PIANC Bulletin

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Permanent International Association of Navigation Congresses (PIANC)

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President's Message *by Major General Don T. Riley, President, U.S. Section, and Director of Civil Works, U.S. Army Corps of Engineers*

Dear Members,

Our Nation is placing a new emphasis on examining the role of ports in our national economy. In this context, it is important to remember that ports are no longer stand-alone entities, but national and regional economic drivers with influence reaching far beyond the port gate. Our Nation's ports, interested in efficient, secure, and environmentally sustainable facilities, must recognize the need to partner with each other. Identifying and sharing solutions will ensure our success in developing sustainable economic and environmental navigation projects.

MG Don T. Riley

The Organization of American States (OAS) and the International Navigation Association, PIANC, have taken the opportunity to develop this port partnering potential. The OAS Inter-American Committee on Ports has made great progress in this regard, sharing technical information among member states through conferences and publications, as well as through the work of their Technical Advisory Groups. The commitment of OAS to improving the navigation systems, not only of member countries, but for the whole Western Hemisphere, is commendable and consistent with the key values of the U.S. Section of PIANC.

PIANC International supports sharing navigation information to the region. Its 2005 Resolution, entitled "PIANC for the Americas," outlined three areas of support to the region:

- Assistance in developing innovative and sustainable solutions to enhance development of harbors and waterways,

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- Mutual cooperation to ensure safe and secure operation of navigation infrastructure, and
- Development of mechanisms and agreements that transfer technological assistance, training, and research.

The U.S. Section has begun promoting PIANC in the region, through its partnerships with the American Association of Port Authorities, and now with the Inter-American Committee on Ports. We recognize the unique role of the Inter-American Committee on Ports to provide leadership to governments, ports and industry groups throughout the Americas on navigation in the region, and look forward to all nations prospering together through port partnering and development.

Sincerely,

Major General Don T. Riley
President, U.S. Section, and Director of Civil Works, U.S. Army Corps of Engineers

U.S. Section Highlights *by Bruce Lambert*

PIANC – AAPA Latin American and Caribbean Meetings in Houston, Texas. The American Association of Port Authorities (AAPA) hosted its annual conference for Latin American port executives February 22-24, 2006, during which the U.S. Section of PIANC conducted a technical session related to AAPA's yearly theme. This year's theme for improving port productivity is "Port Competitiveness in Today's Global Economy." In keeping with the MOU signed by the U.S. Section and AAPA, members of the U.S. Section participated as speakers of the AAPA Management Conference for Latin America and the Caribbean. Mr. Kurt Nagle (AAPA Chairman and former PIANC commissioner) introduced the PIANC session that included Mr. John Woodley, Jr. (ASA(CW) and PIANC Chairman), Ms. Doris Bautch (MARAD and PIANC Commissioner), Mr. Kevin Abt (Virginia Port Authority), Mr. Steve Cernack (Galveston Port Authority), Mr. Jim Clausner (ERDC) and Bruce Lambert, U.S. Section Secretary. Mr. Woodley presented a general speech on challenges facing the port industry. Ms. Bautch spoke on general trends in port productivity. Mr. Abt spoke on redesigning terminals to service larger vessels, while Mr. Cernack talked about increasing staff productivity to improve port operations. Mr. Clausner outlined how the silent inspector can be applied to Latin American ports to improve dredging operations. Mr. Lambert discussed several recent PIANC studies on Life Cycle Management and its role in port operations.

John Vickerman, Transystem Coorperation, presented the keynote address on the pressures facing U.S. ports, such as cargo growth, constrained port space, operations, and larger vessels. His talk also compared port productivity estimates between American ports and ports in Asia and Europe. He compared how port planning for growth 40 years ago is not compatible with planning today, and future planning may be further transformed by innovative ship designs, environmental concerns, and innovative technologies. Mr. Vickerman also discussed the emergence of the Chinese economy, both now and in the future, and its implications for global trade. Several Latin Americans questioned his focus on the U.S., and to a lesser extent on Latin American port trends, but most agreed the trends were shaping both areas but in different degrees. There was some discussion on the development of the transportation center near Shanghai, a population and land area similar to Rotterdam. There were some interesting comments on the need for an American freight policy, or even a broader hemispheric freight policy, with most comments agreeing in principle on such a concept.

Mr. Tom Kornegay, Executive Director of the Port of Houston, spoke on strategic planning. In the Port of Houston strategic plan, the Port sees itself as a regional entity, extending beyond the traditional authorized boundaries for the port. Their strategic plan looks out for 5 years, but is revisited on annual basis to provide flexibility in meeting the Port's goals. Mr. Kornegay mentioned that when a recent

construction project was being considered, the Port of Houston had to work with the general community. He stressed that if the Port had not aggressively exceeded the local community's expectations, the project may never have been developed. During the session, a question was raised on the sale of P&O to Dubai Ports World. Mr. Kornegay explained how port terminal operations worked in the U.S. He stressed that the deal involved primarily stevedore operations and that the security inspections remained under the control of the respective state and federal agencies.

Port privatization was a separate topic, and the three panelists felt benefits were derived from privatization. The Mexican speaker, Mr. Lopez, mentioned it took time for all parties involved to understand the new nature of port operations. One unexpected benefit was that a broader group now understands how ports worked, and the needs to improve the port system. Mr. Manteli, Brazil, expressed Brazil's difficulty in getting the privatization process moving forward, primarily in getting the bureaucrats to understand the urgency of the private sector in developing port facilities. Mr. Manteli stated that Brazil tried the "French" port system but it was too cumbersome and moved to a more long-term framework regarding private terminal concession, operation, and development.

Other general themes expressed were that the attendants wanted more information on city-port partnerships and information on increasing port management skills. Most also identified themselves as multiple use facilities and stated that a focus on container traffic was not fully applicable to their port development plans. The Mexican delegation expressed a need to better understand the statistical gap related to regional trade flows.

PIANC Strategic Plan. Over the past few months, the U.S. Section has been working on developing a new strategic plan. Based on a preliminary Vision Statement, "The U.S. Section consists of professionals working to develop, enhance, and share technical knowledge on sustainable navigation systems for the U.S. and the world," a final preliminary strategic plan will be sent to all members in the next few weeks for review and comment.

PIANC – Ports '07 Update. Mr. Lambert attended a Coasts, Oceans, Ports, and Rivers Institute (COPRI) meeting recently to discuss the Ports '07 Conference. The Ports '07 Conference will be held March 25-28, 2007, in San Diego, California. Earlier this year, PIANC signed an MOU with COPRI, which formalizes the relationship between the two groups, including revenue sharing of the final profits. Regarding the call for papers, the conference organizers received 226 abstracts, of which only 144 were approved based on available space in the conference. The U.S. Section will work with the COPRI committee to provide a possible keynote speaker or a luncheon speaker. The organizers are also examining topics for a Short Technical Course on Sunday.

If interested, information on exhibit hall booths will be made available soon. The U.S. Section of PIANC will also have a table with promotional materials in the conference area. The Conference Organizers are looking at several different options for tours for both accompanying people and related technical items. Currently, the Committee is examining hosting a dinner social aboard the USS Midway Tuesday night. We will keep you posted as we near Ports '07.

PIANC and Latin American Ports. The U.S. Section signed an MOU with the Organization of American States in December, 2005. We are currently exploring several related activites, including cosponsering a meeting on Ports and the Enviroment in Panama, 2007. If you are interested in how the U.S. Section is working with Latin American ports, please contact Bruce Lambert at Tel (703) 428-6667 or Email *bruce.lambert@usace.army.mil*.

Bruce Lambert is Secretary of the U.S. Section, PIANC, and a Senior Economist with the U.S. Army Corps of Engineers, Institute of Water Resources (IWR), Fort Belvoir, VA. Prior to joining IWR, Mr. Lambert researched the nature of freight movement to support national freight planning and policy research for the Federal Highway Administration for which he received the U.S. Department of Transportation's Award of Meritorious Achievement. Mr. Lambert also spent 6 years at the Port of Long Beach, CA, as the Port's Trade Analyst, and conducted market research on West Coast ports and shipping patterns. He holds BS and MS degrees from Louisiana State University and University of Tennessee, respectively.

Environmental Awareness is for the Birds! … and everyone else

By JoAnne Castagna

A flock of young shore birds spread their wings and fly away from their nests on East Inlet Island in the Long Island Intracoastal Waterway in New York, for their first major flight south for the winter. A few years ago, this would not have occurred because many of these birds are threatened and endangered. It's a reality now because several agencies put their minds together and created a project that not only benefits wildlife but their team players as well.

In 2002, the U.S. Army Corps of Engineers, New York District in cooperation with several environmental, state, and local agencies created a wildlife habitat on this island for threatened and endangered bird species using dredged sand from the waterway. Sand is regularly dredged to ease boat travel.

This sand was placed on the mainland in the past, but Long Island's growing residential and business developments has limited land space, so the team of agencies had to think of another location and they decided on an environmentally beneficial one.

Shore bird, East Inlet Island, NY.

For the past few years shorebirds, such as least terns, common terns, piping plovers, and roseate terns have colonized, nested, and breed on this island, demonstrating just one example of how the Corps is collaborating with partnering agencies to produce successful environmental projects.

"In the past, our dredging projects were criticized by the public for affecting endangered shorebird habitats," said John Tavolaro, Chief, Operations Support Branch. Tavolaro lead the wildlife habitat project.

East Inlet Island, Long Island Intracoastal Waterway, NY.

"Once the Corps proposed creating a bird habitat with the same dredged sand, we received enthusiastic support. Some of our most vocal critics turned around and actually supported the innovative things we were doing."

Tavolaro said that performing environmentally friendly projects is hard at first but is beneficial to all involved in the end. Following are the benefits that can be expected:

- **Strengthens customer relationships.** When customers, such as environmental agencies, see the positive results of environmentally aware projects this increases their trust. As a result, these customers who may have been wary originally may be more open to providing additional ideas for improving the project.

- **Builds public trust.** When the public realizes that their quality of life has been enhanced in ways above and beyond the ones originally envisioned for the project this increases their trust and support of the project.

- **Saves time and money.** Performing environmentally aware projects is harder at first, but it gets easier. In the beginning you may find yourself educating and convincing your organization of the benefits of environmentally aware projects. You will also have to build trust with environmental groups and agencies so that they agree with what you want to do.

  Once you have a project success story, your efficiency will increase because it is easier for you to do the project. For example, there will be less difficulty in securing permits from locals and greater local support for the project. Being more efficient saves money and time.

- **Expands engineer's skills.** You will experience a wider breadth of professional experience of the environmental field and gain personal satisfaction that you are doing good things, smart things.

- **Produces better projects.** When a project is successful this increases customer support of it and it's produced more efficiently. Customers who are happy with the project will be open to providing additional ideas and suggestions for improving it and will work to remove any potential project barriers, such as securing permits, saving the project time and money.

Want to be more environmentally aware? Tavolaro suggests the following:

- **Talk & Listen.** Talk to the locals and resource agencies to get to know them and to find out what they value and find out about their top issues. Put your heads together with whomever has any ideas on how to make your project more environmentally friendly. This not only brings fresh ideas into the mix but also improves your relationships with these individuals and groups. Tavolaro said that this process has made him a better listener.

- **Research.** It also doesn't hurt to check out the websites of the major agencies or groups that you plan to work with to see what their mission and priorities are. It might give you ideas.

"Being environmentally friendly in projects is an innovation," said Tavolaro. "It requires creative thinking. As with any innovation or creative endeavor, it helps to have input. You cannot do this without including other folks who do not look at the world as you do."

He continued, "This is the hard part – gaining trust and making a diverse group productive. Group dynamics are the key management challenge."

Dr. JoAnne Castagna has 15 years experience in public relations, advertising, and broadcasting as a writer, producer, and public speaker for the public and private sector. For the past 5 years, she has been a Technical Writer/Editor for the U.S. Army Corps of Engineers, New York District. One of her main responsibilities is writing news articles about the Corps' diversified projects and studies for both civil and military missions. She is the recipient of a 2005 Silver Quill Award presented by 'The Engineer Bulletin.' She can be reached at joanne.castagna@usace.army.mil.

Corps of Engineers to Assist *Queen Anne's Revenge* Shipwreck Project

By Penny Schmitt

The effect of current scouring action in the Beaufort Inlet area has undermined the safety of artifacts at the shipwreck site of the presumed *Queen Anne's Revenge (QAR)*, flagship of the pirate Blackbeard. On Wednesday, February 22, 2006, the U.S. Army Corps of Engineers began an emergency project to provide 30,000 cu yd of sand to help preserve the shipwreck site.

The *QAR* Project is a coordinated undertaking involving a number of individuals, organizations, and institutions under the overall management of the North Carolina Department of Cultural Resources, Division of Archives and History. "The loss of protective sand had reached a critical point," said *QAR* Project Director Mark Wilde-Ramsing. "Even modest currents scour the site, and the site would be especially threatened by storm currents in the upcoming hurricane season."

During a recent exploratory dive, *QAR* project archaeologist Chris Southerly discovered that the north anchor shaft was exposed its entire length, including the wooden stock. "The preservation of organic material, like wood, was good so long as it was buried," Southerly observed. "We have reached a sand loss level where organic artifacts become exposed and deteriorate rapidly."

An artificial sand dune was created when the U.S. Army Corps of Engineers, Wilmington District, carried out dredging with the vessel *Currituck*. The sand was deposited about 400 ft from the wreck site, and created an artificial seabed dune approximately 600 ft long and 6 ft up from the sea floor. The Corps was dredging near Beaufort in Bulkhead Channel, and directed some of the sand from that project to the *QAR* site.

U.S. Army Corps of Engineers hopper dredge Currituck.

It was fortuitous that a dredging project was scheduled at Bulkhead Channel (near Beaufort) this past winter in which the U.S. Army Corps of Engineers had the opportunity to use their shallow draft hopper dredge *Currituck*. As opposed to most dredges working in the area, this vessel is able work within the water depths (around 23 ft) that was necessary to drop sand close enough to have an effect. More importantly, Wilmington District Colonel John Pulliam and his staff recognized the need for immediate assistance, and were able to direct sand disposal to the vicinity of the *QAR* site. The District provided periodic sonar monitoring to help buy time at the site prior to archaeological excavation.

It is possible that the artificial sand feature, if it stays intact, will act as a buffer that will serve to deflate wave energy and, in turn, the intensity of currents reaching the site. However, it may also act to increase speed of those currents and worsen the situation by creating eddies and vortices behind the sand mound. If possible, the District will deploy current meters to observe this effect. Sand movement will be physically monitored by divers. The District staff will be looking to see how the deposited sand keeps its shape and position under the influence of currents, particularly during storms.

"We are always delighted when we can make a beneficial use of the material that we must dredge to keep federal navigation channels clear," said the Wilmington District's Chief of Environment, Bill Adams. "And having the opportunity to help preserve one of North Carolina's historic treasures adds something special for all of us. The *Currituck* is ideal for such a job, because she can work so effectively in the coastal environment. We are also very pleased to have the opportunity to learn more about currents and sand movement as a result of this project," Adams added.

Creation of the underwater sand dune is highly experimental and will reveal important information about site-specific sand movement on the seabed, and indicate possibilities for future protection of underwater archaeological sites.

In addition to protection of archaeological sites, the study has great implications for understanding sand transport to near-shore environments, which also is important to beach renourishment.

For additional information about the U.S. Army Corps of Engineers, Willmington District, contact Penny Schmitt at Tel (910) 251-4625. For information about the *QAR* project, contact Mark Wilde-Ramsing at Tel (252) 726-6841, Ext. 169.

Information on the *Queen Anne's Revenge Shipwreck Project* is available at *www.qaronline.org.*

Penny Schmitt is Chief, Public Affairs Office, U.S. Army Corps of Engineer District, Wilmington, NC. After12 years working with the Corps' Military Programs in the installation support area, she is delighted to now be devoting her energies to the Corps' Civil Works and Emergency Response issues in the Carolinas, and the Corps' South Atlantic Division.

Locks 27 Machinery Rehabilitation Completed Early *by George Stringham*

On Saturday morning, February 25, 2006, river traffic locking through the main chamber at the St. Louis District Corps of Engineers' Locks 27 on the Chain of Rocks Canal (Mississippi River) near Granite City, Illinois, signified the early completion of the lift-gate machinery and counterweight rehabilitation project on the main and auxiliary chambers. Midwest Foundation Corporation of Tremont, Illinois, the contractor who performed the

work for both chambers, completed the work 4 days ahead of the scheduled March 1, 2006, reopening.

"This project has been a real testament to the cooperation between the Corps and the river industry," said Peg O'Bryan, Chief of the St. Louis District's Operations Division. "Anytime you close one of the locks, for whatever reason, it's going to have an impact."

February 6, 2006 – Millwright Wes Elliot steadies the countershaft and pinion gear as it is lowered into the machinery room in the west wall of the main chamber at Locks 27 near Granite City, Illinois. The refurbished countershaft and pinion gear is part of the $13.46 million contract awarded to Midwest Foundation Corp. to rehabilitate the machinery and counterweights for both the auxiliary and main chambers at Locks 27.

The project consisted of replacing or refurbishing much of the 50-plus-year-old lift-gate machinery and counterweights for both the main chamber and the smaller auxiliary chamber. The procedure requires the lock chamber to be closed while the maintenance is being conducted. This necessitated two closures, leaving one lock operational while the other was being rehabilitated.

It wasn't a coincidence that, on October 17, 2005, the 600-ft auxiliary lock was the first lock to be closed.

"Fall is a busy time for the industry," O'Bryan emphasized. "If you think about it, that's when agriculture's fall harvest is being shipped down the Mississippi River to Louisiana ports. By doing the work on the auxiliary lock first, we were able to keep the larger, 1,200-ft chamber open through the rest of their busy season."

The 1,200-ft main chamber can accommodate 15-barge tows (largest seen on the Upper Mississippi River). A standard tow of that size measures 105 ft wide by approximately 1,160 ft long. When the main chamber is closed, all river traffic has to travel through the smaller, 600-ft auxiliary chamber, requiring some of the larger tows to make double cuts or special lockages. These lockages require the tow to be 'cut' into two sections and go through the lock chamber separately, more than doubling the time it takes to transit the facility.

The reason to do the maintenance on the auxiliary lock first was two-fold. The work being done to the main chamber is nearly identical to that which was performed on the auxiliary chamber.

February 6, 2006 – Curt Coleman welds a shear tab into place that supports the pillow block base for the idler sprocket. The idler sprocket supports the chain which is connected to the lift gate at one end and a counterweight at the other.

"Another important reason for doing the closures in the order that we did was that it gave us an opportunity to do a lessons learned from the

auxiliary lock and apply them to the work we were going to do to the main chamber," said Jay Fowler, resident engineer for the project. "As a result, we were able to find ways to work more efficiently and save time."

One such lesson was the importance of getting an early start on the concrete removal.

Then the counterweight could be lifted out of the chase and the new counterweight installed.

"We later discovered the chains were long enough to lower the counterweights to the bottom of their chase," Fowler said. "So, by lowering them to the bottom, we were able to shave several days off the process."

January 7, 2006 - Crews from Midwest Foundation, Inc. remove two of the 25,000-pound liftgate chains from the west wall of the main chamber at Locks 27. The 50-year-old chains (four for each chamber) and other liftgate machinery are being removed and replaced as part of a rehabilitation project to the locks on the Chain of Rocks canal near Granite City, Illinois.

"We started cutting concrete about 2 weeks before we closed the (main) chamber," Fowler said. "That gave us a head start on the work."

Overall, 2,694 sq ft of concrete was removed, or 1,347 sq ft from each chamber.

The lessons learned also revealed a new process for removing the old counterweights. In the auxiliary lock, the counterweights were suspended above the floor of the chase (shaft that houses the counterweights) so that the chain that connects the counterweight to the lift gate could be removed.

He also commented that another factor that helped the project's progress was that the contractor maintained continuity with his labor forces on both lock closures. The experience they obtained during the first lock closure was invaluable due to the fact the machinery and site conditions in the main chamber are almost identical.

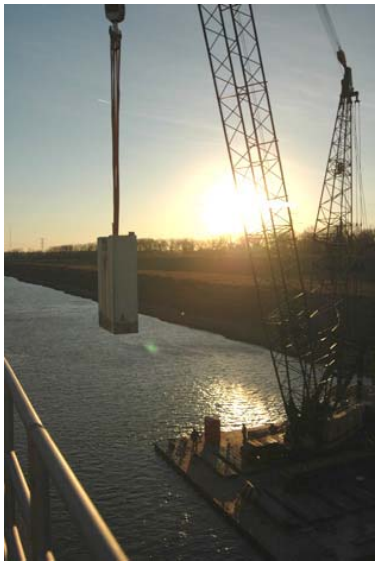
Another important factor was the weather.

"This mild winter has been a big factor and has allowed us to maintain our schedule with relative ease," said Tom Clark, superintendent of Midwest Foundation Corporation.

Machinery isn't the only part of the facility that's getting an upgrade. So is the programmable logic controller, or PLC. The PLC is a specialized computer that operates the motors and pumps to move the machinery at the lock. The lock operator uses a personal computer with a graphical user interface to operate the lock. This user interface must also be adapted to the new PLC.

Shane Nieukirk, an electrical engineer with the St. Louis District, explained that the last time the PLC was upgraded was in 1995 and that the technology was probably several years old then.

"The technology that was in place was probably 20 years old," Nieukirk said.



Up and Out

November 25, 2005 - One of the two 170,000 lbs counterweights used to help raise and lower the lift gates in the auxiliary lock is pulled from its "chase" and craned down the length of the auxiliary lock to a barge.

Out with the old, in with the new

(Left) One of the 50-plus-year-old gear drives used to raise and lower the lift gates in the auxiliary chamber at Locks 27 is removed on November 8. (Right) November 23, crews from Midwest Foundation install a new gear and drive to replace one removed earlier.

Although the process is similar to updating your PC at home to Windows XP, he stressed that this process also requires that they rewrite all the control logic.

Overall the project progressed extremely well. Through successful partnering efforts between the Corps of Engineers and Midwest Foundation Corporation, project costs were within budget and on schedule.

George Stringham has been a Public Affairs Specialist with the St. Louis District, U.S. Army Corps of Engineers, since May 2005. For the prior 3 years, he was a Public Affairs Specialist for the Memphis District, where he also earned his Master's Degree in Journalism from The University of Memphis. Mr. Stringham is also a lieutenant in the U.S. Navy Reserve and serves in the Mobile Inshore Undersea Warfare Unit (MIUWU) 112, based in St. Louis.

Columbia River Channel Improvement Project *by Heidi Helwig*

The first dredging contract, phase one of the Columbia River Channel Improvement Project, was completed in mid-February, 2006. This work consisted of deepening the lower 18 miles of the Columbia River (River Mile (RM) 3 to RM 21), and performing dredging work in the upper river from RM 95 to just past RM 104 and the first mile of Oregon Slough. With this completed work, more than 2.6 million cu yd of sand was removed. The 28 miles dredged accounts for 25 percent of the project's 103-mile length.

The work was accomplished by Illinois-based Great Lakes Dredge and Dock Co., at a cost of $8.7 million. All quantities of sand dredged by Great Lakes' Sugar Island dredge were either calculated with pre- and post-dredged surveys or measured by hopper load. The hydrographic surveys were obtained using a multi-beam survey for added accuracy.

In the upper river, the Sugar Island placed dredged material in front of the Port of Portland's dredge Oregon. The dredge Oregon pumped the dredged material to an upland disposal site in Vancouver, Washington (Gateway Disposal Site).

In January 2006, the dredge Oregon deepened the first mile of Oregon Slough at RM 102.

The Corps is developing its bid documents for dredging work from RM 21 up to about RM 35 on the Columbia River; the goal is to award a contract for this reach of the river by May 2006.

The Columbia River Channel Improvement Project is a collaborative effort between the Corps and six lower river ports in Oregon and Washington, to improve navigation in the Columbia River by deepening the navigation channel to accommodate the current fleet of international bulk cargo and container ships, and to improve the condition of the Columbia River estuary through the completion of various environmental restoration projects.

The first ecosystem restoration project associated with the Columbia River Channel Improvement Project was completed in December 2004. The construction activities at Lord-Walker Island, near Longview, Washington, involved the excavation of 620 cu yd of sand from the downstream end of Lord Island to improve water conditions to the embayments within the island complex. The improved conditions will provide

additional habitat for juvenile salmon during their migration to the Pacific Ocean. Additional environmental restoration work will be completed in 2006 and 2007.

As with any major project in today's complex environmental, economic, and political environment, this one has its supporters and its critics.

Years of study led the Corps to the plan recommended in its final report issued August 1999, to its final supplemental report issued January 2003, and to its Record of Decision signed January 2004: to deepen the 40-ft shipping channel by 3 ft to allow continued navigation access, enhance economic benefits of waterborne commerce along the length of the shipping channel, and improve the natural environment through the construction of several ecosystem restoration project (specifically salmon habitat enhancement).

Although coordination with the public, special interest organizations, and agencies has been an integral part of the process throughout the study, some groups and individuals bring the agency's traditional "construction" bias into discussions. Because of this perceived bias, they question the Corps' credibility in various aspects of the study, such as economics, sediment contamination, and potential environmental effects.

Heidi Helwig is a public affairs specialist with the Portland District, U.S. Army Corps Engineers. She began her Corps career in 1989 and currently covers topics ranging from the channel improvement project to fisheries to the Corps' operation and maintenance of the 13 multiple purpose projects in the Willamette Valley.

Columbia River Jetty Repairs

by Mike McAleer

The Corps of Engineers has been involved in improving navigation at the Mouth of the Columbia River (MCR) since the 1870s. Early work at the mouth included detailed surveys of the Columbia River bar and the construction of jetties. Eventually the work included dredging a navigation channel from the ocean to the estuary.

The Corps maintains three rubble-mound jetties at the MCR. Their design (boulders stacked one on top of another and extending out into the ocean) is simple. Their purpose, on the other hand, is more critical. These structures not only accelerate the flow of the river, helping maintain the depth and orientation of the navigation channel, they also provide protection for ships of all sizes (both commercial and recreational) entering and leaving the estuary.

Mouth of the Columbia River south jetty, Oregon.

The forces of nature have taken their toll on the structural integrity of the jetties, but the Corps is working at restoring the jetties to acceptable levels of reliability. Interim repairs to the north jetty at the MCR were completed in 2005 and a new contract has been awarded to begin interim repairs to the south jetty at the MCR; repair work should be completed by October 2007.

Mike McAleer is Public Affairs Specialist at the U.S. Army Corps of Engineers, Portland District.

Honolulu District Participates in Kaumalapau Harbor Project Blessing Ceremony *by Dino Buchanan*

The U.S. Army Corps of Engineers, Honolulu District, participated in a Hawaiian worker-blessing ceremony Saturday, January 7, 2006, at Kaumalapau Harbor on the island of Lanai.

The ceremony was held prior to the start of a $21.2 million project to repair the existing Kaumalapau breakwater, which was originally built during the 1920s. The new breakwater is being constructed to reduce wave action in the harbor, and to increase harbor safety and usability. Much of the damage to the existing breakwater was the result of repeated storms during the 1980s and early 1990s.

Kaumalapau Harobr, Lanai's only commercial harbor, was officially transferred from Lanai Company to the State of Hawaii in July 2000, and is essential to the welfare of the island's residents and visitors. There are no other island harbors capable of accommodating tug and barge services, which bring in virtually all the consumer goods and fuel.

Existing Kaumalapau Harbor breakwater, island of Lanai.

Attending the harbor blessing ceremony included: Lt. Col. David Anderson, Commander, U.S. Army Corps of Engineers, Honolulu District; Margaret Cummisky, U.S. Senate Committee, Commerce, Science, and Transportation; Barry Fukunage, Deputy Director, State of Hawaii Department of Transportation, State Harbors Division; Maui County Council Chair Riki Hokama; Carolyn Imamura, Executive Director, Pacific Basin Development Council; Jim Hatashima, Honolulu District, Kaumalapau Harbor Project Manager; Glenn Kusaka, Engineer, Honolulu District; and Fred Nunes, Engineer, State Harbors Division. Representatives and workers from Traylor Brothers, Inc., also attended the ceremony.

Traylor Brothers, Inc. was awarded the construction contract in July 2004 in the amount of $15,996,951 with work originally scheduled to run until May 2006.

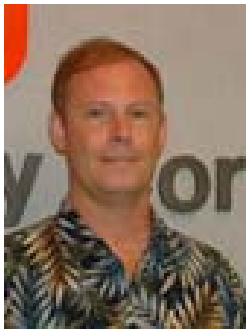
As a result of the unknown condition of the existing State-owned dock, an additional investigation was performed, and was the basis for a 90-day partial suspension of work starting December 22, 2004. The suspension was lifted on March 22, 2005, with the approved plan to construct a hardstand adjacent to the existing dock. With the addition of the hardstand and contract modifications of $5,204,084, the project contract totals $21,207,035.

Kaumalapau Harbor offloading hardstand site.

The repair of the breakwater calls for placement of approximately 800 35-ton CORE-Loc concrete armor units (the largest CORE-Loc units presently used on any Corps project) in 80-90 ft of water. The CORE-Loc units are being fabricated by Grace Pacific, Inc., as sub-contracted by Traylor Brothers, Inc. Schedule completion date is May 26, 2007.

35-ton CORE-Loc concrete armor unit.

The construction operations involved with placing these massive CORE-Loc armor units at Kaumalapau Harbor breakwater are being monitored by the "Monitoring Completed Navigation Projects" research program of the U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi, in cooperation with the Honolulu District. Lessons learned will provide valuable guidance for design and construction of other projects under similar environmental condition.



Dino Buchanan is the Media Relations Specialist for the Honolulu Engineer District at Fort Shafter, HI. Dino, a 20+ year Navy veteran, joined the Corps of Engineers' team nearly 2 years ago and recently won the Corps of Engineers' 2005 Herbert A. Kassner Journalism Award for Best News Article.

Jacksonville District Protects Marine Life While Preparing to Dredge Miami Harbor *by Nancy J. Sticht*

Ports maintained by the U.S. Army Corps of Engineers, in partnership with the nation's port authorities, are America's link to world markets. Florida's Port of Miami, in particular, carries the dual distinction of "Cruise Capital of the World" and "Cargo Gateway of the Americas." Last year alone, approximately 3.5 million passengers and more than one million tons of cargo transited through the Port of Miami from around the world. Two new cruise terminals, each accommodating 3,500- to 4,000-passenger mega-cruise ships, are planned.

In 1990, in response to the need for continued growth of the port to meet the demands of the passenger and commercial shipping industries, Congress authorized the deepening and expansion of the Port of Miami to 42 ft. Phase I, in which the Port of Miami deepened the entrance channel and main turning basin under an agreement with the federal government, was completed in 1993. Phase II, a $40 million Corps project to address the South Harbor, began in fiscal year 2005 and is scheduled to be completed in fiscal year 2006. The project includes the deepening of the Dodge-Lummus Island Turning Basin and Fisherman's Channel. Although the Port of Miami had previously attempted dredging this portion of the port without blasting, their efforts were unsuccessful due to hard limestone common to the area. Jacksonville District's solution was to blast the limestone, to enable the dredges to achieve the necessary depth for the channel and turning basin.

Along with blasting the limestone, another major challenge for Jacksonville District was ensuring the protection and safety of bottlenose dolphins, manatees, sea turtles, and other marine animals and protected species that transit the harbor. The district developed a conservative blasting plan, including the use of state-of-the-art confined

blasting techniques, observation, monitoring, and mitigation measures. The National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service, determined that the plan provided sufficient protection so that marine life was unlikely to be harmed by the detonations.

Generally, potential impacts to marine mammals that could occur from underwater blasting vary, based on the mitigation measures employed before, during, and after detonation. These affects range from acoustic, tactile perception, and physical discomfort to non-lethal and lethal injuries to internal and/or auditory systems.

In confined blasting, a methodology used in Florida since the 1980s, the hole in which the explosive material is placed is capped with an inert material, such as crushed rock. This is referred to as "stemming the hole." Studies have shown that stemmed blasts have a greater than 90 percent decrease in the strength of the pressure wave released, compared to unconfined blasts of the same charge weight. Jacksonville District conducted a test blast program to determine the lowest amount of explosives necessary to adequately break rock. Blasting was limited to daylight hours, no earlier than 2 hrs. after sunrise to not later than 1 hr. before sunset, and to no more than three blasts each day. By the time blasting concluded, only 40 detonations had occurred over a 38-day period.

Six vessel and aircraft-based observers trained in monitoring marine mammals were on site to track the location and movement of marine mammals and protected species in defined protective zones. The zones were set up as a series of concentric circles (danger zone, safety zone, and watch zone) emanating from the detonation site. The observers conducted these watches at least 60 min. before, during, and 30 min. after the time of each planned detonation in all zones. If marine animals were spotted, they were monitored until they left the area on their own and the detonation was delayed until after they moved. Under no circumstances were animals forced out of the area.

A total of 168 protected marine species (58 dolphins, 110 manatees, and 17 sea turtles) were observed throughout the blasting period. Dolphins were observed an average distance of 2,000 ft. from the blast array, and manatees swam within 3,500 ft. Only 13 delays were necessary to ensure their protection during the 38 days that blasting occurred.

Detonation cord on the surface draws the "boxes," while the blast itself is lower to the water and bushy in appearance.

View of observer vessel 'SeaMe' and observer helicopter from the drill barge.

Based on the limited size and confinement of the blasts, the depth of the water, and the required stand-off distances between the animals and the blast array, both Jacksonville District and NOAA believe that the animals were unlikely to have been harmed by the blast detonations. The conservative monitoring and mitigation requirements helped to accomplish this mission while protecting marine animals and their surrounding ecosystem.

"I am pleased that this project worked exactly as we had anticipated it would work," said project biologist Terri Jordan. "The data we collected backed up 3 years of planning, research, scientific journal reviews and consultation."

Nancy J. Sticht is the Public Affairs Officer for Jacksonville District. She has been with the Corps for 29 years.

Young Professionals Corner

What is a Young Professional?

Internationally, PIANC is making a concerted effort to attract more Young Professionals as active members to the organization. Currently, there is a large generation gap among the active members of PIANC. Each country has been tasked with forming a Young Professional (YP) group within its national section structure with the goal of promoting PIANC at the national and international levels. A Young Professional member of PIANC is described as any member (student, individual or corporate) who is under 40 years of age.

The U.S. Section Young Professional Group (USYP) will provide an opportunity for Young Professionals in the field of navigation to meet other professionals locally, nationally and globally. Activities will focus on the needs and interests of Young Professionals in the U.S.

If you are interested in joining USYP, please contact Jessica McIntyre, Moffatt & Nichol at *jmcintyre@moffattnichol.com* for more information.

You can also visit the Young Professionals page of the U.S. Section website at *http://www.iwr.usace.army.mil/newpianc/index.htm*. For information on the International Young Professional Implementation Group (IYPIG), visit the Young Professionals page of the PIANC International website, *http://www.pianc-aipcn.org/*.

Upcoming Young Professional Events

World Congress 2006 in Estoril, Portugal, May 14-18, 2006. Website: *http://www.pianc2006.org/index.html*
Attending the Congress? Please visit us at the YP table during coffee breaks or one of these venues!

- YP social gathering: Evening, time & date TBD.
- YP Information Session: May 17, 11:30am to 1:15pm.

Working Groups. Each country is allowed two representatives in each working group if one is an YP. To find more about the working groups, visit the Working Group/Commissions page of the PIANC International website at *http://www.pianc-aipcn.org/*. The following working groups are recruiting new members:

- ***InCom-WG31 - Organization and Management of River Ports***. Analyze the roles and missions at river ports around the world between public and private partners. This working group will collate the different practices and inform PIANC members about current state-of-the-practice in the organization of "port systems." Lessons learned in this collective data will provide very practical information on evaluating effective port development related to river transport. Members of the working group should include: Managers of Port authorities, Senior Civil Servants, Managers of private companies and public corporations which act in one of the various jobs present in the area of a port: building, road, river or train transport, warehousing,

financing, et cetera. Visit *http://www.pianc-aipcn.org/docs/wg/incom31-tor.doc* for more information.

- ***CoCom-WG2 - Best Practice for Shoreline Stabilization Methods***. Identify Best Practices for shoreline stabilization for the use in countries in transition. The primary focus of the working group will be the various coastal erosion problems that countries in transition have faced in the past and may face in future. Case studies shall be defined and discussed. A decision methodology (for example a multi-criteria selection process) shall provide coastal engineers and managers a practical guideline to respond to the pressure of stakeholders to stabilize the coastline. This working group will also have U.S. subcommittees to assist with the U.S. portions of the working group reports. Interested? Contact Jeanene Nieberding at *jeanene.m.nieberding@usace.army.mil* for more information.

De Paepe-Willems Paper Award. The De Paepe-Willems Award is given by PIANC for the most outstanding technical paper prepared on an aspect of waterborne transport. Categories include policy, management, design, economics, integration with other transportation modes, technology, safety, public involvement, and the environment. The competition is open to anyone 35 years of age or under.

Ir. Gustave Willems
1901 - 1982

Ir. Robert De Paepe

The U.S. Section's award winner in 2007 receives a $1,000 U.S. Savings Bond, an expense-paid trip to the 2007 U.S. Section Annual Meeting, and an individual membership in the U.S. Section PIANC for 5 years. The U.S. Section winner's paper is forwarded for international competition in 2007. The international winner in 2007 receives a trip to the 2007 Annual General Assembly. The International award winner receives € 5,000 and a 5-year individual membership.

Abstract submittal is open for the 2007 competition. The deadline for submitting paper abstracts for the 2007 contest is ***July 1, 2006***, with technical paper submittals required by ***October 1, 2006***. Please visit the U.S. Section's website for a complete listing of available awards and scholarships (*http://www.iwr.usace.army.mil/newpianc/*), and the International PIANC website for information on preparing DePaepe-Willems papers for competition (*http://www.pianc-aipcn.org/*). For more details contact Edmond Russo, Chairman, Publications Committee, U.S. Section PIANC, at *edmond.j.russo@erdc.usace.army.mil*.

Recent winners of the award are as follows:

- 2005 International Winner: Javier L. Lara, Ocean & Coastal Research Group, University of Cantabria, Spain, "A Numerical Wave Flume to Study the Functionality and Stability of Coastal Structures."
- 2005 U.S. Winner: Shana Heisey, USACE Institute for Water Resources, "Determining Economic Efficiency in Harbors: HarborSym, An Application."
- 2006 U.S. Winner: Tracy Fidell, Moffatt & Nichol, "Developing an Integrated Model to Quantify Port Emissions."

Ports 2007 in San Diego, CA, March 25-28, 2007. Website: *www.portsconference.org* "30 Years of Sharing Ideas... 1977-2007"- will be the eleventh in a series of international port and

harbor development specialty conferences held on a tri-annual basis since 1977. Ports 2007, organized by the Ports and Harbor Committee of ASCE, COPRI and PIANC, will offer an all encompassing array of professional/technical papers pertinent to the progress of port and harbor facilities development, inland waterways and navigational improvements.

Look for a USYP table at the conference!

Upcoming PIANC Events *by Edmond Russo*

***31st World Congress*.** The next International Congress will be held May 14-18, 2006, in the Portuguese resort city of Estoril.

SOBENA 2006, National Conference and Expostion. 21st Brazilian Maritime Transportation, Ship Construction, and Offshore Engineering Conference, 27th November - 1st December 2006, Rio de Janeiro.

Organized every 2 years, the SOBENA National Conference and Exposition is the most traditional and important event for the presentation and discussion of new scientific achievements and technical developments in design, construction and operation of ships and maritime structures as well as offshore engineering for oil and gas production.

The event includes:

- Technical Sessions with more than 100 selected papers covering the main topics.
- Panel Discussions on the most relevant and update issues, introduced by leading professionals of the maritime community.
- Keynote Presentations addressed by invited international experts.
- Exposition of marine products and services – **EXPONAVAL 2006**.

Call For Papers:
The Conference welcomes abstracts to technical papers on subjects related to Naval Architecture, Marine Engineering, Offshore Technology and Maritime Transportation.

Scope:

- Structures
- Hydrodynamics
- Marine Engineering
- Design
- Transportation and Logistics
- Safety
- Offshore Operations
- Underwater Technology
- Advanced Marine Vehicles
- Naval Vessels
- Shipbuilding: Operational Management and Fabrication Technology
- Materials and Corrosion
- Engineering Education and Training

Manuscripts will be reviewed by referees and the final version approved by the Technical Committee for presentation in the technical sessions and publication in the proceedings.

Important Dates:

- Abstract submission: 30 April
- Abstracts acceptance: 31 May
- Manuscript submission: 31 July
- Final acceptance: 30 September

Instructions:
Abstracts should be sent by e-mail to: *sobena2006@sobena.org.br*.
Authors are requested to submit a one-page abstract (300-500 words) with Title, Authors and their affiliations, and E-mail of the corresponding author. The abstract must state clearly objectives, methodology, relevant results, and specific contribution to technical and scientific knowledge in the respective area.

Fees:

- No registration fees are charged for SOBENA members.
- Non-members authors are exempted of registration fees.

Proceedings:
The proceedings with the technical papers will be available in digital media.

Language:
Portuguese, Spanish, and English may be used for oral presentations and papers.

Additional Information:
www.sobena.org.br
sobena2006@sobena.org.br
Tel + 55 21 2283-2482

EXPONAVAL 2006.

In parallel with the 21st Brazilian Maritime Transportation, Ship Construction, and Offshore Engineering Conference (November 27 - December 1), will be organized the EXPONAVAL 2006, which offers exhibitors an excellent opportunity to be in touch with the right people of the Brazilian maritime community, showing their products, equipment, new technologies and innovations marketed by their companies.

Contact SOBENA to check the opportunity for your company to participate:
www.sobena.org.br
exponaval2006@sobena.org.br
Tel + 55 21 2283-2482

Upcoming Related Conferences

2006

- ***2nd International Short Course and Workshop on Coastal Processes and Port Engineering***, May 29 - June 1, Cosenza, Italy.
- ***The 25th International Conference on Offshore Mechanics and Arctic Engineering***, June 4-9, Hamburg, Germany.
- ***Western Dredging Association.*** June 25-28, San Diego, California.
- ***Transportation Research Board (TRB) 2006 Summer Conference and 31st Annual Summer Ports, Waterways, Freight, and International Trade Conference***. July 9-11, La Jolla, California.
- ***30th International Conference on Coastal Engineering.*** September 3-8, San Diego, California.
- ***9th International River Symposium.*** September 4-7, Brisbane, Australia.
- ***LITTORAL 2006: 8th International Conference on Coastal Innovations and Initiatives***, September 18-20, Gdansk, Poland.
- ***Union Pan American de Ingenieria (UPADI) 2006, XXX Pan American Engineers Convention, and XIV Pan American Convention of Ocean and Coastal Engineering***. September 18-22, Atlanta, Georgia.
- ***U.S. Maritime Security Exposiiton***, September 19-20, New York, New York.
- ***American Shore & Beach Preservation Association (ASBPA) 2006 Fall Conference***, October 9-11, Long Branch, New Jersey.
- ***ITMMAPS Maritime and Port Symposium.*** October 25-28, Antwerp, Belgium.
- ***SmartRivers 2006, International Joint Conference on Synergies for an Efficient Waterway System in Europe and the United States***, November 5-7, Brussels, Belguim.
- ***Restore America's Estuaries.*** December 9-13, New Orleans, LA.

2007

- ***4th International Conference on Remediation of Contaminated Sediments.*** January 22-25, Savannah, Georgia.
- ***Ports 2007.*** March 25-28, San Diego, California.
- ***The 25th International Association of Ports and Harbors World Post Congress***, April 27 - May 4, Houston, Texas.
- ***Coastal Sediments 2007.*** May 13-17, New Orleans, Louisiana.
- ***Coastal Structures 2007.*** July 2-4, Venice, Italy.

About PIANC

What is PIANC? The International Navigation Association (PIANC) is a worldwide organization of individuals, corporations, and national governments. Founded in 1885 in Brussels, Belgium, it is concerned with maritime ports and inland waterways. The Association promotes contact and advances and disseminates information of a technical, economic, and environmental nature between people worldwide in order to efficiently manage, develop, sustain, and enhance inland, coastal and ocean waterways, ports and harbors, and their infrastructure, in a changing environment.

Where is PIANC? The international headquarters is located in Brussels, Belgium, at facilities provided by the Belgian Government. The headquarters of the United States Section is located in the Washington, DC area, within facilities provided by the U.S. Army Corps of Engineers.

International Interaction. The Annual General Assembly operates through a Council, which directs the working level permanent technical committees, international study commissions, and working groups.

Working Groups. Technical working groups are composed of participants from member countries who have interest in various subjects being studied. The groups gather, analyze, and consolidate state-of-the-art material from each country. The resulting reports are published and sent to each PIANC member. Working group reports and the International Bulletin are sent to each member from Brussels.

Every 4 years an International Congress, open to all members and other registrants, is held for the presentation and discussion of papers on subjects pertaining to waterways and maritime navigation.

PIANC also participates in technical activities with other organizations to study navigation problems and joins with them to present symposia on related subjects.

In the USA. The United States became a member of PIANC by Act of Congress in 1902. The Chairman of the U.S. Section is the Assistant Secretary of the Army (Civil Works). The Director of Civil Works for the U.S. Army Corps of Engineers serves as President. A National Commission of 11 individuals, which represent both private industry and the Federal Government, manages the Section. The U.S. Section has two standing and four technical committees, which promote the flow of information between members and facilitate cooperation with other national organizations. The committees are Membership, Publications, Environment, Inland Navigation, Maritime Navigation, and Ports and Recreation Navigation.

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