment in the canal as ranging in thickness from approximately one foot to greater than 20 feet, with an average of about 10 feet. The thickest deposits are found at the head of the canal and within the turning basins. The soft sediment consists, generally, of a dark gray to black sand/silt/clay mixture that contains variable amounts of gravel, organic matter (e.g., leaves, twigs, vegetative debris) and trash. Odors described as "organic," "septic-like," "sulfur-like," and "hydrocarbon-like" were commonly detected in the soft sediment during investigation, as were visible sheens. The soft sediments are underlain by the alluvial and marsh deposits of the Gowanus Creek complex that were present prior to the canal's construction.

The canal is near several existing and planned residential neighborhoods. A Whole Foods Market with adjacent park and walking path was built on a brownfield site, and on the opposite bank, a 700-unit apartment complex was recently opened.

Sevenson Environmental Services is the dredging contractor on the Gowanus cleanup. Geosyntec is the primary technical consultant and Engineer of Record for Gowanus Canal Remedial Design Group, with a goal of establishing a remedial design that is constructible, sustainable, cost-effective and permanent.

DESCRIPTION OF REMEDY

Once the remedial design has been finalized, dredging in the main canal can begin. Approximately 588,000 cubic yards of sediment will be removed, treated and transported for a final cost estimated at $506 million.

The selected remedy addressing the contaminated sediment in the Gowanus includes the following components: dredging the entire column of hazardous substance-contaminated sediments (referred to as "soft sediments"), which have accumulated above the native sediments in the upper and mid-reaches of the canal; in-situ stabilization of those native sediments in select areas in the upper and mid-reaches of the canal contaminated with high levels of non-aqueous phase liquid (NAPL); construction of a multilayered cap in the upper and mid-reaches of the canal to isolate and prevent the migration of polycyclic aromatic hydrocarbons (PAHs) and residual NAPL from native sediments; dredging of the entire soft sediment column in the lower reach of the canal; construction of a multilayer cap to isolate and prevent the migration of PAHs from native sediments in the lower reach of the canal; off-site treatment of the NAPL-impacted sediments dredged from the upper and mid-reaches of the canal with thermal desorption, followed by beneficial reuse off-site if possible; off-site stabilization of the less contaminated sediments dredged from the lower reach of the canal and the sediments in the other reaches not impacted by NAPL, followed by beneficial reuse off-site; excavation and restoration of approximately 475 feet of the filled-in former 1st Street turning basin; excavation and restoration of the portion of the 5th Street turning basin beginning underneath the 3rd Avenue bridge and extending approximately 25 feet to the east and the installation of a barrier or interception system at the eastern boundary of the excavation; implementation of institutional controls incorporating the existing fish consumption advisories (modified, as needed), as well as other controls to protect the integrity of the cap; periodic maintenance of the cap and long-term monitoring to ensure that the remedy continues to function effectively; combined sewer overflow (CSO)4 controls.

Point source pollution is being addressed prior to and in phased coordination with the sediment cleanup.

Jan de Nul Advances Dredging at Argentina's Port of Quequén

BY LÉO SIQUEIRA

In November 2015, Jan de Nul ended the fourth phase of a maintenance dredging contract it sealed in December 2014 with one of Argentina's largest ports, the Port of Quequén.

The three-year $24 million project, which is expected to expire in 2018, should keep the facility's depth at 44 feet and was, according to an estimate released by the port's administrator, Consorcio de Gestión de Puerto Quequén, at the time the contract was signed. Maintenance dredging started on March 2015 and a fifth phase of the project is expected to take place in April this year.

Argentina's primary grain port, the Quequén facility should boost investments in Argentina, one of the largest grain producing regions in the Americas.

"Public and private investors, both on a national and international scale, are looking at the Port of Quequén as a business opportunity, which demands multi-million [dollar] investments in terms of port infrastructure development," said Dr. Arturo Rojas, president at the port administrator, while commenting on the importance of keeping maintenance dredging at the facility going on.

A number of companies and projects are eyeing the local port as a gateway to their grain exports.

CHS, North America's largest farmer-owned company and a global energy, grains and foods business, sold recently shares at an export terminal joint venture (JV) it owns in Necochea, a province of Buenos Aires, to Noble Argentina. The JV is known as Sitio 0, and is owned by a number of South American grain companies, including E-Grain, A&J Nari, Alea y Compañía and Lartirigoyen y Compañía. The right to use the Port of Quequén for 45 years is one of the reasons these companies partnered to have a piece of the Sitio 0 business.

Earlier this year, Crédit Agricole CIB (CACIB) and the Dutch development bank FMO teamed up to provide $32.5 million US to partially fund a $65 million US green-field grain terminal in the Port of Quequén.

As foreign and South American grain companies look at the opportunities arising for the Port of Quequén, the facility's administration authority reiterated the importance of on-going dredging to keep it operational.

"The successive dredging phases are fundamental to help [the Quequén] port to be predictable in the long-term, while improving its nautical and safety conditions, and optimizing its operational capacity for potential investors," Rojas said.

Jan de Nul's 3,500-cubic-meter trailing suction hopper dredge (TSHD) La Niña, along with water injection dredge DN28, were used to extract 200,000 cubic meters of sediments at phase four of the maintenance dredging project, the Quequén port administrator authority said.

The La Niña was dedicated to keeping the depths of both the port's internal and external access channels, as well at its forebay depth.

The other vessel, DN28, performed, among other duties, maintenance works at the port's quays and docking sites, at the first 300 meters of the port's exterior channel as well at its forebay and interior channel.

Jan de Nul took over dredging responsibilities assumed by a Brazilian consortium made up of Servimagnus S.A., SDC Do Brasil Servicios Maritimos Ltda., Rowing S.A., and Servidragas S.A., who were tasked with maintaining the port's depth in 2013.

Prior to that, between 2007 and 2012, dredging maintenance was performed by a consortium between Boskalis and Compañia Sudamericana de Dragados.

The port was first dredged to its current depth of 13 meters (43 feet) in 1991, when Boskalis was hired for the expansion.

Registration Open for WEDA Midwest Chapter Meeting

Registration is open for the 2017 Western Dredging Association (WEDA) Midwest Chapter meeting at the Embassy Suites in Omaha, Nebraska from March 8 to 10. All conference attendees should register online. Visit www.westrendredging.org for more information.

General topics include sediment investigation; environmental dredging; navigational dredging; coast/shoreline protection and restoration; sediment management and re-use; surveying and more.

The conference will open with an ice breaker reception at 6 p.m. on March 8. Presentations will run in the morning on March 9, following by lunch and afternoon tour. Presentations on March 10 run until noon.

Osterchrist is New President of Ellicott; Other Changes Announced

Heiko Osterchrist has been appointed president of Ellicott Dredge Enterprises (EDE), Marty Barnes has moved to the position of senior vice president in charge of IT and customer service projects, and Craig Murdoch takes Barnes's place as chief operating officer (COO). Fulco Vrooland has joined the company as managing director of the ROHR-IDRECO Dredge Systems European division.

Rohr-IDRECO is a fully-owned subsidiary of EDE.

Peter Bowe, president and chief executive officer (CEO) of the company, will continue as CEO, and remain on the board of directors, focusing on business development and strategic opportunities, and on supporting corporate relationships.

Regarding the management changes, Bowe said "Heiko has been with the company well over a decade, and knows the product, organization and customers. Marty has been with us for over 50 years will continue to offer us and our clients his unparalleled experience."

Osterchrist was previously managing director of Rohr International Holdings and Rohr/Idreco operations in the U.S.A., Germany, France and Holland. He was on the board of directors of Ellicott from 2002 to 2009, and joined Ellicott full time as vice president in 2011. He managed the acquisition of EDE's three European ventures: Rohr GMBH in Mannheim, Germany; Rohr France Srl in Betting, France (maker of bucket ladder and clamshell dredgers for sand mining); and IDRECO BV in Doetinchem, The Netherlands. Idreco developed technology for deep digging dredges in sand mining, mine tailings, and hydroelectric dam de-siltation.

Bowe praised Craig Murdoch's experience in manufacturing, He was hired by Ellicott as Q.A. Manager in 2010, moved to director of Corporate Process Improvement in 2013 for Ellicott Dredges of Baltimore and Ellicott Dredge Technologies of New Richmond, Wisconsin, and promoted to General Manager of Ellicott in 2014. As COO, he is responsible for manufacturing, engineering and materials, while continuing oversight of process improvements for both of EDE's U.S. locations.

Fulco Vrooland came to Ellicott from Royal IHC, where he served as the commercial director of the Dredging Division and was a member of its executive committee. Prior to that, he was chief commercial officer of a Japanese manufacturer of specialized marine cargo handling equipment, and deputy head of Ship Sales for a Japanese shipyard.

Martin Barnes at the celebration of his 50 years with Ellicott.

Craig Murdoch, new Ellicott COO.

Heiko Osterchrist, new president of Ellicott.

Myrna LaBarre accepting her Executive Management Award from CEO Magazine.

BOWE COMMERCE DEPARTMENT APPOINTMENT

In October, U.S. Secretary of Commerce Penny Pritzker appointed Bowe to the U.S. Commerce Department's new Trade Finance Advisory Council (TFAC), which will advise the Secretary on private sector trade financing for U.S. exporters, concentrating on small- and medium-sized enterprises (SMEs) and their foreign buyer clients.

Bowe is one of 20 business people chosen for the council. Its inaugural meeting was held on November 18 at the Department of Commerce library in Washington D.C., where the members were sworn in to the committee.

The TFAC will give the Department of Commerce input on strategies for export promotion and trade finance education for exporters.

MYRNA LABARRE HONORED

In April, *CEO Magazine* selected Ellicott's Corporate Secretary, Myrna LaBarre, for its Executive Management Award, recognizing her leadership and accomplishments. An independent committee of business leaders selected LaBarre for this award based on criteria of finding those who uphold the highest ethics, lead collaboratively and creatively, and enhance and support the organization's mission.

She was honored at a gala reception on March 24, 2016. *CEO Magazine* noted that after more than 50 years with Ellicott, LaBarre still has what it takes to help newer management members understand how Ellicott works, and how it has stayed in business for over 130 years.

She defined her recipe for success: "To be honest, be helpful, accept your mistakes and improve upon them."

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Beverly Fedorko-Ott Retires from NYSA, Opens Consulting Company

BY JUDITH POWERS

Beverly Fedorko-Ott is hanging out her shingle after retiring from the New York Shipping Association (NYSA) on October 1, culminating a 25-year career in port and transportation-related organization and management.

Her consulting company is BFO Consulting, LLC. Marketing materials and website are in the works.

"My goal is to provide services to clients in a variety of areas including communications, project management, event planning, public and community relations, writing, press and creative projects. I look forward to working on a variety of issues and diverse projects," she told *IDR*.

During her 15 years at NYSA, she served four presidents of the organization, and oversaw multiple projects, which included the harbor-deepening project.

In her previous job with the New Jersey Department of Environmental Protection (NJDEP) she became involved in the initial planning for the dredging of the Port of New York and New Jersey (PONYNJ). As special assistant to the Department's commissioner Bob Shinn, her role was to represent him on all committees overseeing dredged material and all agencies involved in the project. She left the state of New Jersey at the end of April 2001 to join the New York Shipping Association as director of external affairs at the association's headquarters in the World Trade Center.

Five months later, the NYSA offices, which were located on the 20th floor of WTC Tower 2, were destroyed in the 9/11 attacks. Fortunately on jury duty that day, Fedorko immediately took up the job of recreating many of the documents that had been lost. All NYSA employees survived the attack and were also on a mission.

"The historical records … had been backed up and stored off-site after the WTC bombing in February 1993," she said. The records included payroll and fringe benefit information for the Port Police and Guards Union and the International Longshoremen's Association, enabling the NYSA to continue its commitments to those organizations after the office was re-established.

"Everybody in the office lost things in the 9/11 attacks, but because the records were backed up, we could set up in another location and access those records," she said.

She gives the organization's IT people the credit for a "remarkable backup plan."

Fedorko spearheaded the establishment of a new headquarters across the Hudson River in Iselin, New Jersey, staying in touch with the Port Authority dredging team, who spent months recreating the deepening plan from memory. (See "Fedorko Helping Shipping Association Function After Destruction of NYSA Offices" and "PA-NYNJ Planning Consolidation to Dredge Kill Van Kull to 50 Feet in One Contract", *IDR*, January/February 2002)

The NYSA remained in the Iselin office for several years, and then moved to its present location in Edison, New Jersey.

She continued to fulfill her responsibilities to manage all the communication, public education and public relations for the association, and was the group's spokesperson to all outside entities. She produced the annual report, planned and executed special events and facilitated action on maritime industry issues. She represented the association's member companies on a variety of committees and organizations, including the Corps of Engineers Dredged Materials Working Group, Port Users Group, the American Association of Port Authorities, the Communications sub-committee for the New York District Area Maritime Security Committee with the U.S. Coast Guard; and chaired the Government and Community Outreach working group for the Port's Council on Port Performance.

Beverly Fedorko-Ott retired from the New York Shipping Association in October 2016.

As a member of the Western Dredging Association, she served on the Environmental Education Committee from 1999 to 2003, where she helped develop the environmental awards, and then served on the review committee for the awards for several years afterwards.

Her achievements at the DEP and NYSA include conceiving and managing the creation of the Office of Dredging and Sediment Technology in the NJ Department of Environmental Protection; managing the development and implementation of the award winning "Delivering Prosperity" campaign; providing training to NJDEP staff on interest-based negotiations that were integrated into the decision-making process throughout the agency; managing a budget of over $500,000 for public education at DEP; implementing the New Jersey Shore "Keep it Perfect" public education campaign; and establishing and managing the first social media account for NYSA.

Her retirement sendoff was "an amazing occasion with a room filled with people I've worked the closest with over the years," she said.

Besides staying in touch with her colleagues through her consulting business, her future will include "seeing the USA" with her husband Ned Ott in their motor home – along with their two rescue dogs, Gizmo and Duke.

Panama Canal Authority to Dredge 1,350-meter Berths at Controversial Port of Corozal

Binding Offers for the Container Terminal Port Concession End on February 3. Panama Canal Authority (ACP) Should Spend $70 Million to Dredge the Proposed 1,350-meter Berths. Concessionaire to Assume Additional Dredging.

BY LÉO SIQUEIRA

Panama Canal Authority (ACP) should spend $70 million US to dredge a large part of the proposed Port of Corozal, whose 20-year concession should be granted this year, when the winner for the public tender is announced.

During the pre-qualification stage, which ended on April 28, 2016, four operators qualified to make their proposals: APM Terminals BV, Terminal Link, PSA International and Terminal Investment Limited.

In October 2016, the tender ACP issued called for qualified operators to make their proposals, but the country's canal authority didn't give a specific timeline for awarding the port concession to the tendering winner. It said an announcement should be made following the evaluation of the binding offers, which will be completed by February 3.

Then, within forty days of the award notice, the winner should sign an agreement and pay ACP an upfront fee.

In the document, ACP said it expects the container terminal to play an "important role" in providing additional port capacity on the Pacific side of the country, while supporting Panama's transshipment needs for the larger vessels going through the new sets of the Panama Canal locks.

Subject to concern and the debate, the port concession raised diverging opinions among different entities, including the National Association of Lawyers of Panama (CNA) and the country's Maritime Chamber (CMP).

CMP issued a statement showing its support for the project. According to CMP, the new port concession will "cover" the country's increasing demand for port services.

"The development of Panama's logistics and maritime industries greatly depends in the strength, growth and efficiency of its port offering, which will ultimately increase

transshipment cargo volumes that [actually] move the Panamanian port system," the statement said.

While other entities, such as CNA, disagree on the country's need to improve port-related services in an already competitive industry, CMP said having increased port capacity was an "urgent need."

"Increasing port capacity was a decision by [Panama's] state, and Panama's Maritime Chamber supports all projects that improve the services offering to vessels and cargos that can be developed immediately or in the future," CMP said in its statement.

ACP didn't respond to *IDR* questions on the project, especially on the dredging costs it should fund.

In fact, after the qualified operator names were disclosed, much of the project's process remained confidential.

One of the major questioned points of the current tendering for the port concession is the fact that ACP will fund a large part of the required capital dredging along the proposed 1,350 meter (4,429-foot) berths.

ACP will dredge the port within its navigation channel, including its turning basin and east prism line, while the winning operator will be responsible for the blasting and dredging required for the construction of berth pockets alongside the quay walls of the terminal facilities of 70 meters (about 230 feet) width and a -18 meters (-59 feet) Mean Low Water Springs (MLWS) depth.

Talking to local media on why public money should fund a private project, ACP explained it will dredge the navigation channels and its adjacent areas in order to "guarantee a stricter control over the transit operations."

On the other hand, CNA opposed the project and said ACP didn't attend a forum the association of lawyers organized to discuss the port concession.

"We had more questions than actually answers," CNA said in a statement, of the forum it launched the discuss the project.

The National Association of Lawyers of Panama questioned not only ACP's denial to launch a public consultation over the project, but also its "legal capacity" to lead the port concession. According to CNA, under Panama's General Port Law, Panama's Maritime Authority (AMP) should be responsible for the tendering. Additionally, CNA questioned ACP's willingness to grant fiscal exoneration to a private port owner in an "extremely developed" industry.

PORT OF COROZAL: DREDGING AT A GLANCE

According to the tender, the project, under ACP, should maintain the depth at the access channel and the turning basin, so that eligible container vessels can safely berth and unberth at or from the Corozal Container Terminal. The project will also use blasting and dredging to achieve:

- a depth at the access channel to the Corozal Container Terminal of -16.3 meters (-53.5 feet) MLWS (with overdredging of 0.6 meters or 1.9 feet);
- a depth at the turning basin for the Corozal Container Terminal of -16.3 meters (-53.5 feet) MLWS (with overdredging of 0.6 meters or 1.9 feet);
- a depth from the east prism line till 155 meters (about 509 feet) from the center of the navigational channel toward the shoreline, and along the length of the berths of the Terminal Facilities of -16.3 meters (-53.5 feet) MLWS (with overdredging of 0.6) meters or 1.9 feet);
- a slope that will start at 155 meters (about 509 feet) from the center of the navigation channel to 200 meters (about 656 feet) from the center of the navigation channel. ACP shall be entitled to appoint contractors to undertake all or some of the blasting and dredging required by this clause.

The concessionaire will maintain each berth pocket completed by the concessionaire alongside the quay wall of the terminal facilities, provided that all maintenance dredging to be carried out by the concessionaire shall be subject to the prior coordination with ACP and the ACP will decide the disposal site for the dredged material.

According to the tender, dredging for the berthing pool and its vessel accesses, which is not included in work to be performed by others, must meet concession agreement requirements. The berth pool along the wharf shall be dredged to at least -18 meters (-59 feet) MLWS and 70 meters (about 230 feet) wide.

Source: ACP. RFP Tender No. CCO-16-003 issued on October 7, 2016.

KELLER Delivers Gearboxes for Chinese Dredge

BY ANNA TOWNSHEND

Powertrain technology depends on the reliability and robustness of their individual components. These include the gearbox and gear wheels, and *IDR* talked with specialist transmission manufacturer, C.u. W Keller GmbH & Co. KG (KELLER) about meeting customer demands for larger and stronger dredges with its custom designed gearboxes. The company also recently delivered gearboxes for a large dredge in China.

The company has more than 100 years experience designing and manufacturing in the steel and mining industries. Keller added gear units for marine applications 17 years ago, specializing in dredge applications.

In October 2016, Keller delivered three pump gearboxes for one of the largest dredging vessels in the Chinese market. Tianjin Dredging Corporation (TDC) is building the dredge Tian Kun. Keller built the most essential part of the drive train, the cutterhead gearbox. In total, the project involved gearing systems for two inboard pumps and an underwater pump, a cutterhead gearbox with a nominal engine power of 5,000 kW.

Leading up to that project, Keller had mainly served European dredging customers. Over the last 10 years, the company has delivered about 75 percent of all large cutterhead gearboxes in Europe. Keller's venture into China all began in 2006 with a relatively small cutterhead gear unit (an output of 1,000 kW) – small by today's standards – for Boskalis' dredge *okra*.

After the Jokra, more requests came quickly. Eventually in 2015, Keller designed and built the first 7,000 kW gearbox, the 25th cutterhead gearbox in the 1,000 kW and larger class.

The trend for larger and larger gearboxes follows the trend for larger and more powerful dredges. "Larger cutters have longer ladders and thus are able to cut deeper than smaller ones," said Marcel Wiegman, managing director for Keller.

Cutters with a cutterhead power of more than 2,500 kW are considered "rock cutters," which are able to cut faster through the hardest rocks on the seabed. Wiegman said the new Suez Canal was widened and deepened by the majority of the world's largest cutter dredges. "This job was done in a very, very short period. It would not have been such without a powerful fleet available," he said.

TDC gave the approval for the latest project only after lengthy discussions about the gearing specifications. A great many issues, which influenced the drive construction, had to be thought through. The gearbox for this latest dredge will be just below the water, but Wiegman said other gearboxes can be designed to work in as much as 30 meters under water. Those require an absolutely watertight system, which requires detailed engineering and sealing systems.

To transport the gearbox on land, it requires special trucks and roads must be checked for sufficient clearance. Transport is usually done overnight when there is less traffic on the road. This KELLER gearbox was shipped from Bonn, Germany to China for the dredge Tian Kun.

The cutter gearbox is designed with a forged output shaft flange, which is bolted to the flange of a cutter shaft.

Other considerations, Wiegman said, include what design collaterals would be required and which electric control would be considered. The actual design layout of the gearbox only got underway after these parameters were sorted out. Here, it became clear that the specification factors for the TDC 5,000 kW gearbox were comparable with those high-level specifications of a 7,000 kW cutterhead gearing system Keller delivered in 2015.

In addition to the classic bearing, shaft and interlocking calculations needed for design, Wiegman said comprehensive research was also carried out on the deformation and stress behaviour of the gear-casing structure using FEM (Finite Elements Method) analysis. "It's a method to calculate the stresses that can occur in a gearbox under working conditions," he said. The gearbox is designed with plain bearings that, Wiegman said, are maintenance free. Roller bearings would be more sensitive to the shocks that come with the cutting process, and would require more maintenance.

The analysis also helped optimize the design of the casing structure, which experiences immense and changing loads during the dredging process. Having designed a large number of cutter gearboxes over the last 10 years, Keller has tested thicknesses with respect to the foundation plates, material of the gearbox casings and bolt sizes to optimize the design. Experience in the deformation behaviour and the stiffness ratios of the conductor structures on which the cutterhead drive is installed was important too. The deformation behaviour not only affects the structural load but also impacts the smooth operation of gears and bearings significantly. Wiegman said this requires working closely with the shipyard and/or dredge designer. The final analysis also helped in determining the tooth-contact-stress levels in the tooth engagement.

Keller is long-standing member of the Research Association for Drive Technology in Germany (FVA, which in German stands for Forschungsverein Antriebstechnik.) The group is a selected research organization of German manufacturers of drive components who provide practice feedback on calculating programs. For Rohr University in Bochem, Germany, Keller also manufactured gears for test benches and calculation analysis.

The final TDC gears have a final weight of 180,000 kg (180 tonnes) and rank among the largest gearboxes that the company has built. In addition to the company's experience in the manufacturing of large gear wheels, Wiegman said its expertise in the impact of heat treatment on the quality of the component parts is important to Keller designs.

Before delivery, Keller does extensive quality control tests on the drive and gear mechanisms. The gearboxes run for several hours, Wiegman said. Support images of the gear toothing are taken and these are then compared with the calculations; the noises and vibrations are measured and the transmission tightness verified. In addition, the bearing temperatures are recorded over a period of several hours.

After the final inspection and acceptance by TDC, the complete powertrain was put together in a seaworthy package and shipped to the harbor in Bonn, Germany. The powertrain was then transported via Rotterdam, The Netherlands, on its long sea route and was delivered to the dredge in China in October 2016.

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Editorial, continued from page 5

non-federal interests to carry out navigation projects, and they are eligible for reimbursements. The act directs the development of a pilot project for non-federal interests to remove sediment from behind dams (Sec. 1115). The Corps can provide technical assistance to non-federal interests performing studies for water resources work (Sec. 1126), and Sec. 1128 makes a simple change to make it easier for states to work together on projects with the Corps, not just individual states. It also allows states to combine funding for projects, as many waterways cross state lines.

The WIIN Act also addresses funding issues. WRDA 1986 established the cost sharing percentages for the Corps and its non-federal partners on navigation projects. The percentages did not change with this year's legislation, but the depth that triggers a higher percentage did. For work that does not exceed 20 feet, non-federal partners are responsible for 10 percent. Originally, for work from 20 to 45 feet, non-federal interest paid 25 percent. Now, they pay that percentage up to 50 feet, and 50 percent for any work in excess of 50 feet (which had previously been set at 45 feet).

Part of tweaking the new project authorization process has included a lot of Congressional hearings to discuss the process and get input from the Corps. For each new Corps directive, the legislation requires implementation guidance from the Corps. One Congressional criticism of the process was that the Corps could not provide that guidance quickly enough. In defense of the Corps, WRDA 2014 completely rewrote the book on how it worked with non-federal interests to propose projects and how it disseminated those to Congress for appropriation. It took quite some time to work through all that planning. Now, most of that is complete, except the implementation guidance for Sec. 2102 of WRDA 2014, which outlines operation and maintenance of harbor projects and allocation of the Harbor Maintenance Trust Fund (HMTF). Sec. 1112 of the WIIN Act gives the Corps 90 days from enactment to provide the implementation guidance for this section. The HMTF levels in the annual budget have yet to reached the levels enacted by WRDA 2014. Congress continues to push for full use of those funds as they were intended, for the operation and maintenance of harbors. The WRDA 2014 section also established a schedule for the increase of HMTF levels each year. It also gave emerging harbors at least 10 percent (rather than based solely on size), which was made permanent by the WIIN Act. The 2014 legislation also established the Great Lakes navigation system as a single, comprehensive system, for the recognition of the interdependence of projects across the system. It was an important transition for water resource legislation, particularly with regard to HMTF, and Congress is right to demand guidance from the Corps on how it plans to implement those changes. It's long overdue at this point.

In the spirit of transparency, the WIIN Act also makes some efforts to make more dredging data available online, and use technology to simplify the permit process. Sec. 1133 directs the Corps to establish and maintain a publically available database on Corps maintenance dredging. The database should include project and contract information and estimated and actual data on the volume of dredged sediment removed; the initial Corps cost estimate; the final total cost; the dredges doing the work; and the number of contractor bids received, including bid amounts and those that did not win.

Sec. 1135 also directs the Corps to make all data publicly available on the planning, design, construction, operation and maintenance of water resources development projects, and water quality and water management projects. As someone who is frequently researching Corps water resources projects, I can say the agency already has a substantial amount of this information online and in a timely manner. If there is data missing from what's widely available now, it shouldn't be difficult to add to what's there already.

To simplify the permitting process, Sec. 1134 directs the Corps to implement an electronic system to allow the electronic preparation and submission of applications for permits and requests for jurisdiction.

There were also some important studies authorized in this bill. In addition to the feasibility studies authorized in the bill for future projects, it introduced a number of pilot projects and important broad reaching studies.

A pilot project for carrying out beneficial use projects is directed by Sec. 1122. The project should address storm damage reduction, promoting public safety, protecting or creating aquatic habitats, stabilizing systems and shorelines, promoting recreation, supporting risk management adaption strategies (which means finding ways to spread the little bit of money to the most needed projects and priorities); and reducing dredging costs and dredged material placement costs. The program will include 10 projects, looking to maximize the beneficial placement of dredged material from navigation channels. It will incorporate two or more federal navigation, flood control, storm damage reduction, or environmental restoration projects, and foster federal, state and local collaboration.

Sec. 1203 establishes the North Atlantic Coastal Region study, a comprehensive assessment and management plan. After the destruction of Hurricane Sandy, the Corps began the North Atlantic Coast Comprehensive Study (NACCS), and as directed in WRDA 2014, the Corps completed a report detailing the results of a two-year study to address coastal storm and flood risk to vulnerable areas affected by Hurricane Sandy. The comprehensive study will now become a management plan.

The WIIN Act also calls for a study on the South Atlantic region to identify the risks and vulnerabilities to increased hurricanes and storm damage as a result of sea level rise.

WHAT WAS LOST IN THE FINAL BILL

The new act does a lot for the dredging industry, but it also left a lot out. The original House and Senate measures had many important provisions that didn't make it into the final bill.

S. 2848, the Senate bill, called for a pilot program to authorize non-federal interests to maintain federal navigation projects at their cost (Sec. 2015). The original House WRDA bill, H.R. 5303, focused considerably on tweaking the project/authorization process under the new annual report (per Section 7001, WRDA 2014), and transparency in the funding process, but some of those provisions did not make the final cut.

Sec. 132 of the House bill outlined help for the new proposal process and a requirement for the Corps to offer guidance and education to regional authorities. While many Corps districts were already doing this, some are not. It was a concern raised numerous times in Congressional hearings from those that felt their local constituents did not understand the new process.

The House was very much interested in monitoring the budget process more and trying to make that more transparent. One section (141) called for a biennial report on the metrics and project priories used in developing the Civil Works budget. The new project proposal process set forth by WRDA 2014 has tried to make that process more transparent, and there has been some push and pull between Congress and the Corps, as they battle to maintain authority over project authorizations and appropriations. Congress gave up ear marks, and the Corps gladly took up the authority to prioritize projects as it saw fit. Congress has tried to regain some of that control, where it should also be relying on Corps expertise.

Sec. 121 of H.R. 5303 requested a report from the Government Accountability Office (GAO), to look at the costs and benefits on either expanding, reducing and maintaining the federal hopper dredge fleet. The U.S. fleet is terribly outdated. The Corps has repeatedly refurbished over building new to save money, but eventually the fleet will need a major upgrade.

NEW PROJECTS AND FUNDING

A number of these provisions that were left out were important for the dredging industry, particularly assistance to non-federal interests. But the bill also did a lot of good for the dredging industry. It appropriated funds for 30 new projects and modified eight existing projects, and a number of feasibility studies for future projects. Those authorizations are based on the reports submitted to Congress by the Corps, and included navigation projects at Brazos Island Harbor, Texas, ($210,476,000 total funding (federal and non-federal)); Port Everglades, Florida ($337,003,000); Charleston Harbor ($502,693,000); and Craig Harbor, Alaska ($32,755,000).

Overall, the bill will do some good things for water resources, and Congress and the Corps will continue to tweak the process for authorizations and appropriations.

Day One: WEDA Pacific Chapter Conference Focused on State of the Industry and Fiscal 2017 Projects

BY JAMES "J" MILLS

The Western Dredging Association (WEDA) Pacific Chapter 2016 Conference welcomed a packed house of industry project managers, port and harbor staff, regulators, contractors and environmental consultants in San Diego. The three-day conference ran from October 19 to 21 and about 114 industry professionals attended.

The first session of the conference was a two-hour roundtable discussion led by Barry Holliday, Dredging Contractors of America, with panelists including Jeff McKee, chief, Navigation Branch, U.S. Army Corps of Engineers; Jim Haussener, executive director, California Marine Affairs & Navigation Conference; Sheryl Carrubba, Corps Northwest Division Navigation Project Manager; and Frederick Paup from Manson Construction Company. The panel discussion focused on dredging project management concerns.

Holliday started the session with a discussion about the Corps project management role and responsibilities, stressing the importance of early planning and dialog with port and harbor staff and contractors. Early communication with environmental agencies and a more interactive partnering approach by the Corps was also recommended. Jeff McKee emphasized the importance of adequate lead time in every project, stating that "getting agencies involved as much as two years in advance will help keep the process moving smoothly."

The roundtable had plenty to discuss with attendees.

One of the biggest problems, of course, remains the lack of funding with only $16 billion of the total $32 billion in 2016 Federal Harbor Maintenance Tax funding actually available for navigation programs. The group agreed that Corps project managers could be doing a better job communicating the economic benefits of increasing harbor depth to higher-up administrators and legislators to justify more funding. Certain cost saving measures could also help improve the efficient allocation of funds. Better use of historical records, and timely project surveys and testing prior to bid could also reduce contractor costs, thereby increasing competition and attracting potential new contractors.

The Corps has been paying more attention to 'regional' planning in order to coordinate multiple projects and reduce standby days and contractor charges for downtime. Increasing flexibility in regional contracts would reduce nonproductive costs in the event of unforeseen circumstances, and allow the repositioning of contractors from one project to another so they can fill potential underruns of materials, and effectively reduce the

L-R: Jeff McKee, Barry Holliday, Walter Jellison and Jim Haussner enjoying the afterhours ice breaker.

federal governments 'cost risk' in each project.

Concerns about environmental challenges were also voiced by the group with Jim Haussener commenting that the California State EPA's opposition to ocean disposal sites has increased costs, reduced project scopes, and diminished the impact of current funding levels. Barry Holliday stated, "Environmental challenges are part of every dredging project, and Corps project managers could help with this by being more proactive with environmental regulators to re-evaluate environmental impacts and possibly expand project windows."

"The science is critical, but the process should be more transparent, and the Corps could help influence that," said Carrubba, Corps navigation program manager, Northwestern Division.

Finally, the question was raised as to whether there is enough dredging equipment in the Pacific region. Frederick Paup from Manson Construction answered, "The equipment on the West Coast is underutilized due to seasonality. But in other areas of the U.S., there are some shortages of equipment."

Holliday added, "The market is growing now, but reliability of funding is still a question. So it is a risk for contractors to add or upgrade capacity."

FISCAL 2017 PROJECTS

After a brief break, the first day session continued with detailed presentations by Corps project managers covering the multitude of maintenance dredging projects planned for fiscal year 2017 in the various Pacific Corps Districts.

Michael Tencza, Corps Alaska District operations project manager did a presentation covering eight coastal dredging projects estimated to remove more than 2.75 million cubic yards of material over the next two years. The largest of the projects involves a four-year program already underway, removing more than 1.1 million cubic yards per year from Anchorage Harbor by hopper and mechanical dredge with an option to dredge the Cook Inlet Navigation Channel also. Manson Construction has already contracted for the first half of this project through 2017, and the second half will go to bid the last quarter of 2017. Other projects slated for 2017 and beyond include Dillingham Harbor, Homer & Ninilchik Harbors, Thomas Basin, Valdez, and Nome Harbors. Placement sites will range from in-water to upland and beach disposal, with the dredging season typically running from April to December.

The Honolulu District has three projects on the planning table, all involving clamshell removal. The Honolulu Harbor, Kikiaola Harbor, and Nawiliwili Harbor dredges are relatively small projects ranging from 13,000 cubic yards to 99,000 cubic yards with both ocean and upland disposal anticipated.

The Seattle District has seven dredging projects slated for fiscal 2017 for the removal of more than 3.4 million cubic yards of material. Elizabeth Chien, Corps project manager, provided details on the extensive project at Gray's Harbor where a combination of government hopper and clamshell equipment will be utilized to clear more than 2.4 million cubic yards from the harbor entrance and inner basins with in-water disposal. Other projects include hydraulic and clamshell maintenance dredging of Everett Harbor, Quillayute and Seattle Harbor.

Eight projects are in various stages of implementation in the Portland District involving river, bay and coastal locations. John Hayes, Corps project manager, stated that the Corps dredge Essayons is expected to remove more than 3.8 million cubic yards from the mouth and upstream locations of the Columbia River during late 2017 and early 2018. The hopper dredge Yaquina will also be very busy in the region, removing 1.5 million cubic yards from sites on the Columbia and Rogue Rivers, and Oregon coastal locations. Other work sites involving clamshell and hydraulic equipment, will include the Port of Portland, Port Oxford, Columbia River Side Channel, and Coos Bay encompassing more than 2.7 million cubic yards. West coast hopper dredge contracts are also being developed for additional removal and disposal of 3.8 million cubic yards of material in the Columbia River and Coos Bay areas for 2017/2018.

Al Paniccia, Corps Project Manager, presented information on activity in the San Francisco District. Twelve dredging projects are planned in this district for fiscal 2017 anticipating removal of more than 3.5 million cubic yards from Northern California locations during the seasonal dredging window of June through November. The hopper dredge Essayons will be engaged at three projects, the SF Main Ship Channel, Richmond Outer Harbor, and the Pinole Shoal, involving the removal and in-water disposal of 750,000 cubic yards of material. Another west coast hopper dredge project at the Humboldt Bar for the removal of 750,000 cubic yards will go to bid in May and June 2017.

The day's last presentation was given by Mo Chang, WEDA Pacific Chapter president, and chief, Corps Navigation Section, covering the Los Angeles District. Eight dredging projects are planned for the Southern California region from Morro Bay to Oceanside, encompassing 3.4 million cubic yards of material removal. The hopper dredge Yaquina is slated to complete maintenance dredging of 420,000 cubic yards from Morro Bay in October 2017, after other clamshell and pipeline dredging has been completed. Manson Construction is under contract for pipeline dredging to remove 1.5 million cubic yards in the Channel Islands Harbor and 400,000 cubic yards in Ventura Harbor over two project periods from October to March in 2017 and 2018, and Marina Del Rey has also contracted for clamshell dredging of 400,000 cubic yards in a similar two-year program. Other projects in the planning and bid stages for 2017 are Oceanside Harbor, 180,000 cubic yards; Santa Barbara Harbor, 250,000 cubic yards; and Port Hueneme, 250,000 cubic yards.

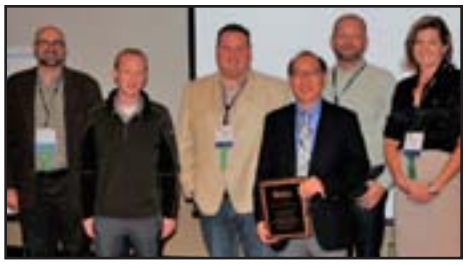
Day Two and Three: WEDA Pacific Chapter Coverage

BY JAMES "J" MILLS

Mo Chang, president of Western Dredging Association (WEDA) Pacific chapter, and chief, Corps Navigation for the Los Angeles District, opened the Thursday morning session of WEDA Pacific chapter conference on October 20 after coffee and a continental breakfast in the lobby. Chang thanked participants for attending, and introduced Marshall Merrifield, Port of San Diego chairman of the board of port commissioners, who spoke about the creation of the Port of San Diego and future planned development enhancements. The Port Commission manages the state lands of California within its jurisdiction and serves primarily as a landlord regulating and renting to private developers and operators. Merrifield explained how the Shelter Island and Harbor Island areas of San Diego Bay were created from the initial dredging of the harbor channel and other Port areas, and the importance of ongoing navigation and shoreline maintenance in the Bay.

Chairman Merrifield then turned the presentation over to Eileen Maher, principal, Port of San Diego Capital Improvement and Major Maintenance Programs, who reviewed the more than $3 billion in capital projects planned for the Port in coming years, including $1.5 billion for the redevelopment of Seaport Village, and related 66-year lease, some of which will be accomplished through joint funding by the BATIC Institute. Other projects slated for this massive funding and redevelopment will include new hotel, marina and cruise ship terminals at Harbor Island, Shelter Island, the Tenth Avenue Marine Terminal, and the San Diego 5th Street Convention Center. RFQs are being initiated now by the port.

KJ May and Christina Birdsey, Oxnard Harbor District / Port Hueneme, presented details on the $1.5 billion economic impact of the harbor deepening project there. Approximately 630,000 cubic yards of dredged materials will be removed, including 290,000 cubic yards of contaminated material that will be placed in a contained aquatic site in the harbor.



WEDA Board & Staff (L-R): Nick Buhbe, Matt Arms, Randy Steed, Mo Chang, Jared Norton and Shelly Anghera.

Other morning presentations included the Port of Seattle Pier 91 Underwater Regrading Project by Catherine Chu, project manager, Port of Seattle, and Nancy Case O'Bourke, Dalton, Olmstead & Fuglevand. Ian Whitlock, Port of Portland, spoke about the environmental challenge of preserving habitat for the Streaked-Horned Lark, which prefers newly deposited, clean sand for its nesting environment, and how dredging in the Port of Portland

and Columbia River have positively impacted the species. Tim Welp, Corps, ERDC Research Hydraulic Engineer, presented an acoustic video demonstration of tickler chains' effectiveness in mitigating turtle kills during operations aboard the hopper dredge *Essayons* in Hawaii. And Michael Whelan, P.E., Anchor QEA, discussed the removal and disposal of contaminated material from the San Diego Naval Shipyards, and remediation of the San Diego Shipyard Sediment Site.

During the luncheon plenary, Commander Dick Walker USN (retired) presented some of the highlights and history of the USS Midway, aircraft carrier museum, now docked on the San Diego waterfront, which is still used occasionally as an active duty training location. The conference was adjourned after lunch, and attendees were given an opportunity to tour the Midway for the rest of the afternoon.

FINAL DAY PRESENTATIONS

Friday's conference began with a presentation by Eric Hanson, from The Northwest Seaport Alliance, a new port authority organizational joint venture of the Port of Seattle and Port of Tacoma, overseeing all of their related cargo terminals. Hanson reviewed the ongoing Seattle Harbor Navigation Improvement Project, projected to remove 1.15 million cubic yards of material at a cost of $14.7 million, and the Tacoma South Harbor Blair Waterway Project designed to remove 400,000 cubic yards in the creation of two redesigned big ship berths in the harbor.

Matt Binsfield, JF Brennan Company, presented "Advancements for Removal of Impacted Sediments and Capping Materials," looking at ways to reduce construction costs utilizing a swinging ladder dredge with a disc cutter and/or diver dredge head to reduce over cutting.

Other speakers and topics included Joshua Rohrer and the new EPA Vessel General Permit (VGP) for lubricants; Wesley Thomas, Arcadis Design & Consultancy and the dredging and removal of creosote deposits in the St. Joe River of Northern Idaho; Helder Costa, Haley & Aldrich, Inc., using PAH composition analysis to evaluate dissolved-phase groundwater discharges to surface water resulting from both natural and dredging construction causes; Liisa Doty, Water Techtonics, electrocoagulation and chitosan enhanced sand filtration at Superfund sites in Western Washington; Julia Fitts, Anchor QEA, a case study of the Skagway, Alaska harbor redevelopment; Gene Revelas, Integral Consulting, Inc., mapping dredge material and caps at Douglas Harbor Dredging Project in Juneau, Alaska; Pete Webber, COO, depth of cover mapping; and Kathryn Hubbard, Haley & Aldrich, the risks and ways to adapt to rising sea levels, high heat days, changing weather patterns, extreme weather, and changes in biodiversity.

At the end of the day, Mo Chang convened his last WEDA Pacific Chapter business meeting as president of the association, after a five-year stint on the WEDA Board of Directors. He thanked all of the members for their support through the years, and all of the attendees and presenters for making this conference a successful and worthwhile event, and introduced new Board Member, Jared Norton, Corps.

The USS Midway, is San Diego's premier waterfront attraction.

Incoming Pacific ChapterWEDA President Nick Buhbe, Western Regional Director, Great Ecology, presented a plaque to Chang, and thanked him for his years of service. Buhbe then announced that next year's meeting will be in Portland, Oregon. The conference was adjourned, and attendees departed for a bus tour of National City Marine Terminal, a fitting final event sponsored by the Port of San Diego.

ROYAL IHC LAUNCHES DEME'S FIRST LNG DREDGE

In December, Royal IHC's shipyard in Kinderdik, The Netherlands, held a launch ceremony for DEME's 3,500 cubic meter (4,578 cubic yards) LNG-powered trailing suction hopper dredge Minerva. The official name giving and christening ceremony will take place in the spring of 2017 in Zeebrugge, Belgium.

On November 10, 2016, both DEME and IHC won a DOC Innovation Award for the new concept.

For more on the details on the design, see the article, "DEME Group Building the World's First LNG-Powered Dredges," in the September/October 2016 issue.

DEME's hopper dredge Minerva, first LNG-powered dredge.

OSIL SUPPLIES BUOY PLATFORMS TO JAN DE NUL

Ocean Scientific International Ltd. (OSIL) supplied eight buoy platforms to Jan de Nul Group, platforms for environmental monitoring on dredging and renewables projects. The 1.2-meter (3.9-foot) buoy incorporates a variety of sensors with specialized seabed frames from different manufacturers, including AML Oceanographic, Campbell Scientific and Nortek.

OSIL said it worked closely with Jan de Nul on the design, and the buoys are configured to quickly swap between Iridium, UHF and GPRS telemetry methods, depending on what systems are available at different locations.

Data from the buoy systems are emailed to Jan de Nul project workers. The low power telemetry solution provides a constant flow of data from the sensors, while allowing remote control of measurement interval and data reporting schedules.

The buoys can be moored in a variety of water depths ranging from three to 50 meters (9.8 to 164 feet). The hull and top frame are manufactured from rotationally molded polyethylene, with the hull being filled for added security. The top frame accommodates four solar panels, a built-in radar reflector and a St. Andrews Cross that can fit a wide range of antennae, light and met sensor combinations to suit requirements.

Ocean Scientific International Ltd. buoy platforms.

DSC DELIVERS TWO DREDGES TO NIGERIA

Two local contractors in the Delta State, Nigeria, recently took delivery of 10-inch Wolverine class dredges from DSC Dredge.

As the political capital of Delta State, Asaba, is a rapidly expanding city along the banks of the Niger River Delta, there is a growing demand for infrastructure improvement projects, including roads and livable space along the Niger River. Yet, this fast-flowing river brings sand downstream from the interior of the nation. Because of this, much of the riverbank area is prone to seasonal flooding, which causes disruption to the lives of many. A government plan has been put into motion to provide multi-millions of cubic meters of sand to be used for infrastructure improvement, while alleviating flooding problems. Dredging is the perfect solution to capture this sand as a valuable resource, and put it to use in the city center and outlying areas.

The availability of spare parts is an issue in Nigeria. Many manufacturers that claim to have spare parts, only offer filters, or limit customers to a single parts source. DSC's spare parts policy can provide all necessary OEM spares information, so customers can purchase parts at local shops.

This is the second Wolverine dredge delivered to the Delta State in Warri for dredging river sand.

DSC Wolverine dredge working on the Niger River Delta.

DAMEN LAUNCHES NEW HOPPER DREDGE LINE FOR AGGREGATES

Damen Shipyards Group announced a new line of trailing suction hopper dredges – Marine Aggregate Dredger (MAD) 4000 and 5600 vessels. The dredge line was introduced in response to market research that showed the aggregate industry is facing rising demand and an aging fleet.

For offshore aggregate operations, the new vessels will be able to work in North Sea conditions up to depths of -60 meters (-197 feet). These capabilities allow operators to mine sand and gravel in deeper waters, farther from shore than preceding models.

The new line was designed in collaboration with Maritime Design and Engineering Services (MD&ES).

Olivier Marcus, Damen's product director for dredging said: "We've tailored the technical specifications of the designs in line with the port infrastructure in the region in which the dredgers will operate." He also said the design can handle harsh weather conditions and the vessel can operate safely and comfortably.

Unlike traditional dredges, the bow shape of the MAD vessels allows them to operate in adverse weather conditions. The bow shape design also protects the sand and gravel cargo from green water ingress.

Damen said the design is based on the design for its Damen Offshore Carrier (DOC) and Platform Supply Vessel (PSV).

A submerged, wear-resistant Damen dredge pump facilitates the loading of sand and gravel aboard the vessel. Once onboard, the aggregate then passes through the heavy-duty dredges' screening towers, where giant sieves allow for a better assessment and classification of the mined material. Following this, it is stored and de-watered in the vessel's hopper – with a capacity of either 4,000 or 5,600 cubic meters.

Damen's new trailing suction hopper dredges – Marine Aggregate Dredger (MAD) 4000 and 5600 vessels.

2D LAUNCHES PNP ESTIMATING SOFTWARE

In November 2016, in2Dredging (i2D) launches its new software program, Pumps 'n Pipeline (PnP) v1.1. The company said PnP is the first commercial pumps and pipeline estimating tool for the dredging and mining industry.

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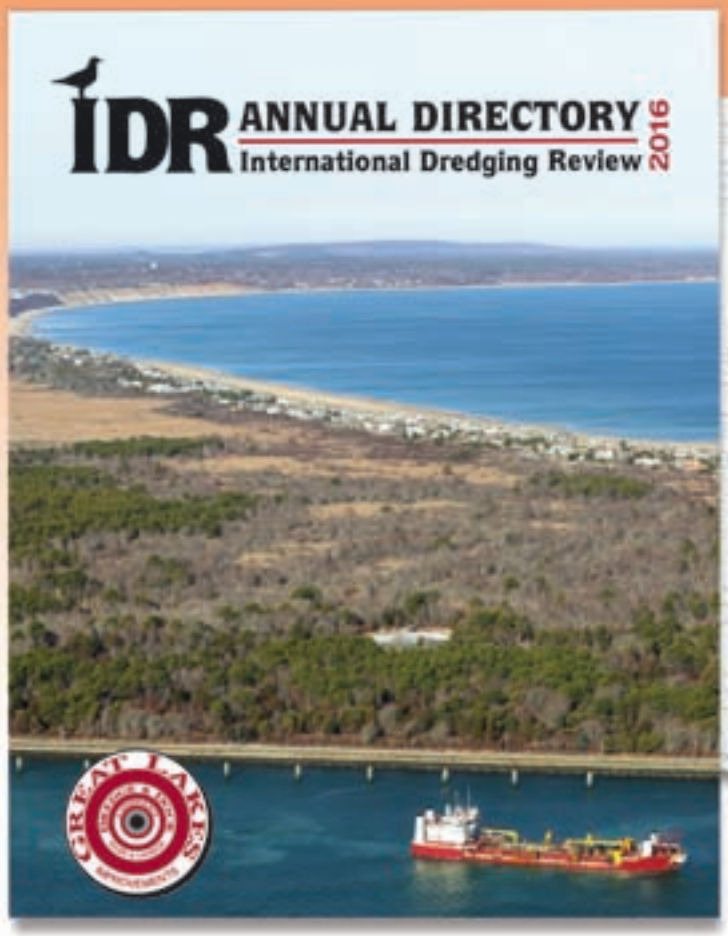

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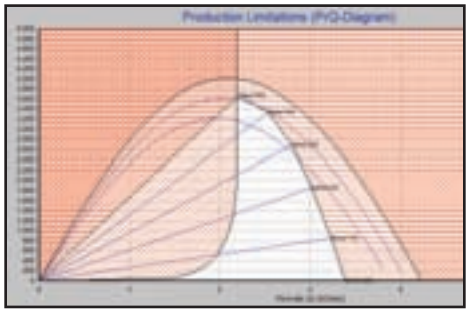
Analysis done by i2D identified a disconnection between dredging project performances and production estimates. The PnP tool can optimize the use of dredging equipment, benchmark production levels, and provide a foundation for capital investments and tenders.

The company said it worked to make the user interface intuitive and easy to use. The new program will estimate suction and discharge productions for any dredging or mining equipment that hydraulically transports soil and other similar materials.

PnP can be practically used to support designing pump-drive systems and pipeline configurations; selecting equipment feasibility for projects; estimating suction and discharge production; selecting gear(s) or e.g. the rainbow nozzle diameter for a project; and evaluating performance of pump-drive systems.



i2D's PnP Production limitations graph.

AQUAMEC LAUNCHES NEW WATERMASTER DREDGE, CLASSIC V

In November 2016, Aquamec launched a new Watermaster Classic V dredge, with 50 percent more suction dredge capacity, compared to the Classic IV model.

The new amphibious dredge reaches 900 cubic meters/hour pumping output with a larger cutter pump and more powerful engine.

"It would be easy to increase dredging capacity by growing the size and weight of the dredger, but at the same time you would lose the excellent mobility, which is the key feature of an amphibious dredger. The challenge has been to increase dredging capacity, while keeping the dredger compact, mobile and robust at the same time. Watermaster is a unique combination of these features," said Lauri Kalliola, managing director of Aquamec. The size of the Watermaster has stayed basically the same (20 tons) since the first generation model, Classic I, but the capacity has nearly tripled since then.

A big part of the work Watermaster does globally is located in urbal areas and done for environmental reasons such as flood prevention and removing contaminated sediment. Several features on the dredge help work in these areas. Watermaster's patented cutting knife system for debris can pump soils containing a significant amount of plastics and other urban trash and thus dredge in areas where only excavation work was previously possible. The new model also includes a new hard soil cutter crown and a bigger, more powerful hydraulic motor.

Aquamec's new Watermaster Classic V.

DAMEN REOPENS DDE OFFICES IN NIKERK

On November 9, 2016, Kommer Damen, chairman of the Damen Shipyards Group, officially reopened the offices of Damen Dredging Equipment (DDE) in Nikerk.

Among the many improvements, the building now provides visitors with a complete 'dredging experience,' starting with displays in the hallways to illustrate the challenges of living in the low-lying countries and to explain why dredging has been an integral part of their history. Other floors have displays of Damen's dredging equipment and experience. Equipment and hands-on demonstrations showcase the capabilities that Damen offers across capital, maintenance, environmental and aggregate dredging.

The hosts for the opening ceremony included Hendrik Jan de Kluiver, managing director of DDE, Olivier Marcus, director of Damen Product Group Dredging, and Stefan Hansum, plant manager at Van Oord, who gave some insights into dredging at Van Oord and described the performance of two Damen CSD (cutting suction dredge) 650s that his company has recently put into operation.

Kommer Damen, chairman of Damen Shipyards Group, works a hands-on demonstration for cutter power. The new facility opened November 9.

BY MARSHA COHEN

EXPANSION AT PORT OF TEMA, GHANA BEGINS

Work on Ghana's Tema Port Expansion Project officially started in early October 2016, according to the Ghana Ports & Harbors Authority (GPHA). This capital development project is being executed by the Meridian Port Services (MPS), which is a consortium of three main institutions, Bolore Africa Logistics, APM Terminal and GPHA. The contract for the construction of the Tema Port Expansion Project was awarded to the China Harbor Engineering Company (CHEC) and AECOM professional services (Ghana). The $1.5 billion construction works are being financed by the International Finance Corporation (IFC). The funding for the first phase of the project includes $195 million from IFC's own account and $472 million from three commercial banks – Bank of China, Industrial and Commercial Bank of China, and Standard Bank – as well as the Dutch development bank FMO. MPS shareholders are providing the balance of the funds.

The new container terminal will be located 30 kilometers (some 19 miles) east of Accra. The port improvements will include a 1,400-meter (4,600-feet) long quay for four container berths with a 16-meter (52-foot) draft, a container yard, a new four-kilometer (almost 2.5-mile) long breakwater and a 19-meter (62-foot) deep access channel, making it deep enough to accommodate some of the world's biggest container ships. The project should be completed by the fourth quarter of 2019. This is one of the largest port infrastructure investments in sub-Saharan Africa from the International Finance Corporation.

DUTCH DREDGING WINS TEN-YEAR MAINTENANCE CONTRACT IN NEW ZEALAND

Five ports in New Zealand have signed a ten-year contract with Baggerbedrijf de Boer-Dutch Dredging of Sliedrecht, the Netherlands. The contract was signed in early November 2016, and will provide maintenance work for the New Zealand port authorities of Napier, Taranaki, Timaru, Lyttelton and Tauranga. The cooperation among these competing ports for maintenance dredging is a sound decision with economic advantages for all of them, as there is not enough maintenance dredging for each port individually to have a dredge on a full-time basis. This joint contract helps to spread the costs and allows a dredge to be permanently stationed in New Zealand for the length of the contract. Dutch Dredging will deploy its trailing suction hopper dredge Albatros for the task.

A joint contract is not a new phenomenon in New Zealand. For 30 years the Ports of Taranaki, Timaru and Tauranga have had a combined dredging contract with New Zealand Dredging and General Works, a subsidiary of the Dutch dredging company Van Oord, sharing the services of the suction dredge Pelican. The Pelican, built in 1979, is approaching the end of its lifespan and its contract comes to an end in October 2017. This made it necessary for the New Zealand ports to start looking for a substitute.

For the new contract, the ports of Napier and Lyttelton decided to join the other three major ports to issue a tender for maintenance dredging. The Dutch Dredging contract will begin in September 2017 and ensure that the trailer will be present in New Zealand for the next ten years.

Maintenance dredging in New Zealand is done on a rotational basis. For instance, maintenance dredging takes place at Port Taranaki every two years and is due again in February 2017. For that work, the Port of Taranaki will use the Pelican, with the Albatros only being used the next time round in the first quarter of 2019. In addition to maintenance dredging, several of these ports are also developing dredging plans to deepen and lengthen their access channels in order to remain competitive and be able to accommodate today's super-sized container vessels.

Dutch Dredging is a medium-sized family business that focuses on long-term relationships with customers and this contract is clearly in line with this philosophy. It presently has 150 employees and 30 vessels.

Trailing suction hopper dredge Albatros will work a ten-year maintenance contract for five New Zealand ports.

CEDA CONDUCTING YEAR-LONG WEBINAR SERIES

The Central Dredging Association (CEDA) has been conducting a year-long series of webinars on Dredging Equipment and Technology. The webinars focus on the Cutter Suction Dredge and the Trailing Suction Hopper Dredge. All six in the series have been presented by two internationally renowned authorities on the subject, Dr. Cees van Rhee and Dr. Sape Miedema, both of the Delft University of Technology in the Netherlands.

The series is organized in two parts, comprised of two basic level presentations on the working principles of these two dredgers, and four advanced level presentations on more specific aspects. The first two basic level presentations in Part 1 took place on May 12, the "Working Principle of the Cutter Suction Dredge" and on September 14, the "Working principle of the Trailing Suction Hopper Dredge," both presented by Cees van Rhee.

Part 2 consists of four advanced level webinars. One, entitled "Production estimation based on specific energy in sand, clay and rock," was given on October 19 by Sape Miedema and the second (November 15) on "The sedimentation process in a TSHD" by van Rhee. The next two in the series were presented on November 22, "An overview of slurry transport models" and on December 6, "Flow regimes diagrams in slurry transport," both presented by Miedema.

Dr. Cees van Rhee is an engineer and full Professor of Dredging Engineering at the Delft University of Technology. He is the author of numerous scientific publications with a specialty in the modelling of highly concentrated sediment water flows and high velocity erosion of granular sediments.

Dr. Sape Miedema is Director of Studies of the MSc Marine Technology as well as Associate Professor of Dredging Engineering at the Delft University of Technology. His expertise is in soil mechanics and soil cutting, hopper sedimentation, mechatronics, applied thermodynamics, drive system design principles, mooring systems and mathematics. His research focuses on the mathematical modeling of dredging systems like, cutter suction dredges, hopper dredges, clamshell dredges, backhoe dredges and trenchers.

All CEDA webinars are available free of charge on the website of the Central Dredging Association (http://www.dredging.org/content/content.asp?menu=1000_94).

IADC PRESENTS WEBINAR ON ECOSYSTEMS SERVICES

A webinar on "Ecosystem Services" was presented free of charge on November 16 by Dr. Annelies Boerema of the University of Antwerp, Belgium, under the auspices of the International Association of Dredging Companies (IADC). This is one of several webinars organized by the IADC over the last few years. For those who missed the live presentation, the Ecosystem Services webinar (and the others as well) can be seen online.

Dr. Boerema addressed the issue, "How do we utilize the Ecosystem Services concept for more integrated marine infrastructure project assessments?" The focus was on how to take the concept of Ecosystem Services (ES) and apply it to assessing the value of marine infrastructure projects, such as new container terminals, mega beach nourishments and the construction of flood control areas. The webinar ran approximately 45 minutes, with a Q&A session at the end.

ES are the 'services' that our ecosystem affords us: flood protection, blue carbon, water quality regulation, recreational facilities, aspects that make a dredging project appealing to a broader base of stakeholders.

The concept is much debated by scientists and researchers across the globe. The theoretical importance of the ES concept has gained good recognition but the concept still needs

to be applied in practice. To prove the concept's value and its practical use, a group of scientists from the University of Antwerp applied it to real-life projects. The dredging industry is one of the first industries to recognize the benefits of the ecosystem services approach in project evaluation and assessment.

An ES evaluation enables an integrated and balanced comparison of the impact of human actions on project alternatives by attributing a monetary value to the social and environmental aspects of a project. The monetary valuation of the economic plusses of an expanded port or a replenished beach or an improved wetland can be weighed against the positives and negatives that the project will have on the quality of life of stakeholders. In this way, ES makes a full environmental cost-benefit analysis, comparing the investment costs with environmental and socio-economic benefits. This will help to assess whether one human action has more or less effects on the ecosystem, different stakeholders and society in general.

The ES approach also facilitates scenario analyses. Different project locations and different project designs or project execution methods have different impacts on the provided ecosystem services. An ES assessment can help facilitate an objective evaluation of the impacts, which provides a good support in the decision-making process on where and to what extent impacts might be compensated or mitigated. One cannot depend on only the ES evaluation in these kinds of decisions, but it provides a tool to have a discussion based on facts and figures. This will definitely increase the support among stakeholders and a better decision-making process regarding a project.

Dr. Annelies Boerema is a post-doctoral researcher at the Research Group Ecosystem Management, at the University of Antwerp, Belgium. She obtained her Master's degree in business engineering and a Master's degree and Doctoral degree in environmental science at the University of Antwerp.

The webinar on Ecosystem Services is available free of charge at http://bit.ly/2gftCJw. The IADC webinars appear at regular intervals and cover a wide variety of subjects pertinent to the maritime industry. All are available free of charge at the IADC website (https://www.iadc-dredging.com/269/seminars,-presentations-and-webinars/webinars/).

The Port Botany, Australia, extension program was built on 60 hectares (about 148 acres). Applying the Ecosystems Services principle, 1.85 kilometers (about 1.15 miles) of new shipping wharves were brought in balance with habitat enhancement and foreshore beach development for recreation.

Ecosystem Services concepts were applied at the Polders of Kruibeke in Belgium. Part of the polder has been converted into a tidal marsh by the creation of a Flood Control Area with the recreational asset of a wetlands as birding area and alder brook forest.

European Dredging Association Annual General Meeting and Conference Focuses on Global CO2 Emissions and Climate Change

Left, the first speaker, Alistair Hull from the International Chamber of Shipping, with the moderator, Pieter van der Klis.

Left to right, Peter van de Klis, EuDA Environmental Commission; Heiko Kunst from the European Commission, and Harry Zontag, Netherlands Ministry of Infrastructure and Environment.

BY MARSHA COHEN

The 2016 Conference and Annual General Meeting of the European Dredging Association (EuDA) was held at the Stanhope Hotel Brussels, Belgium on November 15. According to Paris Sansoglou, EuDA's Secretary General, "Our conferences try to bring timely topics to the attention of our members. The theme of this year's Conference 'Global CO_2 Emissions: New Business Opportunities for the European Dredgers?' is clearly something on the minds of those in the maritime industries."

Some 65 people assembled from various European Union member states to attend the meeting. This included representatives of the major European dredging contractors, members of the European Commission, and others from related maritime and port industries and national governments.

"Recent political initiatives are aimed at preventing the threat of excessive climate change, with a particular focus on global CO_2 emissions reduction targets and maritime transport. Shipping needs to and is willing to contribute its share to the global CO_2 emissions reduction efforts like any other fossil energy consuming sector. However, maritime transport – the lifeblood of modern society – cannot be disconnected from global economic development and prosperity. It is a catalyst, delivering through seaborne trade energy, food and commodities worldwide. Although we may not see dredges as 'shipping,' the regulations do and dredging vessels are impacted by these same regulations.

"Consequently, following the entry into force of the Paris Agreement on November 5, 2016, and the recent landmark decisions in IMO MEPC 70 (Global Data Collection System, roadmap), the European Dredging Association felt it was important that international shipping actors and European legislators have a platform to enumerate the actions they are taking to tackle CO_2 emissions from shipping. That was the goal of the EuDA 2016 Annual Conference."

Since the Kyoto Protocol of 1992, the political wheels have been turning to prevent the threat from excessive climate change. The main attention and efforts have focused on the biggest anthropogenic source of greenhouse gas (GHG) emissions: CO_2 emissions. The EuDA conference considered performance and efficiency measures for ships and the absolute emission targets set at the Paris, France, climate summit. At the Paris Conference of the Parties (COP21) of the Climate Change Convention a year ago, in December 2015, politicians agreed to set the absolute global target for the rise of the Earth temperature to 1.5°C and to take differentiated actions at the national level and the sector level. Among these sectors, transportation, including dredging vessels, is a significant source of CO_2 emissions and has to contribute to the global reduction efforts.

Moderator Pieter van der Klis, engineering manager at Van Oord and also chair of the EuDA Environmental Commission, introduced the first speakers of the meeting. Alistair Hull, technical director of International Chamber of Shipping presented an "Overview of the International Maritime Organization's Initiatives to Reduce CO_2 Emissions from Ships." He was followed by Heiko Kunst, policy officer in Unit B3 for International Carbon Market, Aviation and Maritime at the European Commission – Directorate Climate, who presented an "Overview of the of the European Union's Initiatives to reduce CO_2 emissions from ships."

Harry Zondag from the Netherlands Rijkswaterstaat, Ministry of Infrastructure and Environment, followed with a description of the Dutch initiative known as "The CO_2 Performance Scale." Zondag explained the Rijkswaterstaat three-pronged approach: "We have a short term goal to reduce CO_2 emission by 20 percent in 2020 as compared to 2009, we have an effort to improve energy efficiency, and we follow a policy of seeking sustainable procurement in all our public works."

Wrapping up the meeting, Paris Sansoglou presented on, "Global CO_2 Emissions: Possible Solutions from the European Dredgers."

"Although shipping is the most environmentally friendly and energy efficient mode of mass transport, on a ton-mile basis, it also needs to contribute its share to the global CO_2 emissions reduction efforts," Sansoglou said. "As members of the shipping community, European dredgers continuously work on reducing their emissions, by improving fuel efficiency of their equipment through ship design, better performing, more efficient engines and other technologies, and by improving their

European Dredging Association Secretary General Paris Sansoglou explains the position of the European dredgers regarding CO2 emissions.

best practices to optimize fuel consumption during operations."

Sansoglou also reflected on the possibility of complementing actions on emissions reductions with actions on atmospheric CO_2 concentrations. One of the key messages that became apparent at the conference is that most politicians are committed to "absolute" reduction targets and the means to their goal are "relative" measures (CO_2 emissions). To achieve these goals, requires a complementary approach as well that reduces the concentrations of atmospheric CO_2. Such a complementary approach is the use of Blue Carbon habitats, that is, natural carbon sinks, to capture atmospheric CO_2, where it can be stored for the long term.

Sansoglou emphasized, "With their expertise, European dredgers can contribute to this Blue Carbon option by creating new or restoring marine habitats. They can build multipurpose waterborne infrastructures that would also contribute to the CO_2 strategies of the project owners through increased carbon capture and long-term storage of CO_2. European industries should pursue their efforts of reducing their CO_2 footprint, but should also consider integrating Blue Carbon components into their strategies.

"European dredgers have estimated that to be totally carbon neutral, they would need to restore Blue Carbon habitats in an area the size of Luxembourg—of course unaffordable at a company level but worth integrating in the long-term carbon strategy of environmentally conscious sectors."

An open discussion concluded the meeting, which was followed by a networking luncheon, where the conversations on CO_2 reduction and other issues continued.

The Brussels-based organization was founded in 1993 as a non-profit industry organization for European dredging companies and related organizations to interface with the various European Union's institutions as well as some international organizations such as the United Nations' International Maritime Organization (IMO), HELCOM (Baltic Marine Environment Protection Commission - Helsinki Commission) and the International Labor Organization (ILO). EuDA members employ approximately 25,000 people directly "on land and on-board of the vessels" and more than 48,300 people indirectly (through the suppliers and services companies). The combined fleet of EuDA's members counts approximately 750 seaworthy European Union-flagged vessels. All presentations from the conference are available at the website of the European Dredging Association.

Dredging Roundup / LATIN AMERICA

BY LÉO SIQUEIRA

NICARAGUA BUILDING ARTIFICIAL ISLANDS TO BOOST TOURISM

Nicaragua's Port Authority, Empresa Portuaria Nacional (EPN), is building nine artificial islands at the Bluefields Bay area, in an attempt to boost tourism in the region. A dredge owned by EPN should extract 581,442 cubic meters (about 760,500 cubic yards) of sediments, which will be used to build the artificial islands. The $1.3 million US dredge should take five to six months from late October to complete both the building of the islands as well as the second dredging phase of the Bluefields Bay project in the South Caribbean Autonomous Region (RACS) of Nicaragua. Each island will have an average size of 80 meters of diameter. The vessel has a 1,000 cubic meters (about 1,308 cubic yards) per hour capacity.

BOSKALIS WINS EUR 120 MILLION DREDGING CONTRACT IN BRAZIL

Royal Boskalis Westminster N.V. (Boskalis) won a EUR 120 million ($124.8 million US) dredging contract to expand Brazil's Porto do Açú transshipment terminal in the city of São João da Barra, in the state of Rio de Janeiro. The deal was awarded by Açu Petróleo, a joint venture (JV) between Brazil's logistics company Prumo and Oiltanking Gmbh. According to Boskalis, the project comprises the deepening, widening and extension of the access channel and turning basin. Boskalis estimated a total 32 million cubic meters (41.9 million cubic yards) of sand, silt and clay should be extracted, as the activities began in late November last year and should be completed late this year. One jumbo and two large trailing suction hopper dredges (TSHD) will be used by Boskalis, it said, adding the terminal's access channel has a 20.5-meter (67.3-foot) depth, which is "suitable to receive Suezmax type vessels." By the end of this year, the 20.5-meter depth should be deepened to 24.5 meters (about 80 feet), allowing the terminal to receive Very Large Crude Carriers. Boskalis developed between 2011 and 2015 most of the Açú Port, including the construction of two access channels, a turning basin, an inner channel, mooring berths, as well as 2.4 kilometers (about 1.5 miles) of revetments for the inner harbor's protection.

Boskalis won a contract to expand Brazil's Porto do Açú transshipment terminal (seen here) in the city of São João da Barra, in the state of Rio de Janeiro.

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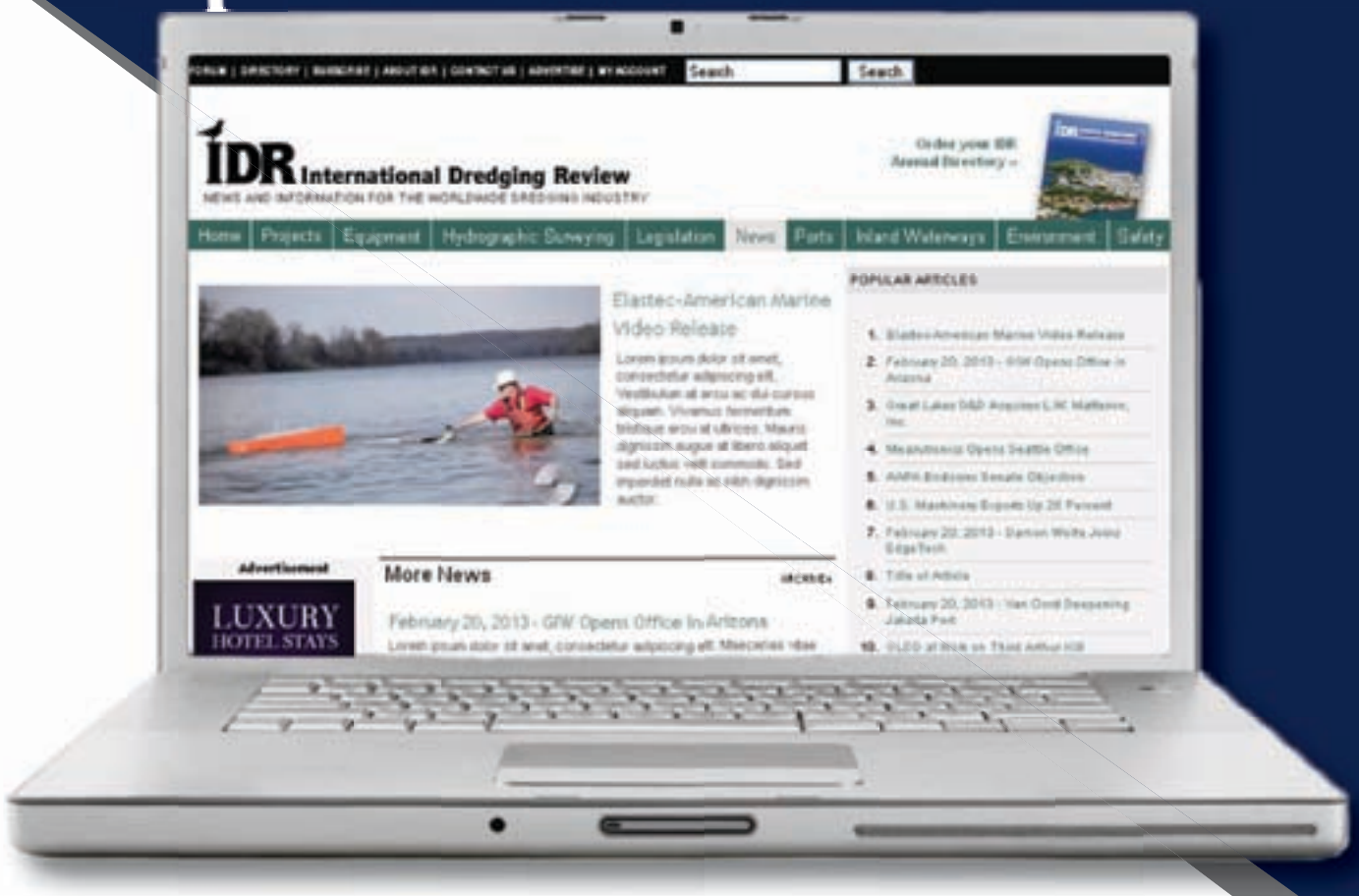

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PORT OF BARRANQUILLA'S ACCESS CHANNEL REACHES 10 METERS

In November 2016, the access channel of Colombia's Port of Barranquilla reached 10 meters (about 33 feet), raising, once again, concerns about its navigability. According to local media, a sediment accumulation at the kilometer 11 brought its depth to 10 meters, as opposed to the 11.43-meter (37.5-foot) minimum depth it should have in the same area. With the port's access channel at such a critical situation, only ships with drafts of nine meters (29.5 feet) or smaller could transit at the local port. Luxembourg-based European Dredging Company, which won a contract in July to dredge the Port of Barranquilla, should extract 151,770 cubic meters (198,508 cubic yards) of accumulated sediments nearby the kilometer 21 of the port's access channel, so its depth could be kept at 12 meters (39.4 feet). Local port authority Asoportuaria suggested river management authority Cormagdalena should use Jan De Nul's trailing suction hopper dredge (TSHD) Pedro Álvarez de Cabral to dredge the kilometer 11 of the port's access channel. The TSHD vessel will be used by Jan De Nul's Colombian subsidiary, European Dredging Company to dredge the port's access channel at the kilometer 21.

BRAZIL'S PORT OF PECÉM TO ADD THREE NEW BERTHS

Early in November 2016, Brazil's Port of Pecém, in the state of Ceará, received a number of technicians from the country's National Institute of Waterways Research (INPH) and the nation's Navy Hydrography Center (CHM), to perform bathymetry tests at the port terminal, as a way to expand it. The port should add three new berths, 7, 8 and 9, to receive cargo ships and container carriers. A port official said the bathymetry tests should indicate a depth of between 17 and 18 meters (56 and 59 feet). Such a depth would allow the facility to receive the Panamax, the Post Panamax as well as Ultra Large Container Vessels. The Port of Pecém currently has six working berths: two at its first pier, two in the second and an additional two at its Multiple Utilities Terminal (TMUT), reaching up an average depth of 18 meters (59 feet).

BRAZIL INKS DEAL TO DREDGE MADEIRA RIVER

Dredging at Brazil's Madeira River, located between the states of Amazonas and Rondônia, should resume this year, EBC, Brazil's government news agency, said. The JEED-EPC consortium, a partnership involving JEED Engenharia and EPC Construções, will dredge the Madeira River, one of the biggest tributaries of the Amazon, at a BRL 80 million ($23.6 million US) contract signed in November in Porto Velho, Brazil. Dredging should take about five years, effective in 2017. Commenting on the dredging project, a Brazilian minister noted works should begin as soon as "nature allows." "Dredging at the Madeira [River] will be made. It will be navigable all the year long," said Brazil's transports minister, Maurício Quintella, while signing the deal with the JEED-EPC consortium.

DREDGING ADVANCES IN CHILE'S VALDIVIA CITY RIVERS

Dredging at Chilean Calle Calle, Cau Cau and Cruces Rivers is reaching its final phase, as the project reaches an 85 percent completion rate, according to local media. Built in 1987, the country-owned dredge Ernesto Pinto Lagarrigue extracted at least 217,000 cubic meters (283,825 cubic yards) of sediments, with some more 45,000 cubic meters (58,858 cubic yards) to be extracted by other smaller supporting dredges, the country's Ministry of Public Works (MOP) said. As dredging at the rivers surrounding Valdivia City advances, MOP expects the depth of those rivers to reach 4.5 meters (14.8 feet) for larger vessels. The local government also expects the project to improve the navigability from Valdivia to the commune and sea port of Corral.

ECUADORIAN MINISTRY AWARDS GUAYAQUIL CITY 25-YEAR DREDGING CONTRACT

In December 2016, the City Council of Santiago de Guayaquil, Ecuador's most populous city, signed an agreement with the country's Ministry of Transports and Public Works (MTOP) to dredge the access channels of the city's state-run and private port terminals. Under the terms of the agreement, the City Council of Guayaquil will be responsible for setting and regulating local port taxes, in addition to choosing a company to perform dredging at the municipality's port access channels. The deal also includes a clause to avoid conflicts over the "dredging limits" that both the city of Guayaquil and maritime authority Puerto de Aguas Profundas de Posorja (DP World) have. The Ecuadorian Maritime Chamber, CAMAE, said dredging at the city's port terminals is a need. CAMAE said if dredging deepened the local channels' depth to 12.5 meters (41 feet), there would be major benefits for the surrounding port terminals, which could then receive larger vessels.

MAINTENANCE DREDGING COMPLETED AT KILOMETER 11 OF PORT OF BARRANQUILLA

Colombian river management authority Cormagdalena said maintenance dredging was successfully completed at kilometer 11 of the access channels of Colombia's Port of Barranquilla in early December 2016. Jan De Nul's trailing suction hopper dredge (TSHD) Pedro Álvarez de Cabral removed between 120,000 and 150,000 cubic meters (about 157,000 and 196,000 cubic yards) of material, but bathymetry should then determine the proper aquatic surface relief where dredging was performed.

Asoportuaria suggested river management authority Cormagdalena should use trailing suction hopper dredge (TSHD) Pedro Álvarez de Cabral to dredge the kilometer 11 of the port's access channel. The TSHD vessel will be used by European Dredging Company to dredge the port's access channel at the kilometer 21.

ILLEGAL DREDGES DESTROYED IN COLOMBIA

In November 2016, the Colombian Army, along with the country's Navy and the Jungle Brigade, destroyed five dredges that were illegally used to extract mineral resources from the Caquetá River, according to local newspaper La Nación. The joint Colombian forces found large amounts of chemicals, specially mercury, which are said to be polluting the local rivers Pedrera, Caquetá as well as Colombia's Amazonas River. The illegal vessels were mainly used to extract gold, according to Colombian media.

URUGUAY TO BUILD US$61 MILLION DREDGE

In November 2016, Uruguay's Port Administration Authority, ANP, signed a deal with Royal IHC (IHC) to build a US$61 million trailing suction hopper dredge (TSHD). The vessel will add to Uruguay's existing fleet of two vessels. Under the terms of the deal, IHC will design, build and then deliver the 4,200-cubic-meter vessel, whose project is expected to start in March or April this year. According to IHC, the overall project management will be executed by the company's Latin American office located in Rio de Janeiro, Brazil. Basic design and detailed engineering will be supplied by IHC's head office in The Netherlands. Other dredging parts should also be supplied by the company's headquarters; however, construction and commissioning of the vessel should take place in Uruguay, as part of the country's local content regulations. The Uruguayan vessel should have a length of 91 meters (about 299 feet), a width of 18 meters (about 59 feet) and a minimum capacity of 4,200 cubic meters (about 5,494 cubic yards). The project should create between 150 and 200 job positions in the next two years.

Alberto Díaz (center), president of Uruguay's Port Administration Authority (ANP), signs the dredge contract with Royal IHC, along members of the ANP.

Hall Contracted used its cutter suction dredge Amity for an aid project, through the New Zealand government, at Tuvalu, a small Pacific Island country.

Hall Pacific Rebuilds Borrow Pits Left from WWII; Aid Project Wins Award

BY ANNA TOWNSHEND

Hall Pacific won an award for the 2016 Innovate Awards of Excellence, held in New Zealand in September. The dredging and civil construction company, wholly owned by Hall Contracting of Australia, worked in conjunction with New Zealand's Calibre Consulting on an aid project in Tuvalu, a small island country, located approximately halfway between Australia and Hawaii.

The awards recognize excellence in engineering and consulting, and Hall Pacific's winning project involved removing more than 250,000 cubic meters of sand from a local lagoon and used it to fill man-man pits in the porous coral atoll.

The atoll is a thin strip of land, no wider than 300 feet in most places, with a large natural lagoon on one side and deep ocean on the other. It is home to some 10,000 people. During World War II, U.S. Marine Corps landed at Funafuti atoll and constructed an airstrip and navy base. This was used to stop the advance of Japanese forces, which had made it to Tarawa a couple hundred miles north.

The land excavated to provide fill for the airstrip left open area some 150-feet wide and many more than 1,000 feet long, which filled and emptied with the tide.

"This took away much of the usable land on Funafuti and many residents built pole houses over the borrow pits. With stagnant water, pig and human waste in the pits, they became a source of disease and infection," said Cameron Hall, managing director, Hall Pacific.

With a densely populated area, the local community could desperately use additional land, and the project increased the land space on the island by six percent.

In 2014, the New Zealand government aid program put out an international tender for early contractor involvement in the design and construction of the remediation of these borrow pits.

"Hall Contracting won this tender and worked with Calibre Consulting Engineers from Wellington, New Zealand, to come up with a solution to dredge sand from the lagoon and fill these pits back to their natural state," Hall said.

The pig and human waste collecting in the pits was infiltrating through the floor of the borrow pits and into the lagoon, creating algae blooms, which killed the coral. Fish that feed off the corals were also disappearing as a result.

To dredge the lagoon and fill the borrow pits, Hall Pacific used its 24-inch cutter suction dredge *Amity* to dredge clean sand from up to 15-meter depth in the lagoon and pump it to the pits ashore. "Tailwater from the dredging was disposed of on the ocean side of the atoll, though in most cases the water simply infiltrated through the floor of the borrow pits," Hall said.

A 180-foot barge, three excavators, a Poritrack mini loader, a wheel loader and three trucks accompanied the dredge *Amity* on the project. The company worked six months on the $7 million aid project.

During a tropical cyclone a number of years ago, a breach in the northern part of the atoll had also occurred. The Pacific Ocean swells breached the island and threatened the cut off the northern part of the atoll from the main population center. Hall Contracting also worked to repair this breach.

Tuvalu is also one of the lowest lying nations, making it particularly vulnerable to rising sea levels, severe storm systems and coastal erosion.

"As there is no rock on the atoll and very little in the way of coral boulders, the wall was constructed using 5-tonne Elcorock sand bags, a product made in Australia. Hundreds of these bags were stacked to reconstruct the 'storm ridge' slope," Hall said.

Late last year, Hall Pacific also completed the design and construction of a seawall on Tuvalu's Nukufetau atoll, helping to further protect the island from the impacts of climate change. Nukufetau is 60 nautical miles north of Funafuti and in only accessible by boat. Tropical Cyclone Pam in 2015 devastated the area. Again, Hall used an Elcorock sand bag wall to rebuild the area.

The aid project rebuilt borrow pits left from WWII, when U.S. Marines built an airstrip and Navy base, leaving huge plots of excavated land.

The student team from the University of Illinois who won the cab design contest, pose with the 3D printed cab. They are, from left, Kevin Kim, Andrew Peterman, Naomi Audet, Sharon Tsubaki, Luke Meyer, and faculty advisor Professor Sameh H. Tawfick. The cab still needs finishing work and glass in the windows before it is ready to display at CONEXPO-CON/AGG in the Tech Experience. Photo by to Rachel Brooks, Oak Ridge National Laboratory, Dept. of Energy.

CONEXPO-CON/AGG Set for March 7 to 11 in Las Vegas

BY JUDITH POWERS

CONEXPO/CONAGG, co-located with IFPE, will take place on March 7 through 11, 2017 at the Las Vegas Convention Center, Las Vegas, Nevada.

The conference is owned by the Association of Equipment Manufacturers (AEM).

The triennial show features exhibits, meetings and educational programs for the construction, aggregate producing, and in the case of IFPE, the fluid power, power transmission and motion control industries.

Registration this year includes admission to all show halls, the new Tech Experience, a three-day Monorail pass, show deluxe coach transportation to and from official hotels and the Las Vegas Convention Center (except hotels within walking distance), and discounts at various Las Vegas bars and restaurants.

The organizers have grouped like companies in the same areas, to reduce the amount of walking and time between exhibits.

The new Tech Experience is a 75,000-square-foot immersive showcase in Silver Lot 3, with displays of solar-powered roadways, data visualization and interactivity, drones, robotics, and intelligence advancements.

"The future-forward showcase of the evolution in materials, machines, systems and software will spark a revolution in how we build, where we work, and the jobs for years to come," claimed a show press release.

FULL SIZED 3D-PRINTED EXCAVATOR

The centerpiece of Tech Experience will be the first fully-functional 3D printed construction excavator, the first large-scale use of steel in 3D printing, known as additive manufacturing. In addition to the pre-printed excavator, show attendees will be able to view a demonstration of the 3D printing technology.

Two years in the making, the excavator is nicknamed AME (additive manufactured excavator). The idea was born when members of the industry/university consortium Center for Compact and Efficient Fluid Power (CCEFP) saw a 3D printed car at the Oak Ridge National Laboratory's Manufacturing Demonstration Facility (MDF). This gave them the idea to produce an excavator on the MDF to demonstrate at CONEXPO/CONAGG and IFPE 2017.

The technology will allow for innovative integration of fluid power. The printed boom will have the fluid flow passages embedded inside the superstructure. A printed cooling system will increase efficiency and reduce weight.

The design of the cab was the subject of a contest offered to university engineering seniors. The five-student winning team was from the University of Illinois at Champaign/Urbana. The exterior of the cab is resistant to maximum load from any direction for safety purposes. The team attended the printing of their design at Oak Ridge Laboratory examined it in detail after it was finished. The material used to create it was plastics and composites in the form of pellets, which were melted and "printed" layer by layer by the machine's extruder nozzle.

A Georgia Tech research team is designing the steel boom, stick and bucket, which will be printed from steel welding wire fed to the printer. A team from the University of Minnesota is developing the oil cooler design, which will be 3D printed using aluminum powder. The Oak Ridge National Laboratory is developing all processes required to 3D print the components.

"3D printing is the future of manufacturing," one of the Illinois students exclaimed in a video showing the students watching their cab design being printed.

EDUCATIONAL SESSIONS

Attendees can gain valuable knowledge on equipment operation, project management and operation, equipment safety procedures, environmental considerations and much more through dozens of classes offered by knowledgeable professionals in their field. Talks are divided into 15 tracks, making it easy for people to

find the classes relating to their segment of the industry.

DREDGING-RELATED EXHIBITS

Dredging exhibits are listed under Earthmoving Equipment & Material Handling in the show program. They include manufacturers of dredges and parts, and excavating tools. For the first time in several decades, the Western Dredging Association will not have an exhibit. Some displays of interest to IDR readers are:

Associated General Contractors of America – GL11279

Caterpillar – N10924 and G4490

Con-Mech Engineers Ltd., a new exhibitor from the UK, manufactures supplies Ground Engaging Tools from high-quality British steel, in the form of cutting edges and wear parts for the mining and construction industry.

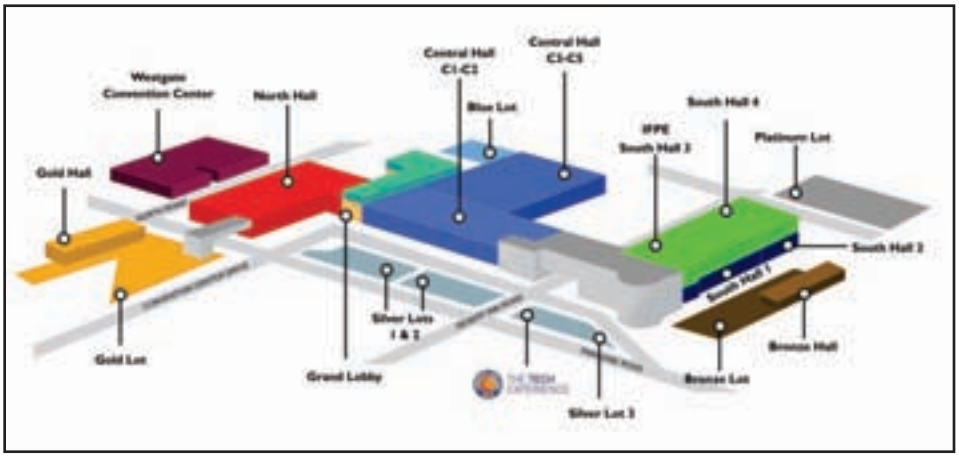
Crisp Industries – C31095, manufactures aggregate processing and material handling equipment, service, and parts for Metso, BTI, Thor Global, Cornell Pumps, Pioneer Dredge, Argonics, and AZFAB.

Custom Dredge Works – C31094, designs and manufactures custom and standard dredges, including cutterhead, chain ladder, straight suction, and various hybrids. The company has experience with underwater pumps and long ladders for deep digging.

Damen Shipyards – G70016

Dragflow S.R.L. – G71821, has over 25 years of experience in manufacturing heavy duty pumps and complete dredging equipment, and equipment for the mining, construction, and industrial sectors.

DSC Dredge – C20523 offers engineering, automation, and manufacturing of cutter suction and underwater pump mining dredges; training and timely, knowledgeable parts and service support, and one-on-one attention to the customer on application details and engineering.



Eddy Pump Corporation – B9501

EIK International Corporation – S6531, specializing in a wide range of amphibious excavators with attachments for long and short boom operation, and featuring the patented 'multi-synchronous hydraulic drive system' pontoon undercarriage systems for amphibious excavators.

International Union of Operating Engineers – GL10780

JBL Inc. – G3364

Liebherr – G4637 and S84230. 50,000 square feet displaying more than 22 pieces of equipment for multiple industries and job applications, including hydraulic excavators, wheel loaders, crawler loaders and tractors, deep foundation machines, material handlers, tower cranes, mobile and crawler cranes, and concrete pumps. Liebherr will also display components from the mechanical, hydraulic, and electric drive systems areas at its indoor booth S84230.

Manitowoc Cranes – G3348

National Stone, Sand, and Gravel Association – GL20803

Pearce Pump Supply & Foundries – C31319. Manufactures dredge pumps in a variety of styles and sizes, as well as high pressure, hydraulic, submersible, and vacuum pumps for a range of other applications, as well as a full range of aggregate processing equipment.

Pioneer Dredge – S6531. Manufactures cutter suction dredges, with 10-inch to 20-inch discharge diameters, ladder pump and hull pump designs, with a focus on engineering.

Rohr-IDRECO Dredge Systems – C32609. Custom deep digging electric or diesel modular dredges with low energy requirements for sand and gravel, mining, dam operators, governments, and contractors.

Supreme Manufacturing, Inc. – C30953

Ultratex Machinery Sdn. Bhd. – G72402. Amphibious excavators ranging from five to 40 tons, custom made amphibious undercarriages for various brands and models of excavators.

Trimble – N12067- Core technologies in positioning, modeling, connectivity and data analytics, software, and services, including dredging applications.

Weir Minerals – C31416

CDMCS Elects New Co-Chairman

The Council for Dredging and Marine Construction Safety (CDMCS) announced that Devon Carlock has been elected co-chairman of the organization. As an active member, Carlock worked with council members and Corps leadership in efforts to address industry safety concerns including new regulations. In his position as co-chair, he will address initiatives including a hand safety campaign, arc flash safety awareness, interactive video webinars, redesigned website and increased partnering sessions with industry safety leaders and Corps leadership. He joins Albert Wong, Corps senior program manager for Construction & Operations Safety, at the helm of CDMCS.

Carlock maintains that "within maritime construction, the reaction of the new deckhand to the old school ways is truly amazing. With leadership comes the need to show respect, showing the crews that YOU CARE is paramount. Engaging the crew, speaking to them as people not as an expendable tool, this is the true answer for safety success. Together, we will continue the fight forward, brainstorming for new ideas and best practices. We will continue to combine the ideas of government and industry so that everyone can make it home safely."

Carlock has spent 26 years in the maritime industry, participating and partnering at industry events nationwide. As a dredging professional, Carlock brought hands-on experience to the CDMCS having traveled globally procuring equipment and observing dredging operations. In 2016, he was the first small business speaker to discuss dredging safety at a National Dredging Meeting in Washington, D.C.

Carlock has worked as a project manager, estimator, superintendent and is an active member of the Western Dredging Association, as well as the Dredging Contractors of America. He now is the director of corporate safety for Cottrell Contracting Corporation in Chesapeake, Virginia. Carlock holds certifications from the USACE, OSHA, MISHA and Maritime Institute of Technology & Maritime Studies.

Devon Carlock, director of corporate safety for Cottrell Contracting Corp. was elected co-chairman of the Council for Dredging and Marine Construction Safety (CDMCS).

The Council for Dredging and Marine Construction Safety represents a joint effort of the dredging and marine construction industry to collectively improve Industry safety standards. CDMCS is a leader in safety with a diverse membership supporting the nation's economy and well-being of workers nationwide.

Two Environmental Scientists Receive Inaugural IHS DPC Innovations Awards in Dredging

Screen shot of the announcement of Craig Vogt as winner of the first "Commendation for Services to the Dredging and Port Construction Industry." Vogt is Chair of the Environmental Committee of the Western Dredging Association (WEDA).

BY MARSHA COHEN

At a gala dinner on November 10, 2016, in London's Marriott Hotel, Grosvenor Square, in England, the first IHS DPC Innovations Awards were presented to a variety of people and companies for outstanding contributions to the dredging and maritime construction industries. According to the organizers, more than one hundred entries were received from across a wide swath of the industry. Often unnoticed, and certainly underestimated, the dredging community took time out on this evening to honor some of its own. Among the recipients were two members of the World Dredging Association (WODA), one from the Western Dredging Association (WEDA), the other from the Central Dredging Association (CEDA), both known for their work with environment and dredging.

The awards were adjudicated by a group of four esteemed dredging experts: Anna Csiti, general manager of CEDA; Bert Visser, cost estimator at the Netherlands Rijkswaterstaat; David Padman, chair of the Eastern Dredging Association and Jurgen Sorgenfrei, director of consulting, IHS Maritime and Trade.

Craig Vogt, a long-time member of WEDA, was singled out for his "Service to the Industry." Vogt has been a staunch supporter and leader of WEDA with tackling the sometimes difficult areas where environment and dredging coexist. With a Master's degree in environmental engineering, Vogt has worked for and with the United States' National Dredging Team, the U.S. Environment Protection Agency, the U.S. Army Corp of Engineers, the International Maritime Organization and Environment Canada. He chaired the scientific group of the London Convention for four years and was able to bring between 30 and 40 countries together to control waste deposition at sea. He presently is a consultant and heads the WEDA Environment Commission. Vogt is the first recipient of the IHS Maritime & Trade "Commendation for Services to the Dredging and Port Construction Industry."

In his acceptance speech, delivered via video, Vogt expressed his deep appreciation for this recognition. But he laughed as he elaborated his thanks, saying, "An award for Service to the Industry? For 37 years, I worked at the EPA [US Environmental Protection Agency] protecting our waterways and oceans. What will my colleagues at EPA think, has Craig gone over to the dark side?". He is of course referring to the sometimes frayed nerves of combining dredging projects with the strict U.S. environmental regulations. "But no," he continued, "my EPA colleagues know that what I try to do is get things done in a rational, environmentally protective, efficient manner. In my position at the National Dredging Team, which I chaired for 15 years, I tried to bring all the federal agencies together to cooperate, also with the state regulators." He remarked with some satisfaction, "We've come a long way since the deadlocked, mudlocked days in the 1980s and 90s. Over the last 20 years, we've made great progress in communicating. Bringing in the regulators, the academics, the industry, the port, the consultants, the stakeholders. Certainly this has made things better. I believe you can get dredging projects accomplished in a timely efficient manner and also meet environmental goals. I think the lessons to be learned are the importance of communication, collaboration, building relationships and not to forget the science of technology."

Another recipient, well known in the dredging community and associations, was Anders Jensen. Jensen is group manager of Survey and Monitoring, Coastal and Estuarine, at the Danish Hydraulic Institute (DHI) in Copenhagen, Denmark. During his 31-year-career Jensen has made numerous contributions to the dredging industry and to CEDA, including serving as CEDA's president for eight years from 2007 to 2015. For this reason, he was presented with the first "CEDA Lifetime Achievement Award," for his services to CEDA and the industry.

According to current CEDA President Polite Laboyrie, the CEDA Lifetime Achievement Award recognizes an individual who has had a significant, long-term impact on the field of dredging in his or her professional career. The winner has also made an important contribution to the advancement of CEDA and continues to be professionally active. The CEDA Board of Directors had the honor of choosing Anders Jensen as the winner and, as Laboyrie acknowledged, "with many eminent members, the choice was a difficult one."

Anna Csiti, general manager of CEDA, had the privilege of presenting the award on behalf of the CEDA Board. In doing this she acknowledged that "the board valued Jensen's outstanding and enthusiastic contribution to CEDA's work, the vast amount of knowledge and extensive experience he brought to the organization on all aspects of dredging, and the commitment and motivation he has shown during his long-term involvement in CEDA."

Jensen himself thanked the group for the award and expressed his commitment to CEDA: "As a truly independent association for the broad-based dredging community and associated stakeholders, CEDA has an essential role as provider of objective dredging knowledge… I will certainly remain involved in CEDA and will do my best to help in its important work."

Jensen is credited with playing a key role in the development and implementation of 'feedback monitoring' for the Øresund Fixed Link project in the 1990s, a bridge-tunnel construction that links Denmark and Sweden, took seven years to build and has had a positive impact on the economies of both countries. It continues today to be a model project for environmentally friendly dredging. The principles developed during this game-changing project are now used worldwide. Jensen added, "I am very grateful for this award. My work for CEDA since 2001 has been very rewarding in itself. I thank all the fantastic CEDA colleagues and friends from all over Europe and abroad with whom I have worked to collect and promote high quality knowledge of dredging and the environment."

The Central Dredging Association (CEDA) Lifetime Achievement Award was presented to Anders Jensen of Danish Hydraulic Institute by CEDA's General Manager, Anna Csiti. Jensen was past president of CEDA. (photo credit: Dean O'Brien).

Tribal Protests in North Dakota Spur Further Talks on DAPL Pipeline Route

BY JUDITH POWERS

An oil pipeline crossing permit is at the center of a dispute in North Dakota, where the Standing Rock Sioux tribe (SRST) is protesting the transit of the Dakota Access Pipeline (DAPL), a high volume, high pressure crude oil pipeline, under Lake Oahe in the Missouri River. The lake is the primary source of drinking water for the 11,000-member tribe.

The current route of the pipeline is 10 miles upstream of Fort Yates, the tribal headquarters of the SRST, and the county seat.

The discussion takes place in an environment where oil pipelines spill thousands of barrels of oil in North Dakota annually, one significant spill from a buried pipeline saturating an area of farmland the size of seven football fields in 2013. On December 5, 2016, a leak 150 miles from Lake Oahe spilled 4,200 barrels of oil, 3,100 of that into the nearby Ash Coulee Creek, which feeds into the Little Missouri River, causing further concern to the tribe.

Pipeline contractor Energy Transfer Partners, operating as Dakota Access, LLC prepared a draft Environmental Assessment (EA) requesting Section 408 permits to cross 2.83 miles of federal flowage easements at the Missouri River upstream of Lake Sakakawea, and 0.21 miles of federally owned property at Lake Oahe in Morton and Emmons Counties, North Dakota.

The 1,172-mile-long pipeline also transits more than 200 waterbodies in North Dakota, covered under a Nationwide Permit.

The draft EA spelled out pipeline safety procedures for protecting the integrity of the buried pipeline, and regular reports on the pipeline integrity. It described the hydrostatic testing of each pipeline section before it is placed, and verified the stability of the arc-welded steel pipeline.

The EA describes the chosen method of crossing at Lake Oahe as horizontal directional drilling (HDD). This involves drilling a hole 2,715 feet long in hard clay 92 feet below the river bed, which would contain the pipeline.

The draft EA also stated that Omaha District personnel had consulted the National Historic Preservation Act (Section 106), Tribes, Tribal Historic Preservation Offices, State Historic Preservation Offices, the Advisory Council on Historic Preservation, and interested parties, as required.

The Omaha District conducted a 30-day public comment period from December 9, 2015 to January 8, 2016. Agencies having objections to the plan were the EPA, the Department of the Interior, the Advisory Council on Historic Preservation, which cited risks to water supplies, inadequate emergency preparedness, potential impacts to the Standing Rock reservation and insufficient environmental justice analysis.

Reid J. Nelson, director, Office of Federal Agency Programs at the Advisory Council on Historic Preservation, objected to the draft EA, stating that the findings of culturally significant properties were based on an incomplete identification effort, and that the investigations had not included the input of federally recognized Indian tribes who ascribe religious and cultural significance to properties.

On March 11, Philip Strobel, National Environmental Policy Act regional compliance director for the Environmental Protection Agency (EPA), stated in a letter to the Corps that the crossings could affect the primary source of drinking water for much of North Dakota, South Dakota, and Tribal nations, and recommended a new assessment that considers locations that would not endanger drinking water supplies.

The Lake Oahe route was only selected after the first route, which crossed the river near the city of Bismarck, North Dakota, was objected to by its residents.

On July 25, Omaha District Commander Col. John W. Henderson signed a Finding of No Significant Impact (FONSI) for the Dakota Access Pipeline (DAPL) Project, which summarized the environmental effects evaluation, and granted Section 408 permission for the project to cross the easements at Lake Sakakawea and Lake Oahe.

The Draft EA and the Final EA are available on the Omaha District website: www.nwo.usace.army.mil.

LAKE OAHE

Lake Oahe is a flood control and navigation project formed by a dam at Missouri River Mile 1072.3, stretching from Pierre, South Dakota, 231 miles upriver to Bismarck, North Dakota. The 11,000-member Standing Rock Sioux tribe (SRST) derives its drinking water from the reservoir, which also provides flood control, electric power, irrigation and navigation benefits, administered by the Corps of Engineers.

The reservoir has a capacity of 23,137,000 acre-feet of water, and is a maximum of 205 feet deep, with a shoreline 2,250 miles long.

The Standing Rock tribe filed suit against the Corps of Engineers on July 27, protesting the easement and alleging violations of several federal laws, including the Clean Water Act, the

National Historic Protection Act, and the National Environmental Policy Act (NEPA), in its approval of the permits.

Tim Mentz Sr., an SRST member who conducts surveys of culturally significant artifacts on the reservations for preservation under the National Historic Register, testified in court on behalf of the lawsuit that there were many important artifacts that had not been registered by the team doing research for the permit, and described an image of the Big Dipper on a grave he had found in the pipeline easement.

"This is one of the most significant archeological finds in North Dakota in many years," he said.

The day after Mentz's testimony, September 3, the contractors bulldozed the area containing the Big Dipper, 82 other cultural features and 27 graves, sparking a violent confrontation between security guards and members of the Tribe, who had been camping in the area since April to protest the pipeline crossing.

News cameras captured the incident, and within days, millions around the world had viewed it on the Internet, and began expressing sympathy for the self-described "water protectors." Sympathizers began arriving in the camp, which soon swelled to more than 2,000 persons.

On September 9, federal Judge James Boasberg ruled against the SRST's request for an injunction against the pipeline crossing of Lake Oahe, expressing sympathy for the SRST for the "indignities visited upon the Tribe over the last centuries" and acknowledging the complexity of the case, but concluding that the tribe had not demonstrated that an injunction was warranted.

Later that day, the Department of the Army, the Department of Justice, and the Department of the Interior made a joint announcement to the effect that the Army would not authorize the pipeline at Lake Oahe until it could determine whether to reconsider previous decisions under the National Environmental Policy Act (NEPA) or other federal laws, and requested that the pipeline company pause its construction within 20 miles east or west of Lake Oahe.

The statement also acknowledged a need for reform regarding the consdieration of tribes' views on infrastructure projects on tribal land, and announced that the Army would meet with the tribes to determine how to improve their input.

Energy Transfer Partners objected to the decision to stop work near Lake Oahe, and responded that "In spite of consistently stating at every turn that the permit for the crossing of the Missouri River at Lake Oahe granted in July 2016 comported with all legal requirements, including the use of an environmental assessment, rather than an environmental impact statement, the Army Corps now seeks to engage in additional review and analysis of alternative locations for the pipeline."

The statement accused the Obama Administration of abandoning the rule of law in favor of the Indian tribe, which it described as a "narrow and extreme political constituency."

The company stated its intention to complete construction without any rerouting around Lake Oahe.

"Nothing this Administration has done today changes that in any way," the statement concluded.

The protests and confrontations with police continued, and on November 14, the Honorable Jo-Ellen Darcy, Assistant Secretary of the Army for Civil Works, issued a letter inviting the SRST to engage in discussion regarding the easement.

"The Army continues to welcome any input that the Tribe believes is relevant to the proposed pipeline crossing or the granting of an easement," she said.

"While these discussions are ongoing, construction on or under Corps land bordering Lake Oahe cannot occur because the Army has not made a final decision on whether to grant an easement. The Army will work with the Tribe on a timeline that allows for robust discussion and analysis to be completed expeditiously," she said.

SRST Chairman David Archambault II met with Corps officials in Washington, and on December 4 announced that the Corps would undertake an environmental impact statement on the project. He expressed appreciation to the Obama Administration for taking the time to consider the tribe's concerns.

"In a system that has continuously been stacked against us from every angle, it took tremendous courage to take a new approach to our nation-to-nation relationship, and we will be forever grateful," he said.

The U.S. Army Corps of Engineers Eastern Region Dredging Conference Meets in Fort Lauderdale

BY MARSHA COHEN

The U.S. Army Corps of Engineers Eastern Region Dredging Conference was held on October 26, 2016, following on the heels of the WEDA Eastern Chapter Annual Meeting the day before. Both events were held the Broward County Convention Center in Fort Lauderdale, Florida. The location was an ideal spot to view the work that the Corps of Engineers and its contractors are performing on the East Coast of Florida. In two days, two impressive sides of the dredging and maritime industries were profiled. While the WEDA meeting introduced a series of speakers from the private sector, on the second day, the Corps gave insights into its rigorous work and the intensive cooperation and communication with the private U.S. dredging industry.

The welcome and opening remarks came from Dylan Davis, navigation program manager for the Corps South Atlantic Division, who acted as moderator for the morning session. Davis introduced this meeting as "the Corps-centric day," in which Operations and Maintenance Dredging Schedules for the South Atlantic and North Atlantic Districts would be described, as well as some innovative technologies.

First up was Alan Bugg, formerly of the Corps, and presently professor at Auburn University, who with one of his graduate students, Claire Gilbert described their project on "Dredge Safety Research." Gilbert went on to describe the study entitled, "Applying Real-time Location Systems to Improve Personnel Safety in Dredging Construction." The proposed experiments are Real-Time Location Systems (RTLS), specifically, a Radio Frequency Identification (RFID). For Bugg and Gilbert, the RFID would be an active tag that gives real-time locations. Similar systems have been used in road construction, but this system would have to be adapted to the specifics of the maritime industry. Individual sensing technologies in dredging construction is at present nonexistent. The aim of this study is to evaluate the effectiveness of the real-time location system's RFID in providing individual personnel safety monitoring on a dredge. Gilbert and Bugg were hopeful that some of the contractors or the Corps would be willing to participate with a group of 10 to 30 people 'tagged' and monitored on a variety of dredges. Several attendees had further questions about the study and seemed to be interested in cooperating.

For the rest of the day, the audience of some 90 contractors and Corps members were briefed on the Corps Dredging Schedules and the status of dredging at the South Atlantic Division (SAD), North Atlantic Division (NAD), Southwestern Division (SWD), and Mississippi Valley Division (MVD).

ONGOING PROJECTS

This is a hands-on information exchange in which a progress report of ongoing works and the 2017 Dredging Program were outlined by the Corps. Starting with George Rush, dredging project manager at the Mobile District, present and future plans for each district were elaborated on by the District Navigation Managers. In each case the location of the job, the dredge type required, the placement options, the quantity to be dredged, the water depths for the works, and the business type were described. Also importantly, the Corps spokespeople listed the date the specific job to be advertised, the dates of the bid opening and award, the issue of the 'Notice to proceed' and the dates that dredging will commence and is expected to be completed.

The reporting continued with Mike Hooks also of the Mobile District (South Atlantic Division) outlining the inland dredging in Mississippi, Alabama and Georgia. He also included navigation projects being conducted in Mobile Harbor, Gulfport and for the Mississippi Barrier Island Restoration. The district is responsible for five waterways, 2,200 miles of inland water, seven deep draft harbors, 21 shallow draft channels and 22 locks.

Among the North Atlantic Division representatives were Timothy J. Rooney from the Operations Division of the Philadelphia District,

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This slide shows the major ports covered by the WEDA Eastern chapter region.

Tiffany Burroughs from the Baltimore District, Stephen J. Powell from the Norfolk District, as well as Corps people from the New England District and the New York District. As someone pointed out, the meeting was taking place during the fourth anniversary of Sandy's direct hit on the coastline from New Jersey going north in New York, and the repair work from Sandy is still not completed.

Moving back to the South Atlantic District were reports from the Jacksonville District, the Savannah District and the Charleston District, where the Corps is now faced with the aftermath of Hurricane Matthew. Places like Savannah, Brunswick and Tybee Island were hard hit, and the damages are still being assessed. The same is true in the Wilmington District in North Carolina where Roger Bullock gave a full description of the ravages of the hurricane including flooding and beach erosion. Among the channels and harbors suffering navigation impacts from Hurricane Matthew in Florida are Fernandina Harbor, Jacksonville Harbor and many portions of the Intracoastal Waterway from Jacksonville to Miami. This includes St. Augustine Inlet, Ponce Inlet, Canaveral Harbor, Ft. Pierce Harbor, St. Lucie Inlet, OWW – Cross Roads, Palm Beach Harbor and Bakers Haulover Inlet.

Shoreline impacts also have to be reckoned with and fourteen Project Information Reports have been received to date: on the Gulf Coast (from Hurricane Hermine in August 2016), Pinellas County, Sand Key East Coast (Hurricane Matthew), Nassau County, Duval County, St John's County, Brevard County's North Reach and South Reach, Fort Pierce, and in Dade County including Sunny Isles and the Main Segment. More Project Information Reports requests are anticipated.

CONSTRUCTION AND NEW WORKS

Having covered a huge amount of ongoing projects, next up was an update on "construction and new works." Capital projects such as the Savannah Harbor Expansion Project (SHEP) are high priority. The dredging here would deepen the entrance channel from -44 feet MLLW to -49 feet MLLW and extend the channel over seven miles seaward by removing approximately 11 million cubic yards of material. The work is approximately 25 percent complete and currently scheduled for completion in July 2018.

Jacksonville Harbor deepening, Port Everglades and San Juan Harbor, Puerto Rico are all at insufficient channel depth for the new container vessels and cruise ships. And a feasibility study for Charleston Harbor has been submitted and is awaiting authorization and funding. Other projects in the North Atlantic Division being investigated for further construction in the future include Norfolk, Virginia and Hampton Roads. In Baltimore Harbor, Maryland, the Delaware River Main Channel will be starting up its 50-foot deepening works in 2017. New England also has its share of new work in Boston Harbor where the plans are to deepen to 51 feet, with worked scheduled to start in 2018.

The afternoon session, moderated by George Nieves of the North Atlantic Division, took another leap into the future, with Vern Gwin's report on the National Dredging Quality Management (DQM) Program. Gwin is program director at the National DQM Center and is responsible for the DQM Pipeline, developed by HYPACK. The DQM Program is now being tested at the Mobile District and so far reports are good. The Dredging Quality Management (DQM) Program is a partnership between the Corps and the dredging industry to develop automated monitoring of dredge operations. Onboard sensors provide near real-time data, which allow dredge operators to respond to emerging situations. Districts can use the web-based DQM software to view, analyze, report on and export dredging data. This data can be used to improve business practice, ensure environmental compliance and increase the understanding of dredging science and technology (for more information see http://dqm.usace.army.mil).

The last session and conclusion of the day-long meeting was the Partnering Session, led by Jeff McKee, chief of the Corps Navigation Branch Headquarters, and Barry Holliday, executive director for the Dredging Contractors of America. It was a lively and constructive discussion with the audience about the future and present dredging operations in the U.S.. According to Holliday, "Communication is key to keeping the dialogue open and keeping everyone informed. Thinking forward on innovations is essential." McKee suggested that we "encourage folks to go back to the districts, go into study and feasibility phases and to involve industry to find out if your proposal is doable from a contractor's viewpoint."

Wide ranging questions from the audience were raised and answered concerning funding, which McKee said is "constrained. Congress gave us money but not nearly enough." In his opinion, "We should look for other sources, but they must meet environmental standards." Holliday said. "Some States are contributing funds, like Florida and North Carolina."

McKee's final message was that "with thousands of miles of waterways and hundreds of locks, the Corps can't do its job without industry participation, so it is incumbent upon us all to keep the dialogue open and avoid adversarial relationships." Clearly transparency and industry involvement remain the underlying reason for these important annual meetings that bring industry and the Corps together.

WEDA Gulf Coast Chapter Meets in Galveston for Annual Conference

BY FRANK MCCORMACK

The Western Dredge Association (WEDA) Gulf Coast Chapter held its annual meeting November 14 to 16 at the Hotel Galvez in Galveston, Texas. In addition to presentations related to the dredging industry at large, attendees heard presentations by representatives from the U.S. Army Corps of Engineers Galveston, New Orleans and Mobile Districts regarding planned dredge schedules for 2017.

This marked the first time the chapter has met outside New Orleans, after approving a plan at its November 2015 meeting to rotate annually between New Orleans, Galveston and Mobile, Alabama. The move to Galveston proved quite successful: Attendance stood at a record 185 for the three-day conference, up from 130 a year ago.

"This is the first time ever we've had this event out of New Orleans," said Maxi McGuire, 2016 president of the WEDA Gulf Coast Chapter, speaking at the conference's November 15 opening session. "I'd like to give credit to [2015 chapter president] Charlie Johnson and last year's board for pushing to expand our geography and get more people involved."

McGuire recognized Chris Frabotta, chief of the navigation branch of the Corps of Engineers Galveston District, who served as de facto emcee for the conference and was instrumental in planning and executing the Galveston-based meeting.

FOCUS ON GALVESTON DISTRICT

Attendees first heard from Col. Lars Zetterstrom, commander of the Corps of Engineers Galveston District, who praised WEDA for coming to Galveston while also highlighting his district's contribution to the maritime and dredging industries.

"This is an amazing event," Zetterstrom said. "The Galveston District is very proud to be co-hosting the WEDA conference here in Galveston. … I look forward to the rotation that will ensue among our sister districts along the Gulf Coast."

Zetterstrom highlighted the ports and waterways that fall within the domain of the Galveston District, specifically focusing on channel depths and flood protection plans. Based on 2014 tonnage stats, the Galveston District covers five of the top 20 ports in the country, including the Port of Houston at number 2, the Port of Beaumont at number 4 and the Port of Corpus Christi at number 6. Ports along the Texas Gulf Coast range in depth from 38 feet to 47 feet, but efforts are underway to deepen many of them. The 2014 Water Resources Reform and Development Act authorized the Brazos Island Harbor to go from 42 feet to 52 feet, the Matagorda Ship Channel to just from 38 feet to 45 feet, and the Houston-Galveston Navigation Channel to go from 46 feet to 50 feet. Studies are also underway to determine the feasibility of deepening the Corpus Christi Ship Channel, the Port of Freeport channel, and the Sabine-Neches Waterway.

"I've been in command a little more than four months and I've traveled the coast and been to every port," Zetterstrom said, later adding, "Every port I've met with has a vision for the future."

Zetterstrom also overviewed plans throughout the Texas coast to enhance flood risk management.

"You can't have a future if you're not conducting planning today," Zetterstrom said, in reference to the Corps conducting studies for future flood protection projects.

The Galveston District is in the midst of flood protection studies covering Sabine Pass to Galveston Bay and the comprehensive Coastal Texas Protection and Restoration Study. Retired Major General Kenneth Wisian, senior deputy director of coastal protection for the Texas General Land Office, discussed the latter study at a dinner gathering later that night.

CORPS DREDGE SCHEDULES

Representatives from the three Gulf Coast Corps districts offered attendees their fiscal year budget outlooks and planned dredging schedules for 2017.

The Galveston District anticipates just more than $121 million in fiscal year 2017 for navigation operation and management. That's down from about $173 million available for obligation in fiscal year 2016. Projects anticipated in the Galveston District include:

- Sabine-Neches Waterway/Neches River, an estimated 600,000 cubic yards to be dredged, April to August 2017;
- Sabine-Neches Waterway PA-11 Shoreline Stabilization, September 2017 to March 2018;
- Houston Ship Channel from Sims Bayou to the turning basin, an estimated 500,000 cubic yards to be dredged, February to November 2017;
- Texas City Channel and Turning Basin, 1.4 million cubic yards to be dredged, March to September 2017;
- Galveston Entrance Channel and Houston Ship Channel, Bolivar Roads to Redfish, 2.5 million cubic yards, March 2017 to September 2017;
- Freeport Harbor and Matagorda Entrance Channels, 3 million cubic yards to be dredged, July to December 2017;
- Brazos Island Harbor Jetty Channel, 500,000 cubic yards to be dredged, October 2017 to January 2018;
- Gulf Intracoastal Waterway, Turnstake to Live Oak, 600,000 cubic yards to be dredged, June to October 2017;
- Gulf Intracoastal Waterway from High Island to Rollover Pass and Bolivar Flare, 800,000 cubic yards to be dredge, October 2017 to February 2018;
- Channel to Harlingen, 600,000 cubic yards to be dredged, October 2017 to January 2018.

There are also numerous dewatering and dike raise projects anticipated within the Galveston District.

The New Orleans District also has upcoming dredging projects on the Mississippi River from Southwest Pass up to New Orleans, on the Atchafalaya River, in Houma and central Louisiana and along the Calcasieu River at the western end of the state.

Dredging in the vicinity of Southwest Pass averages 17.5 million cubic yards annually, while dredging the locks and harbor approaches in the New Orleans area ranges from 100,000 to 500,000 cubic yards annually. The Houma Navigation Canal in Terrebonne Bay averages about 150,000 cubic yards annually, as does the Bayou Lafourche Bar Channel. The New Orleans District anticipates about 1.2 million cubic yards dredged within the Atchafalaya Basin and the Gulf Intracoastal Waterway near Morgan City, Louisiana. The Atchafalaya River Bay and Bar Channel will require about 3 million cubic yards dredged in 2017. The Calcasieu River will require about 4.5 million cubic yards dredged to bring the channel to 40 feet deep and 400 feet wide.

The Mobile District will oversee dredging activities along several portions of the Mobile

Harbor in fiscal year 2017 ranging from 500,000 cubic yards up to 3 million cubic yards. The Gulfport, Mississippi, Channel will require 1 to 2 million cubic yards dredged in late 2017, as will channels and basins surrounding Pascagoula, Mississippi. The Tennessee-Tombigbee and Warrior-Tombigbee waterways will require 1 million cubic yards dredge between June and October 2017.

The Mobile District is also in the midst of efforts to restore Cat Island and Ship Island, barrier islands off the coast of Harrison County, Mississippi.

RESTORE ACT PROMISES YEARS OF DREDGING OPPORTUNITIES

Besides the presentations regarding products, projects and innovations, attendees heard from Heather Young with the RESTORE Council on what to expect from projects stemming from the Gulf states' and the federal government's settlements following the Deepwater Horizon Oil Spill. Young acknowledged that, with an audience of maritime industry leaders from the Gulf Coast, no introduction was needed with regard to the massive 2010 disaster.

"I think you all are probably tragically familiar with the Deepwater Horizon Oil Spill, and many of you were likely involved in the response, with the cleanup efforts, or just touched by that tragedy right after it happened, today or into the future," Young said.

Even though the oil spill came to an end more than six years ago, effects linger and projects mitigating and restoring the Gulf ecosystem will carry on, by some estimates, 15 to 20 years into the future. Clean Water Act penalties alone stemming from the spill have totaled $6.7 billion, of which 80 percent was placed in the Gulf Coast Ecosystem Restoration Trust Fund. The RESTORE Council oversees projects funded from that trust.

The first round of projects approved and funded through the RESTORE Act restored more than 200,000 acres along the Gulf Coast, conserved more than 18,000 acres, plugged 11 abandoned oil and gas wells and backfilled 16.5 miles of oil and gas canals.

In 2017, the council plans to tackle the next set of projects and review and issue grants for state-directed projects.

Young said the initial contribution to the trust fund along with interest generated each year will mean states, organizations and businesses will be busy doing restoration work tied to the Deepwater Horizon Oil Spill for years to come.

The agenda from the 2016 WEDA Gulf Coast Chapter meeting, including a full list of speakers, and presentations from the conference are all available on the organization's website. Go to www.westerndredging.org and click "Gulf Coast Chapter" under the Regional Chapters tab.

Contracts

Poplar Expansion Sand Stockpile 2016, Paul S. Sarbanes Ecosystem Restoration Project, Poplar Island, Talbot County, Maryland. To Norfolk Dredging Company for $7,088,500 on July 6, 2016 by the Baltimore Engineer District. W912DR-16-B-0014/ W912DR-16-B-0014

Hydrographic Survey Boat. To Ross Labs, LLC for $643,550 on September 30, 2016 by the St. Paul Engineer District. W912ES-16-R-0004/ W912ES-16-C-0011

Construction Operations for the Indiana Harbor Canal(IHC), Conf ned Disposal Facility(CDF), East Chicago, Indiana. To Kokosing Construction Company/O'Brien & Gere J.V. for $55,509,303, base year items, on September 30, 2016 by the Chicago Engineer District. W912P6-16-R-0031/ W912P6-16-D-0004

A&E Services, Mapping and Surveying IDIQ Contract. To Chustz Surveying Inc. for $5,000,000 on October 3, 2016 by the Memphis Engineer District. W912EQ-15-R-0008/ W912EQ-16-D-0007

Mid-Stream #2 Diesel Fuel Delivery to Dredge Goetz. To MERS, LLC for $103,477.50 on October 13, 2016 by the St. Paul Engineer District. W912ES-17-T-0003/ W912ES-17-P-000

U.S. Naval Station Mayport, Florida Maintenance Dredging, 50-Foot Project Entrance Channel and Harbor Complex. To Great Lakes Dredge & Dock Co., LLC for $9,474,000, line items 1 through 12, on November 5, 2016 by the Jacksonville Engineer District. GROUP4-10-R-J030/ GROUP4-10-R-J030

Banana River Channel Maintenance Dredging. To Florida Dredge & Dock, LLC for $5,945,000 on November 7, 2016 by the National Aeronautics and Space Administration, Office of Procurement. NNK16594696R/ NNK17CA10C

Lease of One Cutterhead, Hydraulic Pipeline Dredge (not less than 22-inch diameter), Fully Operated with Attendant Plant and Personnel, with a Draft Not to Exceed Nine Feet, for Construction and Maintenance Dredging. To Inland Dredging Company, LLC for $3,216,000, line item 1, on November 15, 2016 by the Vicksburg Engineer District. W912EE-16-B-0005/ W912EE-16-B-0005

Hurricane Storm Damage Risk Reduction System (HSDRRS) works in the Lake Pontchartrain and Vicinity (LPV), LPV Mitigation, New Zydeco Ridge, Flood Side BLH-Wet & Brackish Marsh Restoration, St. Tammany Parish, Louisiana. To Crosby Dredging, LLC for $13,126,775 on November 18, 2016 by the New Orleans Engineer District. W912P8-16-B-0027/ W912P8-17-C-0004

Sagamore Creek Maintenance Dredging. To Prock Marine Company for $542,970, line items 1 through 2AB, on November 18, 2016 by the New England Engineer District. W912WJ-16-B-0008/ W912WJ-17-C-0001

Wastewater Lagoon Sludge Removal for Bob Shetler Recreation Area Lagoons at Saylorville Lake Project, Johnston, Iowa. To A-1 Pump & Jet Services Inc. for $36,225 on November 21, 2016 by the Rock Island Engineer District. W912EK-17-T-0001/ W912EK-17-P-0009

CPP Control System Repair for Dredge McFarland. To MCR Engineering Inc. for $33,358.17 on November 22, 2016 by the Philadelphia Engineer District. W912BU-17-P-0011

Dredge Material Management Area O-7, Okeechobee Waterway, Martin County, Florida. To Herve Cody Contractor for $4,357,044 on November 23, 2016 by Jacksonville Engineer District. W912EP-16-R-0019/ W912EP-16-R-0019

Design-Bid-Build (DBB) Structural Repairs at Berths 11A, 11B, and 11C, Portsmouth Naval Shipyard, Kittery, Maine. To Cianbro Corp. for $28,860,243 on November 30, 2016 by the Department of the Navy, Naval Facilities Engineering Command. N40085-16-R-3011/ N40085-16-R-3011

Little River Vibraocre Testing, Horry County, South Carolina. To American Vibracore Services for $71,952, line item 1, on December 1, 2016 by the Wilmington Engineer District. W912PM-17-T-0003/ W912PM-17-P-0007

Events

2017

January 9 – 12, HYPACK 2017 Hydrographic Training Event, at the Hilton New Orleans Riverside Hotel in New Orleans, Louisiana. For more information, contact Brittany Danek at 860-635-1500 or Brittany@hypack.com.

January 9 – 12, 9th International Conference on Remediation and Management of Contaminated Sediment, at Sheraton New Orleans. For more information, visit www.battelle.org/sedimentscon.

February 8 – 9, North American Dredging Summit, in Houston, Texas. For more information, contact Adam Kowalewski via email at adam@acieu.net or by phone: +48 616 47 7047

March 7 – 11, CONEXPO-CONAGG, at the Las Vegas Convention Center, Las Vegas, Nevada. For more information, visit www.conexpoconagg.com

March 20 – 21, Africa Ports Expansion Conference, in Mombasa, Kenya. For more information contact Summaya Badbess, by phone: +971 4 364 2975 or by email: enquiry@iqpc.ae

March 20 – 23, U.S. HYDRO 2017 Conference, presented by The Hydrographic Society of America, at the Moody Gardens Hotel: Spa, Golf Course and Convention Center in Galveston, Texas. For more information, visit www.ushydro2017.com or contact Alma Alling at 774-773-8470 or at admin@thsoa.org.

May 22 –24, Inland Marine Expo, at the America's Center, St. Louis, Missouri. For more information, visit www.inlandmarineexpo.com, or contact Jennifer DeLuca, at (314) 296-1716 or at jenn@wjinc.net.

June 26 -29, Dredging Summit & Expo 17, at the Hyatt Regency Vancouver in British Columbia, Canada. For more information, visit www.westerndredging.org or contact Tom Cappellino at 949-422-8231 or email: tcappellino@westerndredging.org.

September 24 – 28, World Canals Conference, in Syracuse, New York. For more information, visit http://wcc2017syracuse.com/.

Nov. 5 – 6, Central Dredging Association (CEDA) Dredging Days 2017, in Rotterdam, the Netherlands. For more information, contact Anna Csiti at +31 15 2682575 or csiti@dredging.org or visit www.cedaconferences.org.

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Western Dredging Association Eastern Chapter Fort Lauderdale Meeting

Read more about the conference content and discussion in the article starting on page 38. Coverage of day one of the conference starts on page 6.

The conference at the Broward County Convention Center was close to the Port Everglades, Florida's largest container port.

Claire Gilbert, graduate student at Auburn University, Alabama; Leo van Ingen, Area Sales Manager, IHC America, Inc.; Alan Bugg, professor at Auburn University. Gilbert presented her research on Dredge Safety.

The last session of the day was led by Jeff McKee, chief of the Corps Navigation Branch Headquarters, and Barry Holliday, executive director for the Dredging Contractors of America.

Jonathon Sperka, Technnical Director, Ordnance Holdings, Inc. spoke on "Managing UXO/MEC during Dredging Projects".

DREDGING HIGHLIGHTS FROM THE PAST

35 YEARS AGO – 1982

At Great Lakes Dredge & Dock, William Pagendarm was promoted to manager of North American Trailing Company, James Spear was named South Atlantic District Manager, and DeWitt Barlow was promoted to chief engineer.

30 YEARS AGO - 1987

On January 16, Ellicott Machine Corporation announced that it had acquired the Mud Cat Division of National Car Rental Company in a multi-million-dollar cash transaction.

25 YEARS AGO - 1992

The National Aggregate Association held its annual meeting in conjunction with the Concrete and Aggregate Show (Con-Agg 92) at the New Orleans Convention Center.

20 YEARS AGO - 1997

The St. Louis Engineer District acquired a fourth Isis multibeam data acquisition and logging system. Triton Technology Inc. installed, calibrated and tested the system and trained the survey group on operation and maintenance procedures.

15 YEARS AGO - 2002

Among the attendees at the WEDA Midwest Chapter meeting in Detroit was Marty Amsler, account executive and safety director for Southwind Construction Company, who had been a defensive end for the Chicago Bears from 1967 to 1969, and who played briefly for Green Bay and Cincinnati.

10 YEARS AGO - 2007

Manson Construction Company and Great Lakes Dredge & Dock signed on with strategic management company JMJ Associates to establish the company's incident and injury free program throughout their operations.

5 YEARS AGO – 2012

The Central Dredging Association (CEDA) released its paper on underwater sound, with an emphasis on sounds produced by dredging equipment, explosions, and echo sounders, assessing the risks of each to the health of marine life. The paper, "Underwater Sound in Relation to Dredging", is available on the CEDA website: www.dredging.org.

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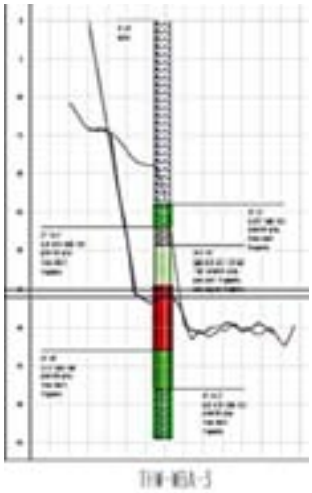

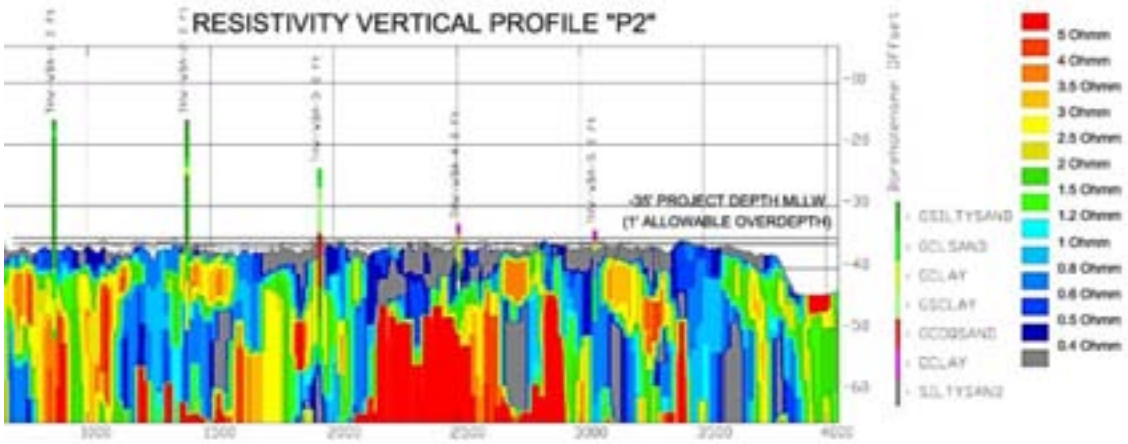

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