

How the Locks Work

Navigation The two navigation locks are the site of constant motion. Vessels of all sizes and types use the system around the clock, 7 days a week, to pass between saltwater and freshwater - 60,000 boats, mostly pleasure craft, but also government research vessels and sightseeing vessels, sand and gravel barges, fuel barges, fishing boats, container ships bound for Alaska, log rafts, and over two million tons of commercial cargo. Visitors line the railings, drawn to the motion and excitement as ships maneuver through the locks. The Lockmaster is stationed in the control tower on the middle lock wall and orchestrates the operation of both locks. From this vantage point, the Lockmaster operates the large lock controls, monitors and directs the vessel traffic, controls the lake level, and operates the saltwater intrusion system. Lockwall personnel stationed at the small lock operate that chamber from the nearby control house.

Locking Through the Locks

Vessels passing from the freshwater lakes to Puget Sound enter the chamber through the open upper gates. The lower gates and the draining valves are closed. The vessel is assisted by the lockwall attendants who assure it is tied down and ready for the chamber to be lowered. Next, the upper gates and the valves on the East end are closed and the draining valves on the West end are opened allowing water to drain

by gravity to Puget Sound. When the water pressure is equal on both sides of the gate, the lower gates are opened, allowing vessels to leave the lock chamber. This process is reversed for an upstream locking.

Miter Gates

Miter gates are placed at an angle to each other and pointed upstream to allow the pressure of the flowing water to seal the gates tight. Originally, a cable system opened and closed these miter gates. The system consisted of a winding engine with spiral drum, a series of pulleys for guiding the cable, and a 7/8-inch diameter steel rope. This system did not last long; the saltwater deteriorated the steel cable, and a certified hard-hat diver was needed to maintain some of the parts. The cable system was replaced in 1934 with a crank gate gear system which at the time was expected to last for 50 years.

Point of Contact: Dru
Butterfield

Phone: (206) 789-2622
x210

Email:
DRU.E.BUTTERFIELD@USACE.ARMY.MIL