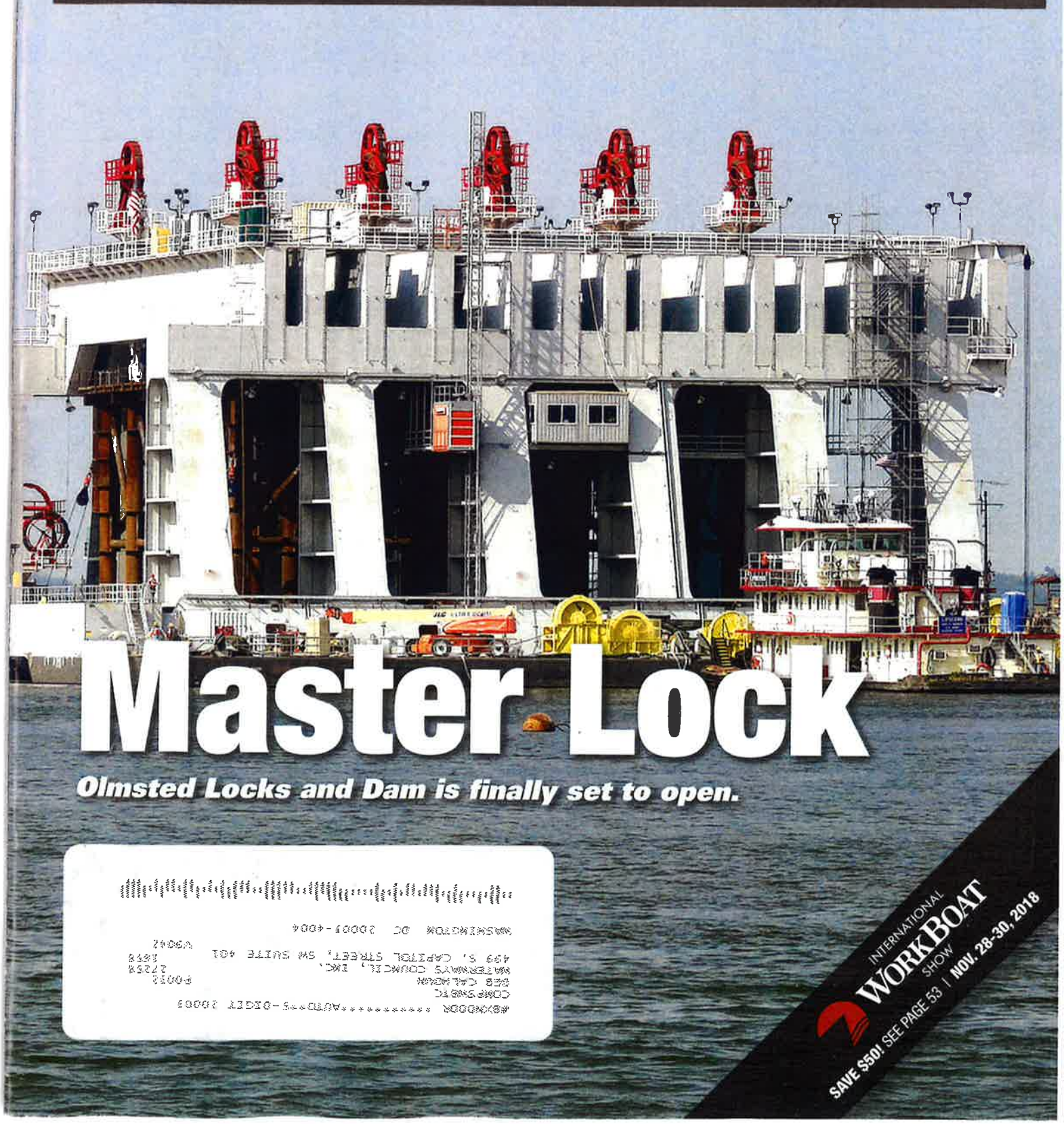
Small Shipyard Grants • Barges • Deck Equipment

WORKBOAT®

IN BUSINESS ON THE COASTAL AND INLAND WATERS

OCTOBER 2018



Master Lock

Olmsted Locks and Dam is finally set to open.

Editor'sWatch

A 'damned' project opens

In 1988, a new lock and dam at Olmsted, Ill., was authorized by Congress. The project's estimated cost was $775 million with completion expected in seven years.

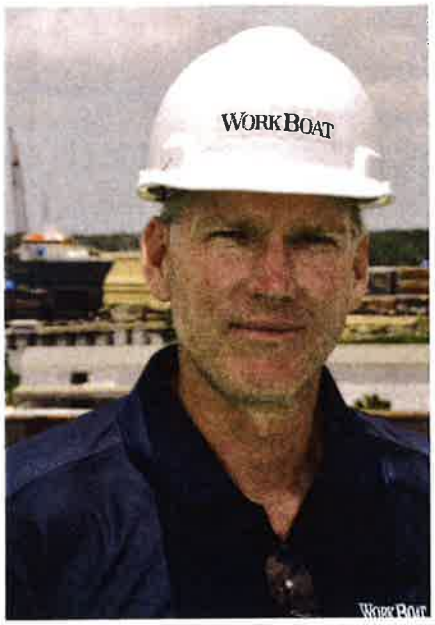
Thirty years and another $2 billion later, the Olmsted Locks and Dam project will finally open in October (see story, page 34). It replaces Depression-era Locks and Dam 52 and 53, which had exceeded their design lives. Decades of funding problems and innovative design changes added years and costs to the project.

Barge operators are frustrated that the project took so long and that the huge cost overruns took funding away from other important navigation improvement projects. But the wait is finally over for operators who suffered through years of costly delays, as closures and slow maneuvering at L&D 52 and 53 have forced tows to wait hours and often days to pass through.

For operators, the biggest issue has been reliability of the inland navigation infrastructure. In recent months, delays have gotten so bad at 52 and 53 that many barge operators have been avoiding the area completely, taking more costly and longer routes.

Marty Hettel, vice president, government affairs at **American Commercial Barge Line** and chairman of an industry group that advises the Corps, said that since last November, delays have cost the industry $65 million. The Corps estimates that the wait time will be reduced from up to two hours at Locks 52 and 53 to about 30 minutes at Olmsted.

Barge operators and others worked with Congress to change the cost-sharing formula to get Olmsted completed and free up funding for other navigation projects, Michael Toohey, president and CEO of the **Waterways Council**, told us.



David Krapf, Editor in Chief

That momentum must continue. The challenge, he said, will be to continually provide maintenance funding for Olmsted, and predictable and steady funding levels to complete other priority lock replacement projects.

WCI will continue to push for long-term changes in the cost-sharing formula, healthy budgets for the Corps, and for a portion of federal revenues from hydropower generation to be directed to the Inland Waterways Trust Fund. These are all healthy goals.

David R. Krapf

dkrapf@divcom.com

BPA WORLDWIDE

WORKBOAT® (ISSN 0043-8014) is published monthly by Diversified Business Communications and Diversified Publications, 121 Free St., P.O. Box 7438, Portland, ME 04112-7438. *Editorial Office:* P.O. Box 1348, Mandeville, LA 70470. *Annual Subscription Rates:* U.S. $39; Canada $55; International $103. When available, extra copies of current issue are $4, all other issues and special issues are $5. For subscription customer service call (978) 671-0444. The publisher reserves the right to sell subscriptions to those who have purchasing power in the industry this publication serves. Periodicals postage paid at Portland, ME, and additional mailing offices. *Circulation Office:* 121 Free St., P.O. Box 7438, Portland, ME 04112-7438. From time to time, we make your name and address available to other companies whose products and services may interest you. If you prefer not to receive such mailings, please send a copy of your mailing label to: *WorkBoat's Mailing Preference Service*, P.O. Box 7438, Portland, ME 04112. **POSTMASTER:** Send address changes to WORKBOAT, P.O. Box 1792, Lowell, MA 01853. Printed in U.S.A.

AMERICAN BUSINESS MEDIA

Dam Burst

The most expensive lock and dam project in U.S. history to open to Ohio River barge traffic in October.

The pushboat *Steve Golding* and its tow pass through Olmsted's locks on July 25, 2018, during Olmsted Locks and Dam media day.

Anne Mulhall, Corps of Engineers

By Pamela Glass,
Washington Correspondent

In Olmsted, Ill., a tiny hamlet of just over 300 residents in southern Illinois, just off the corn fields along the Ohio River Scenic Byway and across the river from Kentucky, sits a long overdue, $3 billion federal project. The project has been called both a boondoggle and an engineering marvel and is expected to end years of traffic jams along one of the busiest spots in the inland waterways system.

About 6,500 vessels moving between the Mississippi, Ohio, Cumberland and Tennessee rivers transport 90 million tons of cargo through this stretch of the river each year, more than any other segment of the inland waterways. Barge operators have endured years of costly delays here, as closures and slow maneuvering at Locks and Dams 52 and 53 have forced barge tows to wait hours or often days to pass through. At one point last year, there were 74 towboats and 842 barges queued up waiting their turn.

Corps of Engineers

Olmsted Locks and Dam in July 2017.

The Olmsted Locks and Dam will officially open in October to commercial navigation after nearly 30 years in the making, slowed by decades of funding hiccups, Congressional gamesmanship, and innovative design changes that have added millions of dollars and years to the project. The new structure will replace nearby Depression-era Locks and Dams 52 and 53, located between Paducah, Ky., and Cairo, Ill., that are crumbling and constantly closed for maintenance and repairs.

Olmsted's much-anticipated completion is bringing a big sigh of relief to the nation's barge industry and industries like agriculture and energy that depend on river transportation.

NAVIGATION DELAYS

"The types of inefficiencies we've been experiencing (at Locks 52 and 53) are killers for us," Dan Mecklenborg, senior vice president and chief legal officer, **Ingram Barge** Co., told reporters during a recent tour of Olmsted organized by the **Waterways Council** Inc. The biggest issue for barge companies, he said, is reliability of the infrastructure.

Delays have gotten so bad in recent months that many operators are avoiding the area all together, taking more costly and longer routes, according to Marty Hettel, vice president government affairs at **American Commercial Barge Line** and chairman of an industry group that advises the Corps. Since

OLMSTED LOCKS AND DAM: 30-YEAR HISTORY

- **1929:** Locks and Dams 52 and 53 along the Ohio River completed.
- **1978:** Temporary 1,200' lock chamber added to Lock and Dam 52.
- **1979:** Temporary 1,200' lock chamber added at Lock and Dam 53.
- **1988:** New lock and dam at Olmsted, Ill., authorized by Congress under the Water Resources Development Act, at an estimated cost of $775 million and completion in seven years. It will replace Locks and Dam 52 and 53, which had exceeded their designs lives.
- **1990s:** Army Corps of Engineers analyzes the "in the dry" vs. "in the wet" dam construction methods.
- **1997:** Corps decides to use the innovative "in-the-wet" technique. Sections are built on land, transported to the river and placed on concrete foundations, with minimal disruption to barge traffic. This decision adds greatly to the cost and length of project. Study of the method continues for several more years.
- **2002:** Twin lock chambers, 1,200'x110', completed using the dry cofferdam technique.
- **2004:** Corps awards dam construction contract, although Congress had approved funds in 1990.
- **2005:** Hurricanes Katrina and Rita create a scarcity of barges and cranes, pushing up costs of construction equipment.
- **2002-2007:** Big jumps occur in prices of fabricated steel, cement, fuel, insurance and bonding.
- **2012-2013:** Funding shortfalls threaten to shut down the project.
- **2013:** Olmsted reauthorized at an estimated cost of $2.9 billion, with almost $1.7 billion already spent and $1.2 billion more authorized to complete work.
- **2014:** Congress changes the funding formula, shifting more of the construction costs to federal taxpayers. The 50/50 cost federal-industry cost share through the barge-funded Inland Waterways Trust Fund is changed to 75% federal, 25% industry. This assures a steady flow of funds to Olmsted without draining money for other inland projects.
- **2014:** Congress again changes the cost-share formula to 85% federal, 15% industry.
- **October 2018:** Locks and dam will be operational.
- **December 2022:** Removal of dams 52 and 53, marking completion of the project.

Source: *U.S. Army Corps of Engineers, GAO report to Congress: Factors Contributing to Cost Increases and Schedule Delays in the Olmsted Locks and Dam Project, February 2017.*

last November, delays have cost the industry $65 million, Hettel said.

The Army Corps of Engineers estimates that the wait time will be reduced from up to two hours at Locks 52 and 53 to about 30 minutes at Olmsted. "That's a major feat given the number of barges that go through there and given the tonnage of materials that move through this area," said Col. Antoinette Gant, Corps Louisville District commander. "The time and reliability to assure timely movement through this area have been very important in this project."

The biggest difference is that Olmsted will include two 1,200'×110' lock chambers located on the Illinois shoreline, and a dam consisting of five tainter gates, a navigable pass section, 140 wickets and a fixed weir. When the river is low, tainter gates are lowered to force flow into the navigational section. The wickets are raised and gates closed, creating a pool for barges to safely lock through. When the river is high, the tainter gates are raised and the wickets are lowered, allowing barges to navigate over the dam and avoid the locks.

Corps of Engineers

Olmsted wicket lifter testing in June.

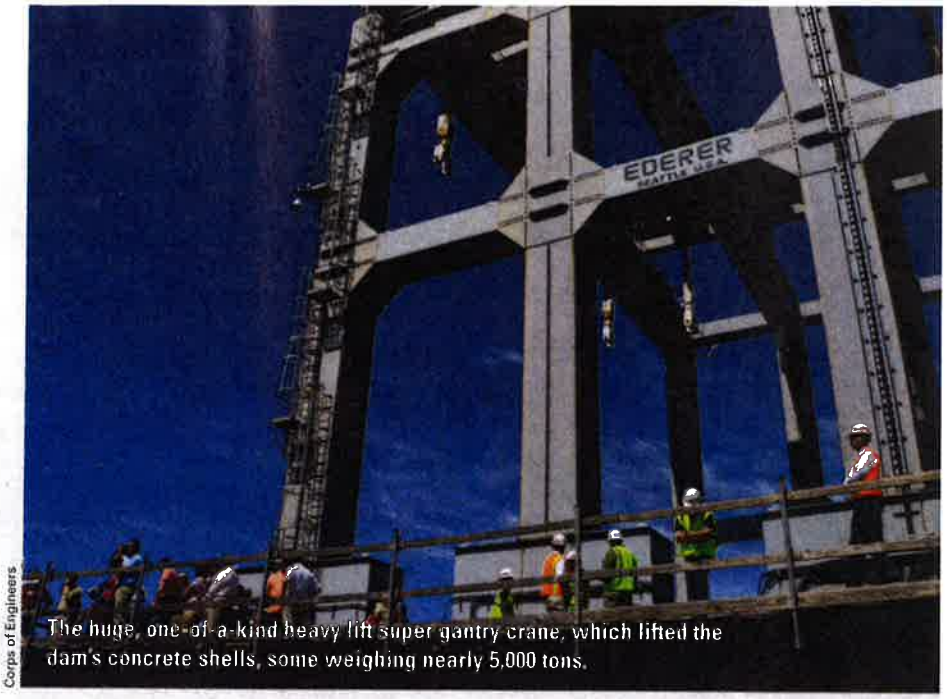
"The twin 1,200-foot lock chambers will pass traffic faster and will be only one stop," said Capt. Jeremiah Nichols, Olmsted project executive officer for the Corps. "Our filling and flushing systems on that chamber are bigger so

it's faster to lock a boat through."

Tows must now breakup their barge formations in two at the smaller, single lock chambers at Locks 52 and 53, lock through twice, and then re-fleet their barges before heading either north up the Ohio, or south toward the Mississippi River.

BIG, COMPLEX AND COSTLY

A visit to the site illustrates just how massive and complicated this project is, with oversized construction equipment that has been specially designed for the unique needs of building a dam on a fast-moving river continually busy with barge traffic. One of the most impressive structures is the huge, one-of-a-kind heavy lift super gantry crane, which lifted the dam's concrete shells, some weighing nearly 5,000 tons, and moved them to a cradle at the river's edge. There, a catamaran barge lifted the shell off the cradle and transported it into the river where it was lowered onto a pre-set foundation. The Corps likens this process to playing with Legos, but you'd have to be a giant to get it all right.



Corps of Engineers

The huge, one-of-a-kind heavy lift super gantry crane, which lifted the dam's concrete shells, some weighing nearly 5,000 tons.

Olmsted was authorized in 1988 with what seemed like a straightforward objective: replace the unreliable and crumbling locks and dams 52 and 53 with a state-of-the art structure that can accommodate today's big barge tows.

The cost then was estimated at $775 million, with completion in less than 10 years. But problems surfaced soon after involving both funding and design.

Over the years, Congress failed to

provide adequate annual funding support to help the project meet construction targets, and as a result construction slowed and almost stopped. Progress was eventually made on the two lock chambers, which were completed in 2002, but the dam languished amid competing construction methodologies, funding shortfalls and concerns that construction might cause long and costly delays to river traffic.

Normally, the Corps would use a cofferdam technique, in which a temporary, watertight structure would drain the riverbed to create a dry workspace for construction. But this method, called "in the dry," would disrupt river traffic. So, in 1997, the Corps opted for a new, experimental technology called "in the wet." This involved making large concrete sections of the dam onshore, carrying them to the river and setting them in place on concrete foundations. The Corps believed this would be quicker and less disruptive to navigation. But the Corps greatly underestimated the engineering challenges that slowed construction and escalated projected costs. This led critics to label Olmsted a "boondoggle" and a waste of taxpayer money. They criticized the Corps' ability to efficiently deliver big public works projects.

With a revised, much longer construction schedule and millions already invested, Congress couldn't let the project fail and made some key legislative changes. In 2013, Congress reauthorized Olmsted for $2.9 billion, and a year later changed the funding formula so that taxpayers would pay 75% of Olmsted's costs rather than the 50-50 federal-industry match under the Inland Waterways Trust Fund. That same year, Congress changed the formula again to 85-15, and barge operators agreed to a nine-cents per gallon hike in the diesel fuel tax they pay into the Trust Fund, the first increase since 1995.

This infusion of funds means Olmsted will be finished four years sooner than anticipated under the new construction schedule, and at $325 million less than the estimated cost in 2012. Overall, taxpayers have kicked in $1.9 billion, while the barge industry is covering $1.1 billion, according to figures provided by the Corps. In June, the Corps said the project had an estimated completion cost of $2.77 billion, would pay for itself in a few years, and offers approximately $640 million in annual benefits to the U.S.

LESSONS LEARNED

The Corps says that there are many lessons learned using the "in the wet" technique to build the structures, and engineers are looking at whether this method could be used in other lock-and-dam projects now in the pipeline. "We can't keep building these the same as 100 years ago," said Lt. Gen. Todd T. Seminole, chief of engineers and commanding general of the Corps. He added that the Corps must continue to find innovative engineering techniques

that speed projects and save money.

During the course of the project, the barge industry developed a love-hate relationship with Olmsted. While realizing the importance of installing a modern infrastructure at that location on the Ohio, barge operators are frustrated and angry that the project has taken so long and that its massive cost overruns have siphoned precious dollars away from other important navigation improvement projects. With the average age of the nation's locks and dams at 60 years, and with nearly 60% of them over 50 years old, there is a long list of needed repairs, maintenance and rehabilitation throughout the 12,000-mile system.

Navigation projects used to take about seven years to complete, and Olmsted should have been finished in 1999, said Michael Toohey, president and CEO of the Waterways Council. With money being directed for the completion of the over-budget and behind-schedule Olmsted project, modernization of the rest of the inland system has suffered.

This is why barge operators and others worked with Congress to change the cost-sharing formula to get Olmsted completed and free up funding to replace other locks and dams, Toohey said.

Moving forward, the challenge will be to provide maintenance funds for Olmsted, and predictable and steady funding levels to complete other priority projects. To this end, Toohey said WCI will push for long-term changes in the cost-sharing formula, healthy Corps budgets, and for a portion of federal revenues from hydropower generation to be directed to the Trust Fund.

Olmsted will be operational in October, officials said, when navigation is transitioned from Locks and Dams 52 and 53 to the new structure. But the project won't be considered complete until the old locks and dams are removed by the end of 2022.

"The sooner we can get Olmsted operational, the better the reliability is for moving the economic engine of this country, which is the inland waterway system," said Hettel of ACBL. WB