

The *Navigation eNews* is issued every two months. We hope it is an easily perused, useful newsletter. Please send us a paragraph or two when you've something to share with the navigation community: Dinah.N.McComas@usace.army.mil. All issues are available on the Navigation Gateway, <http://operations.usace.army.mil/navigation.cfm>.

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ERDC Team Members at WEDA/TAMU

ERDC Team Members participated in the Western Dredging Association's (WEDA) 32nd Technical Conference and Texas A&M's (TAMU) 43rd Annual Dredging Seminar, held 10-13 June 2012 in San Antonio, Texas. Drs. Douglas Clarke and Burton Suedel, USACE Environmental Lab (EL), presented papers titled "Sediment Resuspension during Bucket Dredging Operations: Does Cycle Time Matter?" and "Does Suspended Sediment at Dredging-Related Concentrations Adversely Affect Walleye (*Sander vitreus*) Eggs and Fingerlings?", respectively. Dr. Todd Bridges, EL, participated in the WEDA Environmental Commission Panel on the topic of "Engineering With Nature for More Sustainable Projects" along with representatives from Great Lakes Dredge and Dock, J.F. Brennan Consulting and Ducks Unlimited. Cynthia Banks, also EL, coordinated an exhibit highlighting the Dredging Operations Environmental Research (DOER) and Dredging Operations Technical Support (DOTS) Programs. Other ERDC team members in attendance were Linda Lillycrop and Tim Welp, Coastal and Hydraulics Lab (CHL), and Jennifer Gerhardt-Smith, EL. POC: Cynthia Banks, Cynthia.J.Banks@usace.army.mil



COL Christopher W. Sallese, Commander, USACE Galveston District and Cynthia Banks, USACE Environmental Laboratory

16-18 October 2012 is New Date for CIRP Webinar – Regional Coastal Shoreline Evolution Model: GenCade

This webinar, sponsored by the Coastal Inlets Research Program, has been rescheduled to 16-18 October 2012, instead of September. The GenCade webinar will be taught by Ashley Frey, CHL, and will consist of three afternoon sessions of two hours each. During the webinar, students will receive an introduction to GenCade and view a demonstration. Following the demonstration, students will be given the opportunity to work through an example from start to finish on his or her own machine. By the end of the webinar, students should have an understanding of when GenCade can be used and how to create and run a simple case in GenCade. See <http://cirp.usace.army.mil/webinars/16Oct2012-webinar.html> for more details.

CMTS-TRB R&D Conference

The importance of marine transportation performance measurement and system improvement

were priority topics at the second biennial research and development conference held at the National Academies of Sciences in Washington, DC, 26-28 June 2012. The conference was sponsored by the Committee on the Marine Transportation System (MTS) and the Transportation Research Board (TRB) of the National Academies.

The conference highlighted the necessity of a national strategic vision to foster a freight transportation system that is modern, efficient, reliable and fully integrated across all modes of transportation, including road and rail. The U.S. MTS exists as a “system of systems” and must be fully cognizant of the economic, social, political, and environmental systems in which it exists.

Over 130 participants from government, ports, industry, and academia committed to create a conceptual framework to facilitate decisions on marine transportation infrastructure investments, to create new, as well as synthesize existing, performance metrics, and to assess the need, value, and status of the U.S. MTS. Participants examined the use of performance indicators in maritime transportation and waterways management, with the goal of identifying indicators that fully consider the MTS in the context of the overall supply chain.

The conference featured two Keynote speakers - Deputy Commanding General for Civil and Emergency Operations, U.S. Army Corps of Engineers, Major



Trottenberg, Spring, Lillycrop listen as MG Walsh gives his keynote talk.

General Michael J. Walsh; and Acting Under Secretary and Assistant Secretary for Transportation Policy, U.S. Department of Transportation, Polly Trottenberg. There were also panel presentations and breakout sessions. Margaret Spring, Principal Deputy Undersecretary for Oceans and Atmosphere of the National Oceanic and Atmospheric Administration, presented both opening remarks and the closing summary of the breakout sessions.



All presentations and breakout session summaries are available on the web, <http://onlinepubs.trb.org/onlinepubs/conferences/2012/Metrics/Program.pdf>. Also on the web, check out: the Committee on the Marine Transportation System – <http://www.cmts.gov>; and the Transportation Research Board of the National Academies – <http://www.trb.org/Main/Home.aspx>.

This event provided an excellent opportunity to share experiences and knowledge and ultimately develop mutually beneficial and dynamic partnerships and collaborations. It was also the first step toward creating performance indicators for the MTS that will help stakeholders measure and ultimately create a more sustainable and successful MTS.

All presentations and breakout session summaries are available on the web, <http://onlinepubs.trb.org/onlinepubs/conferences/2012/Metrics/Program.pdf>. Also on the web, check out: the Committee on the Marine Transportation System – <http://www.cmts.gov>; and the Transportation Research Board of the National Academies – <http://www.trb.org/Main/Home.aspx>. POC: Jeff Lillycrop, Jeff.Lillycrop@usace.army.mil.

Navigation Systems FY 12 Rapid Repair Demonstrations

The Navigation Systems Program has developed several rapid repair demonstration projects for Corps locks and dams using polymer composite materials. The demonstrations will help evaluate the various properties of the composites for different applications. The specifications and design of the lock and dam components will be done by the Construction Engineering Research Laboratory (CERL) in collaboration with Dr. Hota GangaRao and his staff from West Virginia University.

Miter Blocks for Lake Washington Lock

The miter bearing blocks for the service gates on the small lock of Lake Washington Canal in the Seattle District will be replaced with a composite material. Miter blocks for lock gates are the bearing surface when the miter gates are closed. They are typically made of steel and have issues with wear and

corrosion. The approximate dimensions of these miter blocks are 39 ft long by 4 in. wide by 2.5 in thick. The blocks also have 13/16" drilled holes for attaching to miter gate.

Spillway Gate Protection for Howell Heflin Dam

The downstream lower portion of spillway gates on many low head navigation projects experience severe abrasion damage from drift and debris passing under the gates. This requires continual painting of this area to prevent corrosion and structural deterioration. Figure 1 shows the hydraulic flow conditions on the downstream side of the spillway at a Howell Heflin Dam gate. During periods of higher tailwater, a roller forms on the water-surface behind the gate and any drift and debris in the flow constantly impact the backside of the lower gate due to the roller action. Figure 2 shows a close-up of the damage on the lower portion of the gate caused by the drift and debris. The Mobile District has agreed to have a composite coating placed on the gate during an upcoming repair. A section of the gate will be painted using the conventional repair method and another section will be coated with a composite so abrasion and durability properties can be compared.



Figure 1 (left). Hydraulic flow conditions downstream from spillway gate at Howell Heflin Dam
Figure 2 (right). Damaged area on spillway gate caused by drift and debris

Emergency Gate (Bulkhead) Recess Filler in the Upper Lock Approach at Willow Island Lock and Dam

Emergency gates located in the upper lock approach are used at many navigation projects in case the miter gates become inoperable. They can also be used to help dewater the lock. These gates are submerged and require a recess in the lock walls to raise and lower them. Figure 3 shows an emergency gate being raised while the miter gate is open. The recess in the riverside wall can be seen in this figure. When the gate is in the submerged position, the recess in the lock wall must be filled so that tows entering the upper approach have a continuous surface to guide them into the chamber. If recess fillers were not used, the lead barges could drift into the recess, impacting the edges of the recess and damaging the lock wall and possibly the barges. This recess filler is typically constructed of steel, making it fairly heavy and susceptible to abrasion

and corrosion. A close-up of a recess filler for an Ohio River Project in the Huntington District (LRH) is shown in Figure 4. A composite recess filler will be designed, constructed, and installed for the Willow Island Locks and Dam on the Ohio River in LRH and compared to the conventional steel fillers.



Figure 3 (left). Emergency gate being raised. Recess in lock wall is shown in upper portion of photo.



Figure 4 (right). Recess filler showing corrosion and abrasion damage

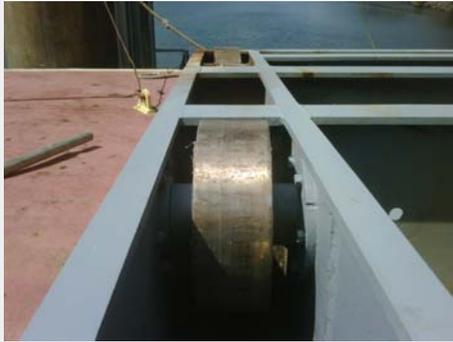
Lock Outlet Port Repair at Chickamauga Lock

Since it was constructed in the 1940's the Chickamauga Lock has experienced concrete growth due to alkali aggregate reaction (AAR). The lock discharge outlet ports have experienced severe cracking as a result of this structure growth. The Nashville District (LRN) designed a repair consisting of sections of steel plates that would be welded together underwater by divers to encase the damaged sections of the ports. Grout would then be placed behind the steel forms to fill the damaged areas. Composite wraps have been used to repair damaged bridge supports in-situ, underwater, and conversations between LRN and ERDC led to the idea of using a composite wrap for the outlet ports at Chickamauga. The composite material is much lighter than steel and should be much easier to put in place underwater. A composite wrap repair system will be designed and sent to the Chickamauga Project to be evaluated along with the steel-jacket repair method.

Other Composite Material Applications

Vertical Lift Spillway Gate at Bankhead Lock and Dam The vertical lift spillway gates at Bankhead Dam use reaction rollers to raise and lower the gates. Top and bottom side guide rollers, 4 total, ride along railroad rails, while four reaction rollers, top and bottom, bear on embedded plates. The Mobile District (SAM) removed the No. 7 gate to access the reaction rollers, inspect them and determine if they were rolling. It appeared the top ones may roll under heavy load, but the bottom reaction rollers seemed to turn only slightly even under high load. Attempts were made to turn the rollers by hand once the gate was removed

and none of the rollers would turn. Figure 5 shows the reaction rollers on one side of the vertical lift gate. LRN replaced the reaction rollers used for the floating mooring bits with slides made from polymer composite materials several years ago. They have proven quite successful in terms of durability and have less maintenance requirements. The vertical lift spillway gates at Bankhead Dam would provide an excellent opportunity to use composite slides for a spillway gate and evaluate the long term performance.



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Figure 5. Reaction rollers on vertical lift gate at Bankhead Dam

Call for Abstracts – SmartRivers 2013

The Smart Rivers 2013 Conference and Exhibition will be held 23-27 September 2013 in Maastricht in the Netherlands and Liege in Belgium.

Although located in two cities in two countries, only one river runs through them, the Meuse.

The Call for Abstracts closes 1 January 2013. Abstracts must be 500-750 words with no illustrations and must address one of the 8 conference topics. See the website for details and instructions, <http://smartrivers2013.org/organisation/>.

This biennial forum brings together professionals and experts from developing and developed countries involved in river transport to share their views and know-how on trends, policy, technology and science worldwide.



67th IWUB – 29 August 2012 in St. Louis

The 67th meeting of the Inland Waterways Users Board will be held on Wednesday, August 29, 2012 in St. Louis, Missouri at the Sheraton St. Louis City Center Hotel and Suites, 400 South 14th Street, St. Louis, Missouri. Registration will begin at 8:30 A.M., the Board meeting will begin at 9:00 A.M, and is expected to adjourn at approximately 1:00 P.M. There will be no site visit associated with this Board meeting.

Public Notice: Inland Waterways Users Board meetings are open to the public and as such a notice of the meeting was published in the Federal Register on July 27, 2012, and is available at the following link:

<http://www.gpo.gov/fdsys/pkg/FR-2012-07-27/pdf/2012-18348.pdf>.

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PIANC USA 2012 Annual Meeting – RSVP Now!

RSVP to pianc@usace.army.mil for the PIANC USA Annual Meeting on 27 August 2012 at the Omni William Penn Hotel, Pittsburgh, PA. The Annual Meeting registration deadline is 22 August 2012.



The 'resident' Harbor Seal. Credit: Melissa Alvarez, USACE-NAN.

Marsh restoration has wildlife's 'seal' of approval by JoAnne Castagna, Ed.D, NAN

An area resident eyes construction workers maneuver bulldozers, spreading sand to restore the degrading marsh island Yellow Bar Hassock in Jamaica Bay, New York. "For the past few months we've seen him on the site. He just keeps doing his thing," said Melissa Alvarez.

Alvarez, Senior Project Biologist with the U.S. Army Corps of Engineers New York District, is referring to a Harbor Seal who seen sunning himself on the dredge pipeline as the Corps of Engineers performs its work delivering sand. She added, "I find it so amazing every time we construct one of these island projects how quickly wildlife will use the area." She has also spotted Horseshoe crabs laying eggs on the island, which just a year ago was not suitable for them.

Yellow Bar Hassock is part of a marsh island complex located within the 26-square mile Jamaica Bay Park and Wildlife Refuge, the country's first national

urban park and one of the Gateway National Recreation Areas. The urban area in which the refuge is located includes portions of Brooklyn, Queens, and Nassau Counties, New York. The area's shorelines are bordered by heavily developed lands, the John F. Kennedy International Airport, the Belt Parkway and several landfills.

Alvarez, also a certified Professional Wetlands Scientist, points out, "These islands serve as flood protection and shoreline erosion control for the bay's surrounding homes and businesses. They dissipate wave energy, minimize storm surge and provide flood risk reduction benefits. For the public, this means less erosion to personal property, more species available for recreational fisheries, better water quality, and preservation of the Gateway National Recreation Area."

To restore Yellow Bar Hassock, 375,000 cubic yards of dredged sand was pumped on the island and shaped to simulate the proper elevations of a marsh island. Then nearly 30 acres of marsh was planted with seed collected from within Jamaica Bay. The low marsh areas were seeded with smooth cordgrass, while in the high elevations over 100,000 2-inch plugs of saltmarsh meadow grass and spikegrass were planted. These 2-inch plugs were also collected within Jamaica Bay.

Before the sand was placed, the team removed 11,000 hummocks from the marsh island's low lying areas. Hummocks are a natural anchor for the marsh sediment because they are part of the historic marsh, already matured, and will help stabilize the island. The team stored the harvested hummocks in fenced off areas on site. After the sand had been placed on the island, the hummocks were transplanted to the new areas of higher elevation.



Project Stakeholder from the New York State Department of Environmental Conservation watches hummock removal process. Credit: Melissa Alvarez, USACE-NAN.

Alvarez inspecting the sand placement at the island. Credit: Lisa Baron, USACE-NAN.



This work added an 42 acres to the degraded island, restoring it to a 156-acre habitat. The sand was dredged from the Ambrose Channel, part of the Army Corps' New York/New Jersey Harbor Deepening Project. The beneficial use of this sand helps make the project a win-win for the environment and taxpayers.

Lisa Baron, Project Manager, U.S. Army Corps of Engineers, New York District added, "The other marsh islands we

restored look incredibly vibrant and healthy. One could only hope that's the way

the other marsh islands will end up, including Black Wall and Rulers Bar Hassock marsh islands that the Army Corps is going to begin working on.” Alvarez said, “The old adage of ‘Build it and they will come’ suits Jamaica Bay’s islands and specifically Yellow Bar Hassock very well.”



Yellow Bar Hassock marsh island with Manhattan skyline in background. Credit: USACE

USACE is working with the Port Authority of New York and New Jersey, National Park Service, New York City Department of Environmental Protection, New York State Department of Environmental Conservation, National Resources Conservation Service, the New York/New Jersey Harbor Estuary Program and others. Over the past decade 180-acres of marsh in Jamaica Bay has been restored.

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etceteras

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The latest CIRP (Coastal Inlets Research Program newsletter is available at <http://lists.coastal-inlets-research-program.net/scripts/wa-USACECIRP.exe?A2=CIRP-NEWS;2af175f9.1207p>

Remember! Your Comments are Welcome

Any comments you, our readers, wish to provide will be more than welcome and will assist us in improving our efforts to provide you with Corps Navigation news. Please send your comments via e-mail to [Navigation eNews Editor](#).

Conferences, etc.

Know of a meeting of interest to our readers? Email details to Dinah.N.McComas@usace.army.mil.

- [27 August 2012. PIANC USA 2012 Annual Meeting, Pittsburg, PA.](#)
- [28-29 August 2012. Joint Conference of Harbor Safety Committees and Area Maritime Security Committees, Pittsburg, PA.](#)
- [5-7 September 2012. WEDA, Pacific Chapter Annual Meeting. Seward, AK.](#)
- [19-21 September 2012. National Waterways Council – 2012 Annual Meeting. Tunica, MS.](#)
- [20-23 September 2012. BIT's 1st Annual World Congress of Ocean-2012 – New Wave of World Marine Economy. Dalian, China.](#)
- [23-27 September 2012. Inland Waterways International World Canals Conference. Yangzhou, China.](#)
- [25-27 September 2012. Pacific Northwest Waterways Conference. Seattle, WA.](#)
- [9-11 October 2012. WEDA Eastern Chapter Annual Meeting. Miami Beach, FL.](#)
- [18-20 October 2012. ASCE 142nd Annual Civil Engineering Conference. Montreal, Quebec, Canada.](#)
- [22-25 October 2012. Dredging 2012 Conference. San Diego, CA.](#)
- [14-17 January 2013. SSPC Conference. San Antonio, TX.](#)
- [3-7 June 2013. WODCON XX: The Art of Dredging. Brussels, Belgium. WODCON \(World Dredging Congress\) sponsored by WODA \(World Organization of Dredging Associations: WEDA, CEDA, and EADA\).](#)
- [25-29 August 2013. PORTS '13. Seattle, WA. 23-27 September 2013. PIANC-SMART Rivers Conference. Liege, Belgium & Maastricht, The Netherlands.](#)