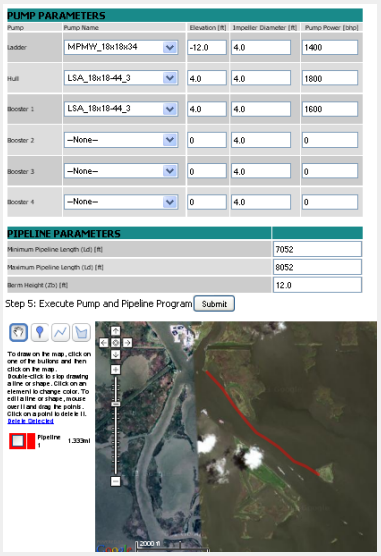
US Army Corps of Engineers

Navigation eNews

March 2012 **Volume 21**

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 .



Pipeline Dredge Analytical Program and Screening Tool

The Dredging Knowledge-Base Expert-System will design and plan an effective pipeline dredge solution for Corps dredge operations and planning personnel. Pipeline dredge project parameters such as pipeline length, placement site capacity, and environmental time windows significantly affect how Corps dredging personnel formulate dredging project decisions. Dr. Derek Wilson developed the program under the Dredging Operations Environmental Research (DOER) Program to address these decision criteria and provide user access on a common repository.

The Dredging Knowledge-Base Expert-System stores a dredge's parameters in a common data repository site for users to access while planning a pipeline dredging project. The site stores the physical and functional parameters of the pipeline dredge installed pump and pipeline systems, available booster pump systems, and dredge physical dimensions. The Pipeline Dredge Analytical Program and Screening Tool then executes pump and pipeline hydraulics and slurry transport principles from these stored parameters to determine the dredging system total production and resulting cost engineering factors over any given pipeline length. Wilson's article in August 2011 Journal of Pipeline Systems Engineering and Practice titled "A Pipeline Dredge Analytical Program with Comparison to Field Data" describes how the program analyzes the pipeline dredge hydraulic system and compares the results to field data.

The screening tool can rank probable dredging solutions based on their project feasibility. The analytical program can calculate overall project cost and duration for several likely candidate dredges and placement options. The Pipeline Dredge Analytical Program and Screening Tool provides this functionality on a web-based graphical user interface. This interface links with the data repository containing the dredge parameters, accesses and executes the pump and

pipeline hydraulic program and provides a Google Maps interface to map out pipeline routes and alternatives.

The Dredging Knowledge-Base Expert-System will allow Corps users to effectively and readily formulate a pipeline dredge schedule and budget from start to finish. This system provides the cross product between dredging engineering principles and web-based accessibility. Overall this screening tool will serve the Corps in reducing response time in planning while enhancing mission capability. (POC: Derek Wilson, Derek.A.Wilson@usace.army.mil)

Users can access this site at http://dkbes.usace.army.mil

High Resolution Acoustic Camera Images Scour at Navigation Infrastructure

At the request of the U.S. Army Engineer District, St. Louis, the ERDC acoustical camera system, developed in the Navigation Systems Research Program, was used to inspect scouring below the lock at Lock and Dam 25 on the Mississippi River near Winfield, Missouri. Lock and Dam 25 is part of the Upper Mississippi River Nine Foot Navigation Project. The Project, authorized by the Rivers and Harbors Act of 1930, created and ensured a 9-ft-deep navigation river channel. Divers previously determined that some amount of scour exists below the lock apron and beneath one of the lock walls. An earlier multibeam sonar survey was unable to determine the degree of scouring underneath the structures. Divers deployed the acoustical camera and used a newly modified under-the-helmet monitor to assist the diver in seeing the exposed area. In follow up conversations, Mr. William Moeller of the St. Louis District expressed that the camera was successful in determining the degree of scouring. The results of the inspection indicated that the scouring was extensive, reaching up to 22 ft beneath the lock wall. Mr. Terry Warren and Mr. Ken Switzer deployed the camera on 8 and 9 November 2011, initial results were provided the following week and final products are being provided by 9 December 2011. POC is Mr. Jim Evans (James.a.Evans@usace.army.mil; 601-634-2535)

Dredging 2012 – October 2012

The fourth specialty conference on dredging and dredged material disposal, Dredging 2012, will be held in San Diego, California, USA from October 22—25, 2012. It has been almost 10 years since the last meeting of this international forum bringing together professionals and practitioners from developed and developing areas of the world. Many new issues have emerged and will be discussed and debated.
Dredging 2012 is a four-day technical specialty conference organized by PIANC USA and the Coasts, Oceans, Ports and Rivers Institute of American Society of Civil Engineers (COPRI ASCE). For more information visit http://dredging12.pianc.us or contact us at dredging@pianc.us

PORTS '13 – PORTS: Success through Diversification
25-29 August 2013
Seattle, Washington

In consideration of the overwhelming response to past calls for papers, PORTS '13 has been expanded to three full days and up to five concurrent technical session tracks. Topics include: Environmental Issues; Port Planning and Operations; Terminal Planning and Design; Navigation and Waterways; Port Engineering and INfrastrucutre; Equipment and Systems; Landsice Connections; Security; and Project development.

Abstracts due – 21 May 2012
More information, see www.asce.org/PORTS13

Army Corps of Engineers Markland Navigation Lock Gets New Gates

The U.S. Army Corps of Engineers Louisville Repair Station set the last of four 260 ton gate leaves at the upstream end of the Ohio River Markland navigation locks on Nov. 4. "People don't go around lifting that kind of weight every day," said Keith Browning, Louisville Repair Station, who directs the Henry M. Shreve gatelifter vessel, lock repairs and crew at the Markland Locks at Warsaw, Ky.

The day was windless, a prerequisite for a lift of this stunning magnitude. The gates were fabricated by Oregon Iron Works and floated through the Panama Canal, up the Mississippi and Ohio rivers to arrive in the region.

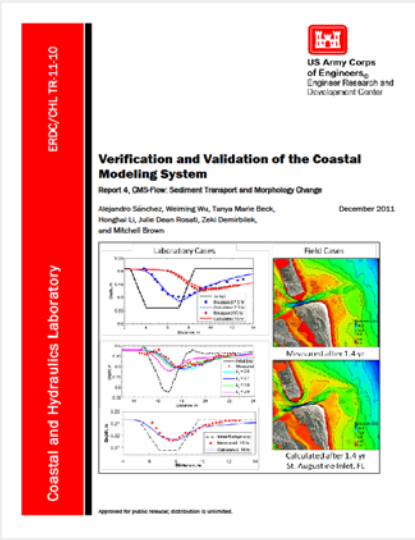
The repair fleet had a crucial task to ensure the attachments which hold the gate in place at the top and bottom - anchor arm and ears, gudgeon pin and hood at the structure's top; and pintle ball and bushing, at the bottom - were precisely shimmed and leveled, according to Kevin Vessels, Louisville Repair Station. "There's just a hair's clearance between the gudgeon hood and the anchor arm, so we have to be exact (in the installation process)," he said.

The installation of the new gates will complete the Markland Major Rehabilitation project by the Army Corps of Engineers which began in 2009. The rehabilitated lock is scheduled to reopen Nov. 25. The gates cost $21.838 million. (POC: Carol Labashosky, Carol.J.Labashosky@usace.army.mil)

To see a Youtube video of the gate lift go to http://www.youtube.com/louisvilleusace

ERDC/CHL TR-11-10 Verification and Validation of the Coastal Modeling System

These reports summarize the framework and provide key findings of the Verification and Validation (V&V) study for the Coastal Modeling System (CMS), a product of the Coastal Inlets Research Program (CIRP). The three components of the study – Verification, Calibration, and Validation – are termed for simplicity as “V&V” herein.



Report 1 provides a synopsis of the major findings from the other three reports. Verification and Validation was performed for three main components of the CMS: CMS-Wave (Report 2), CMS-Flow: Hydrodynamics (Report 3), and CMS-Flow: Sediment Transport and Morphology Change (Report 4). The summary is intended for engineers and scientists considering whether the CMS would be appropriate for their projects (after which they may study the other V&V reports) and for managers and decision-makers so that they will have a succinct resource detailing the performance of each CMS component as well as the integrated modeling system.

The overall V&V study was separated into three functional areas to assess the predictive skills of the CMS critically; specifically, for modeling waves, circulation, and sediment transport and morphodynamics for a wide variety of coastal inlet, navigation channel, bay, estuary, and adjacent beach problems. Each evaluation began by verification of the model of focus by comparing its predictions to analytical or empirical solutions for purposes of testing the basic physics and computational algorithms implemented in a given model. The fundamental evaluations were followed by a set of applications with data available either from laboratory or field investigations, which were used to validate the models. The validation cases represent real world problems, typical applications for which CMS is applied within the coastal navigation mission area. For the Hydrodynamics Flow, and Sediment Transport and Morphology Change applications, the CMS suite of models was calibrated prior to validation using data from a number of past and present District project applications with measured data.

Report 1: http://acwc.sdp.sirsi.net/client/search/asset:asset?t:ac=$N/1005704

Report 2: http://acwc.sdp.sirsi.net/client/search/asset:asset?t:ac=$N/1005705

Report 3: http://acwc.sdp.sirsi.net/client/search/asset:asset?t:ac=$N/1005706

Report 4: http://acwc.sdp.sirsi.net/client/search/asset:asset?t:ac=$N/1005707

2012 WEDA Midwest Chapter meeting

The 2012 WEDA Midwest Chapter meeting will be April 25-27 in Green Bay, Wisconsin at Lambeau Field. This year's theme is Dredging: Preparing for the Future.

Individuals and firms are invited to make presentations in the following areas. Other topics may be considered.

Sediment investigation
Environmental Dredging
Navigation Dredging
Coast/Shoreline protection and restoration
Sediment management and re-use Surveying

Additional conference information, including due dates, fees and hotel information, will be available in January.

Please contact James Wescott if you have any questions, jim.wescott@ttemi.com

Conferences, etc.

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

- 25-27 April 2012. WEDA Midwest Chapter meeting, Green Bay, WI at Lambeau Field
- 25-26 April 2012. Port & Terminal Technology USA 2012. Miami, FL.
- 26-28 June 2012. TRB-CMTS Conference – Diagnosing the Marine Transportation System: Measuring Performance and Targeting Improvement. Washington, D.C.
- 23-27 September 2012. Inland Waterways International World Canals Conference. Yangzhou, China.
- 20-23 September 2012. BIT's 1st Annual World Congress of Ocean-2012 – New Wave of World Marine Economy. Dalian, China.
- 18-20 October 2012. ASCE 142nd Annual Civil Engineering Conference. Montreal, Quebec, Canada.
- 22-25 October 2012. Dredging 2012 Conference. San Diego, CA.
- 25-29 August 2013. PORTS '13. Seattle, WA.

etceteras

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And remember, the **USACE Navigation Gateway** is a good place to look for

navigation-related information within the Corps (http://operations.usace.army.mil/navigation.cfm).

Remember! Your Comments are Welcome

Any comments that 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.