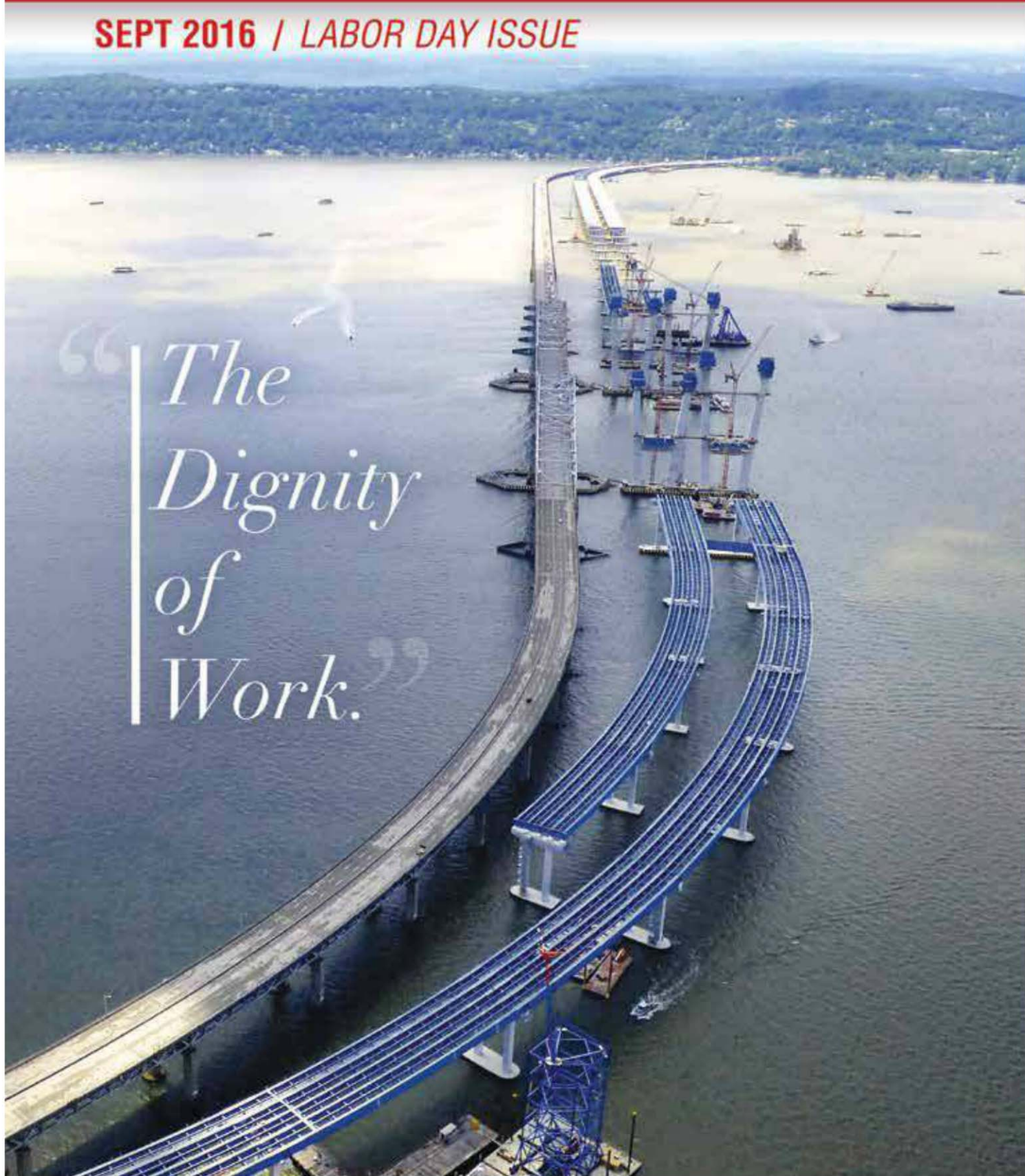


BOATING

On The
Hudson
& Beyond

SEPT 2016 / LABOR DAY ISSUE

*“The
Dignity
of
Work.”*



Hudson River's Troy Lock & Dam: 100 years and going...

by JoAnne Castagna, Ed.D.

You're taking a boat ride on the entire length of the Hudson River. Your journey begins upstream in the Adirondack Mountains of Upstate New York, continues south through the Hudson Valley and will end at the Atlantic Ocean, between New York City's Battery Park and Jersey City.

As you travel downstream on the Hudson, you will reach and will have to pass through the Troy Lock and Dam in Troy, New York. The Lock holds the distinction of being one of the oldest in the country, celebrating its 100-year anniversary this year. The Lock continues to provide significant economic and recreational support to the region and serves as a gateway to the New York State Canal System.

100 years ago ...

The Hudson River and other navigation channels in the United States are kept at certain depths so that water vessels can safely transport their goods along the river. To maintain this specific depth, it was mandated in the early 20th century that a system of locks and dams be constructed on rivers.

"In 1915 the U.S. Army Corps of Engineers constructed the Troy Lock and Dam. It was constructed to improve navigation between the Hudson River and the New York State Canal System that includes the Erie and Champlain Canals," said William Petronis, chief, Albany Field Office, New York District., U.S. Army Corps of Engineers. Mr. Petronis has worked for the Army Corps for 38 years and has supervised the maintenance of the Troy Lock and Dam for more than 30 years.

In order to construct the lock and dam, a labor force was hired and supervised by the Army Corps. Many of these laborers were men returning from constructing the historic Panama Canal.

The Army Corps has operated the lock and dam since its construction. This involves making both major and minor repairs to the lock and dam structures, electrical, mechanical and hydraulic systems, as well as performing routine maintenance and maintaining the building and grounds.

An interesting piece of history is that following the



Aerial of the Troy Lock and Dam in Troy, New York. photo: USACE.



A vessel traveling through the Troy Lock and Dam. photo: Michael Embrich, Public Affairs, New York District, USACE

construction of the Troy Lock and Dam, a hydropower facility built by Henry Ford was required to provide power free of cost to operate the Troy Lock.

After the lock and dam was constructed and the federal government decided to not pursue development of federal hydropower at the site, Henry Ford and his friends Thomas Edison and Harvey Firestone were camping near the dam. Ford saw the potential for hydropower and in 1918 he petitioned Congress for permission to construct a non-Federal hydropower facility.

In 1921, Ford and his sons were the first citizens in the United States to secure a license for development of private power at a federal facility. As a condition, Ford was required to supply power free of charge for operation and maintenance of the Troy Lock and Dam.

This was the first time that the federal government allowed for private development of hydropower at a civil works project and it took an Act of Congress to get it done. Today, many of the Army Corps' civil works projects across the country have private hydropower development and it all started with the Troy Lock and Dam project.

How lock and dams work

Navigation dams are built on rivers to hold back water and form deeper navigation pools. Dams make it necessary for river vessels to use a series of locks to “step” up or down the river from one water level to another and safely bypass the dam. The Troy Lock and Dam is in operation from May 1 to November 30 every year.

As your boat approaches the Troy Lock and Dam you will be greeted by a massive structure that is the size of more than one and a half football fields and includes a lock chamber, a long main spillway, auxiliary spillway, a support pier, ice pass spillway and a headgate bulkhead.

“When carrying out a lockage many people think we pump the water but we don’t,” said Petronis “The lock is filled or emptied by gravity. When filling the lock, the water level will rise to the elevation of the upstream pool. When emptying, the water level will drain to the elevation of the downstream river’s tide at the time. On average the difference between the upstream and downstream water levels is about 17 feet.”

“Each lockage passes between 2.5 - 3.0 million gallons of water. It takes less than 10 minutes to raise or lower the lock; however a typical lockage takes approximately 20 - 30 minutes including vessel entry, securing and exit.”

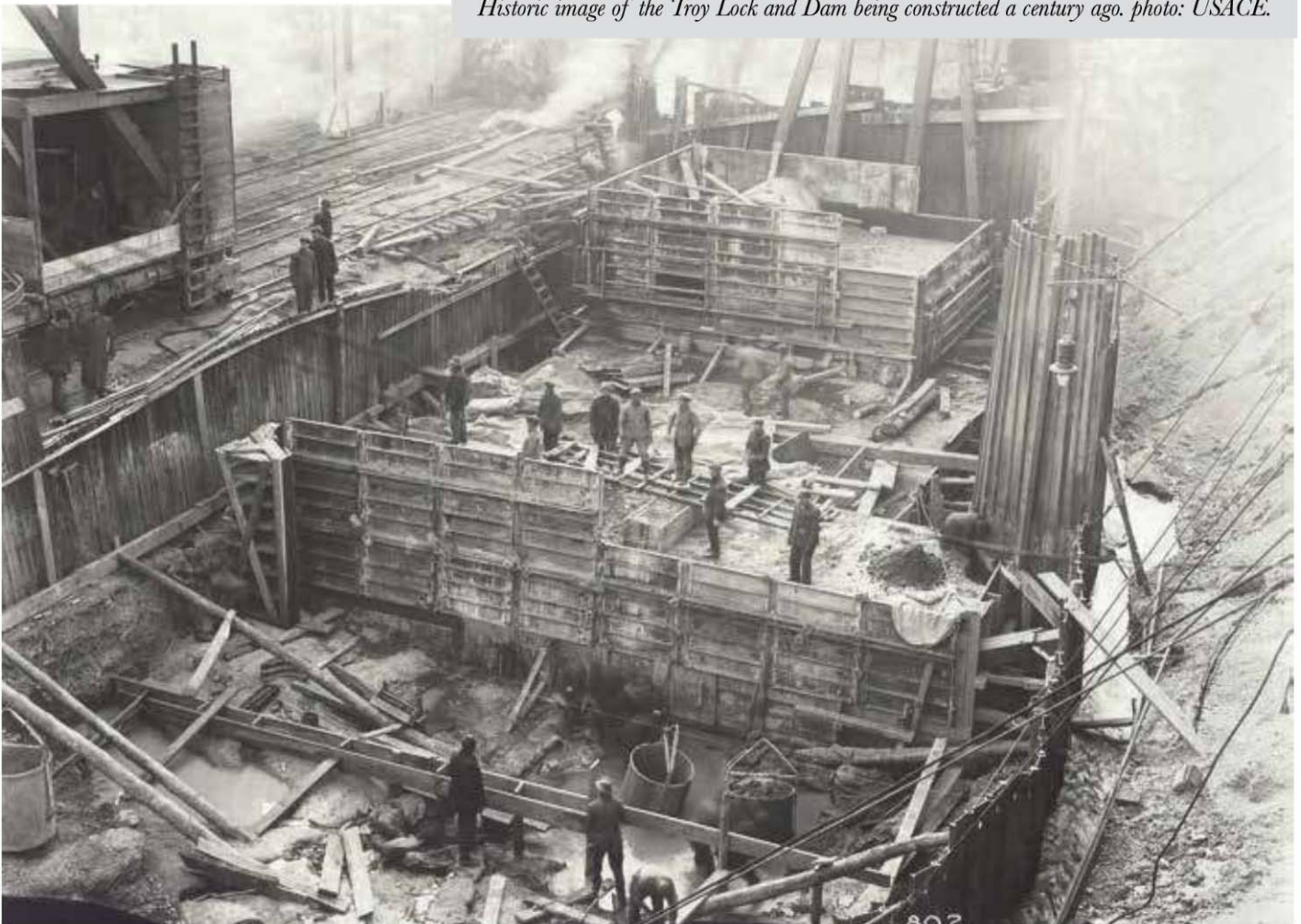
Lock and dams & economic flow

Your boat ride on the Hudson River is contributing to the local economy.

According to Petronis, the Troy Lock and Dam serves as the eastern gateway to New York State’s extensive canal system and is integral to the viability of a system that consists of 524 miles of waterways and 56 locks. This ensures safe navigation of \$6B worth of commerce annually. Although there is no fee to specifically use the Troy Lock and Dam, vessels do have to pay to use the New York State Canal System to help defray some of the operation and maintenance costs.

“The lock and dam allows for transport of construction equipment, bulk commodities, oversized loads - such as large turbines, generators and steel - that cannot be transported over the highway,” said Petronis.

Historic image of the Troy Lock and Dam being constructed a century ago. photo: USACE.



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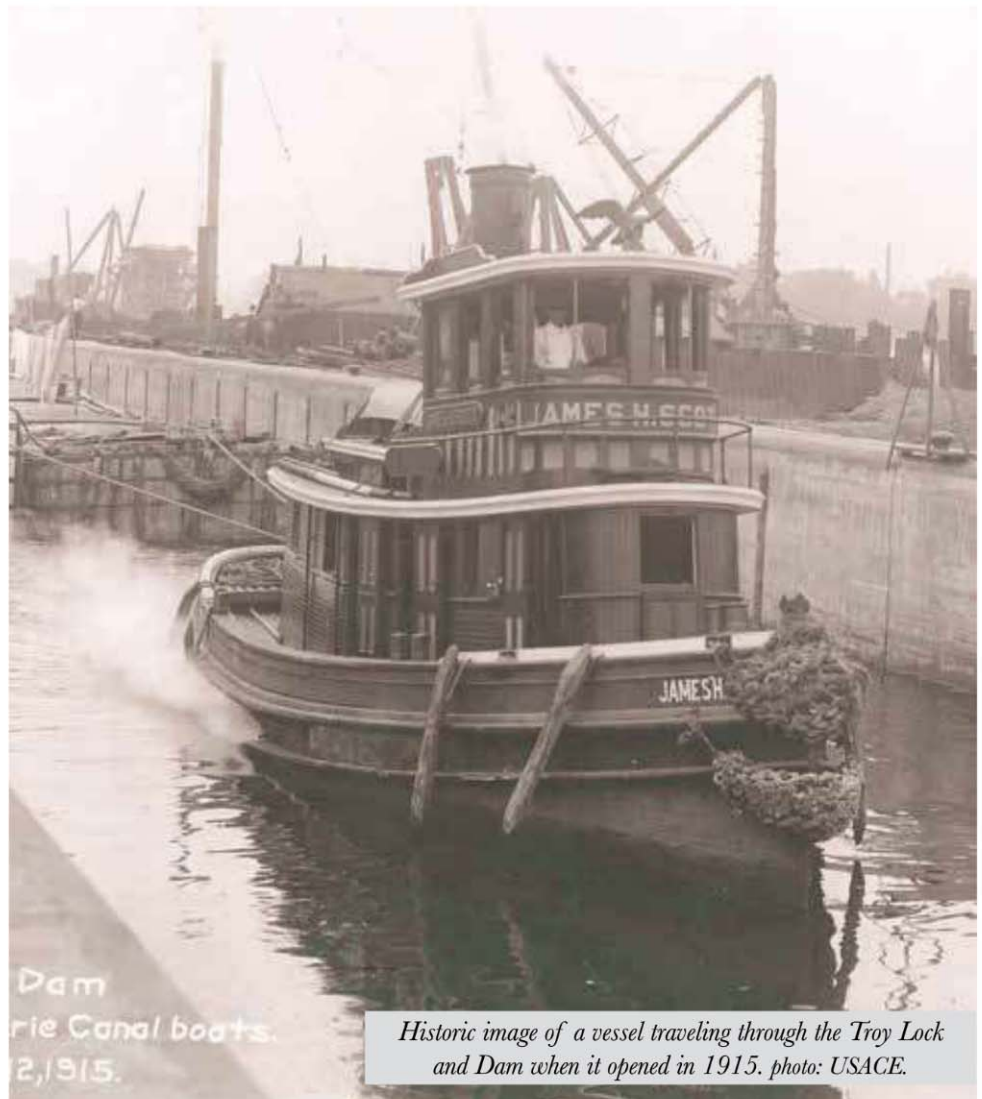


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*MHMLS statistics 2015.



Historic image of a vessel traveling through the Troy Lock and Dam when it opened in 1915. photo: USACE.

Shipping on the canal system is also economically beneficial for the shipper. According to the New York State Canal Corporation, the canal system is a considerably cheaper mode of transportation for shippers. For example, one gallon of fuel will move a ton of cargo 155 miles by truck, 413 miles by rail, and 576 miles by barge.

In addition to commercial shipping endeavors the lock also supports a great deal of tour boats, yachts, and local and long distance recreational vessels. The economic impact from activities associated with the New York State Canal System is estimated to be approximately \$380 million per year.

According to Canal officials, the historic waterway offers a high quality of life to communities and visitors alike that line its shoreline. People motorboat on it; fish on it; paddle with canoes, kayaks, and stand up paddleboards; bike on its parallel path; dine at its waterfront establishments; take dinner cruises; and just generally relax

next to it - all while helping to support local businesses.

Spending the bulk of his career working at the Troy Lock and Dam facility has given Petronis a unique appreciation not only for the job but also for the people who keep the facility running 24 hours a day, 7 days a week.

"After 31 years at the Army Corps' Albany Field Office, there are many things I find rewarding about working on the Troy Lock and Dam," he said. "This includes the team members I have been fortunate to work with over the years, the various improvements we have made to the Troy Lock structure and equipment, the successful relationships we have developed with our partners and the public, and the development of successful maintenance dredging program on the Hudson River."

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