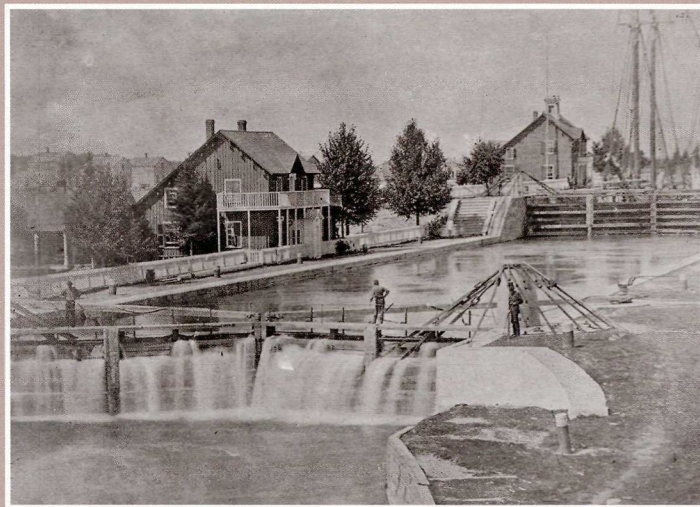


# The Soo Locks

Watch large freighters, almost close enough to touch, move through the Soo Locks, one of the busiest lock systems in the world. Located in Sault Ste. Marie, Michigan, on the Ste. Marys River, the United States locks are across the river from the smaller Canadian lock in Sault Ste. Marie, Ontario.

The U.S. Soo Locks consist of two canals and four locks: MacArthur Lock, Poe Lock, Davis Lock (closed) and Sabin Lock (closed), allowing vessels to navigate the 21-foot drop in elevation of the St. Marys River between Lake Superior and Lakes Michigan and Huron.

## History of the Locks



*The Old State Lock, 1855*

The St. Marys River has always been a critical waterway. For thousands of years, Native American people encamped on its banks each year to harvest whitefish and relied on the river, as a vital connection to the larger Great Lakes trade network. As Europeans settled in the region and engaged in the fur trade, voyageurs adopted larger canoes, each carrying up to five tons. At the rapids in the St. Marys men had to unload and carry (portage) everything around the rapids.

### When were the locks built?

In 1798, the British North West Company built a lock on the Canadian side of the river to eliminate the need to portage large trade canoes. In 1814, during the War of 1812, a party of American soldiers destroyed this lock. After this, the practice of portaging cargos around the rapids resumed and expanded with docks and warehouses at each end of the rapids in Sault Ste. Marie, Michigan and a strap railway on Water Street for moving freight. It took days to unload and reload a ship.

A mining boom of copper and iron ore along the western end of Lake Superior in the 1840s fueled the drive to build a new navigation lock in Sault Ste. Marie. In 1853, the State of Michigan, with funding from a federal land grant, began building a set of tandem locks. Built one behind the other each was 350-foot-long with a lift of about 10 feet. Known as "The State Locks" these locks began operating in 1855 and vessels could pass through in a matter of hours rather than days.

### When did the Corps of Engineers take over?

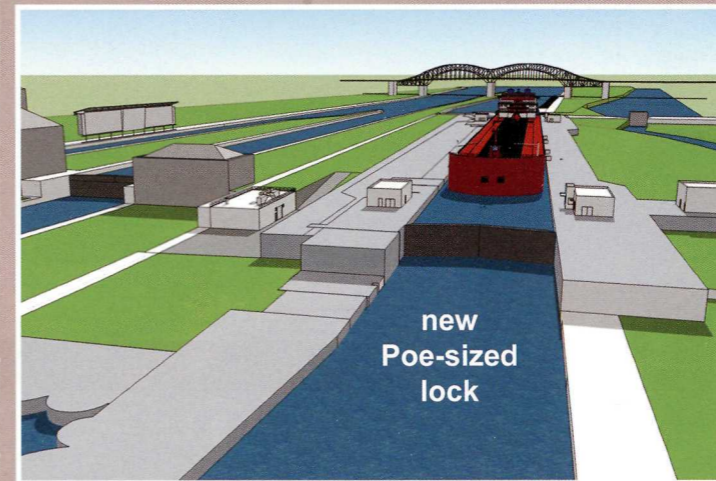
Before long, the volume of traffic outgrew the capacity of the State Lock and vessel sizes began pushing the limits of its size. To meet the needs of navigation, the Federal government began constructing a new, larger lock south of the State Lock in 1873. When this 800-foot-long lock opened in 1881, the State of Michigan turned the entire facility over to the Federal Government. The U.S. Army Corps of Engineers has operated the facility ever since.

## Technology of the Locks

Navigation locks work in essentially the same way today as they did in 1798. Gravity causes water to flow towards Lake Huron and valves control that flow to fill or empty the lock chamber. The only significant changes have been in the machinery and safety controls that have evolved with each new lock. For instance, on the first locks, men manually turned capstans to open the gates while today automated controls allow lock and dam operators to operate lock machinery safely from a central control panel.

## Future of the Locks

Work is currently underway to replace the Sabin Lock with a new Poe-sized lock. The new lock will be the first one built at Sault Ste. Marie since 1968 and will incorporate recent improvements in lock technology and safety features. Having two Poe-sized locks at Sault Ste. Marie will ensure uninterrupted shipments of vital cargos between ports on the Great Lakes and beyond.



*Artist visualization of the New Lock at the Soo*

### Contact Information:

Vessels wishing to use the locks can reach the Chief Lockmaster on VHS-FM channel 14 call sign WUE-21

[LREpao@usace.army.mil](mailto:LREpao@usace.army.mil)

1-888-694-8313 Detroit District  
1-800-990-0231 Soo Area Office  
906-202-1333 Vessel Arrival Hotline



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# Soo Locks

Sault Ste. Marie, Michigan





## Visitor Center

The U.S. Army Corps of Engineers welcomes visitors from all over the world to this National Historic Landmark. The Visitor Center is open from Mother's Day to mid-October. The Center features exhibits about the Soo Locks, Great Lakes Shipping and the Corps of Engineers. Several interactive exhibits provide hands-on learning for children and seating areas provide comfortable places to wait for boats while enjoying the view of the locks and live-streamed views from the control tower. Knowledgeable hosts at the front desk are prepared to answer questions and post current schedules of vessel traffic.

The world-famous Soo Locks, one of the finest tourist attractions in the United States, can be seen up close from the accessible observation platform located just outside the Soo Locks Visitor Center. Constructed in 2011, it offers sheltered viewing in inclement weather. Exhibits in the platform explain how the locks operate.

The grounds surrounding the locks contain additional exhibits, strolling paths and a spectacular fountain located in the park adjacent to the lock complex. The park, open year-round, hosts free concerts during the summer months and is a popular spot for weddings.

Once a year, the public has access to the locks during Engineers Day, always the last Friday in June. On this day, visitors can venture between the MacArthur and Poe Locks and enjoy a rare, up-close view of the locks and passing vessels.

To access webcams showing views of the locks visit: <https://www.lre.usace.army.mil/>

# Lock Facts

■ The U.S. Army Corps of Engineers, Detroit District is responsible for the entire complex at the Soo Locks. Teams of engineers, maintenance workers, lock and dam operators and other specialists at the facility work together to operate and maintain the locks, hydropower plants and navigation channels under the supervision of the Operations Manager.

■ The Soo Locks complete more than 7,000 vessel passages every year moving up to 75 million tons of cargo. Vessels locking through vary in size from small private boats and workboats to 1,000-foot long ships carrying up to 77,000 tons of freight in a single load. The primary cargos carried through the Soo Locks are iron ore, coal, grain and stone.

■ In addition to 75 miles of channels in the St. Marys River, crews at the Soo Area Office are responsible for 10 federal harbors and hundreds of miles of coastline on Lakes Superior, Huron and Michigan.

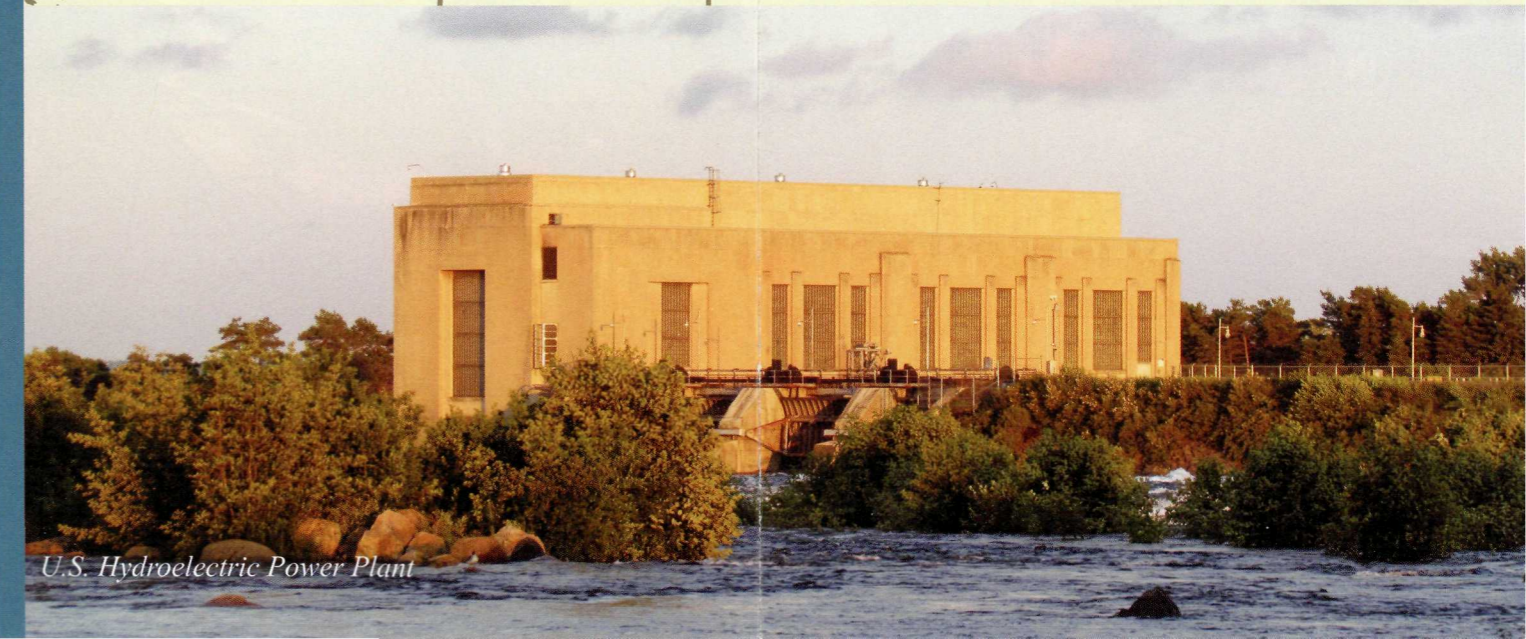
■ The Poe Lock, the largest of the four locks, opened in 1969 to accommodate 1,000-foot-long vessels. Built between two functioning locks, its construction presented special challenges.

■ The hydropower plant, just north of the locks, generates more than 150 million kilowatt hours of electrical power each year. Operating the Soo Locks uses about 5% of this power and the remainder is distributed through the local utility company to homes and businesses in the Eastern Upper Peninsula.

■ The locks routinely undergo inspections and planned maintenance during the winter months when the navigation season pauses from January 16 until March 25.



*Poe Lock emptied for maintenance*



*U.S. Hydroelectric Power Plant*

# The Locks

## ■ POE LOCK (7)

Named for Colonel Orlando M. Poe, Engineer Officer during the Civil War, and twice assigned as Detroit District Engineer (1870-1873 and 1883-1895).  
Opened 1969

Length 1,200 Feet | Width 110 Feet | Depth 32 Feet

## ■ MACARTHUR LOCK (9)

Named for General Douglas MacArthur, who served in both World War I and II. MacArthur served as the Allied Commander of the Southwest Pacific Theater in World War II. Early in his career he served as an Army Corps of Engineers officer.  
Opened 1943

Length 800 feet | Width 80 Feet | Depth 31 feet

## ■ DAVIS LOCK (Closed) (6)

Named for Colonel Charles E.L.B. Davis, Detroit District Engineer from 1904 to 1908. This lock is too narrow and shallow for modern vessels.  
Opened 1914 - Closed 2018

Length 1,350 Feet | Width 80 Feet | Depth 23 Feet

## ■ SABIN LOCK (Closed) (4)

Named for Louis C. Sabin, the only civilian to serve as a Detroit District Engineer (1918-1919). This lock is too narrow and shallow for modern vessels.  
Opened 1919 - Closed 1989

Length 1,350 Feet | Width 80 Feet | Depth 23 Feet

## ■ NEW LOCK AT THE SOO (Under construction) (4)

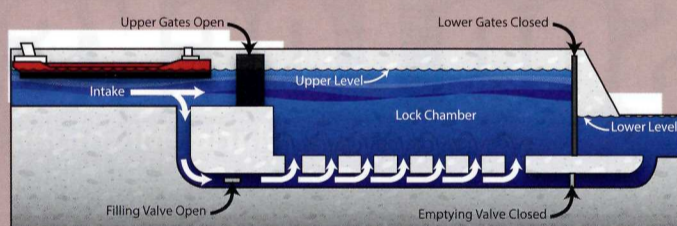
Work on a new, Poe-sized lock began in 2020. Congress will officially name the new lock when it is complete.  
Scheduled Completion 2030

Length 1,200 Feet | Width 110 Feet | Depth 32 Feet

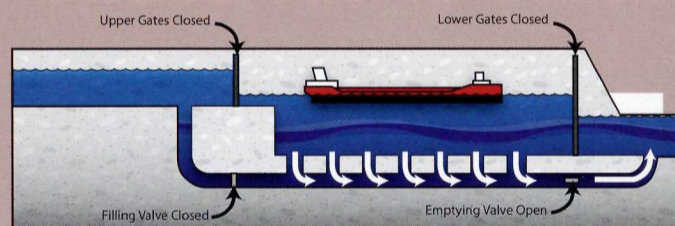


# How navigation locks operate

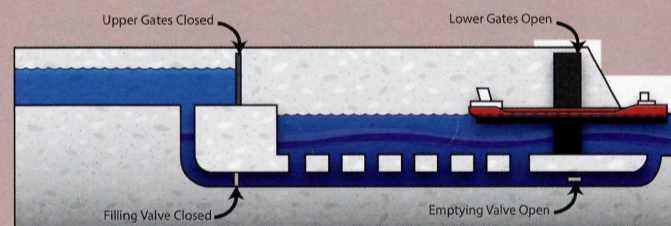
These diagrams show how a ship is lowered in a lock. A ship is raised by reversing the operation. No pumps are required; the water is merely allowed to seek its own level.



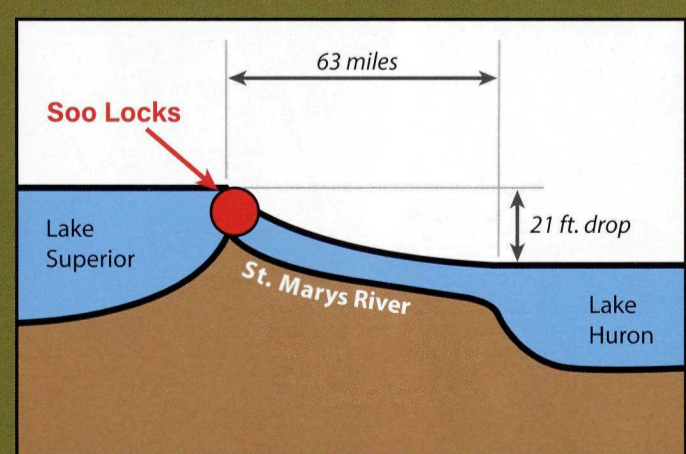
With both upper gates and lower gates closed, and with the emptying valve closed and the filling valve open, the lock chamber has been filled to the upper level. The upper gates are then opened, allowing the ship to enter the lock chamber.



Now the ship is in the lock chamber. The upper and lower gates and the filling valve are closed. The emptying valve has been opened to allow water to flow from the lock chamber to the lower level.



With the water level in the lock chamber down to the lower level, the lower gates have been opened, and the ship is leaving the lock chamber. After this, the lock is ready for an upbound ship to come in and be lifted, or may be filled to lower another downbound ship.



The 63-mile-long St. Marys River drops 21 feet from Lake Superior to Lakes Huron and Michigan. Most of this drop occurs at the St. Marys Rapids (also referred to as St. Marys Falls).

Moving bulk cargos through the Soo Locks and across the Great Lakes saves more than \$3.9 billion per year in freight costs compared to moving the same tonnage by rail or truck.

**ONE** 1,000 foot ship can carry the equivalent of:

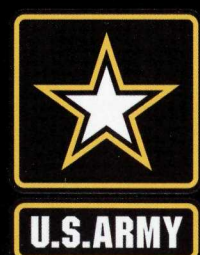
**SEVEN** 100 Car Trains with a 10,000 ton capacity

OR

**3,000** Large Trucks of 25 ton capacity each

# Buildings and Items of Interest

1. Rapids – Rocky portion of the original river, photographed during low water in 2010
2. Hydropower Plant – Completed in 1952, provides electricity to operate the Soo Locks and portions of the Eastern Upper Peninsula
3. Unit 10 hydropower plant – Constructed in 1932, provides supplemental power
4. Sabin Lock – Opened in 1919, closed in 1989, will be replaced by a new Poe-sized lock
5. Upper End Coffier Dam – Constructed in 2010 in preparation for removal of Sabin Lock
6. Davis Lock—Opened in 1914, closed in 2018
7. Poe Lock – Opened in 1969, currently the only lock large enough for ships over 730 feet long
8. Administration Building – Main office building for employees and location of the Chief Lockmaster's control tower
9. MacArthur Lock—Opened in 1943, accommodates vessels up to 730 feet long and 76 feet wide
10. Observation Platform – Built in 2011 to provide up close views of passing ship traffic
11. Boat Basin—Dock space for U.S. Army Corps of Engineers' vessels



**US Army Corps of Engineers®**  
Detroit District

