Port of Portland
Dredge Oregon

Port of Portland Dredging History

- 1891 - Oregon Legislature established the Port of Portland to dredge a navigation channel from Portland to the Pacific Ocean

The Port of Portland's Fleet of Dredges 1898 to Present

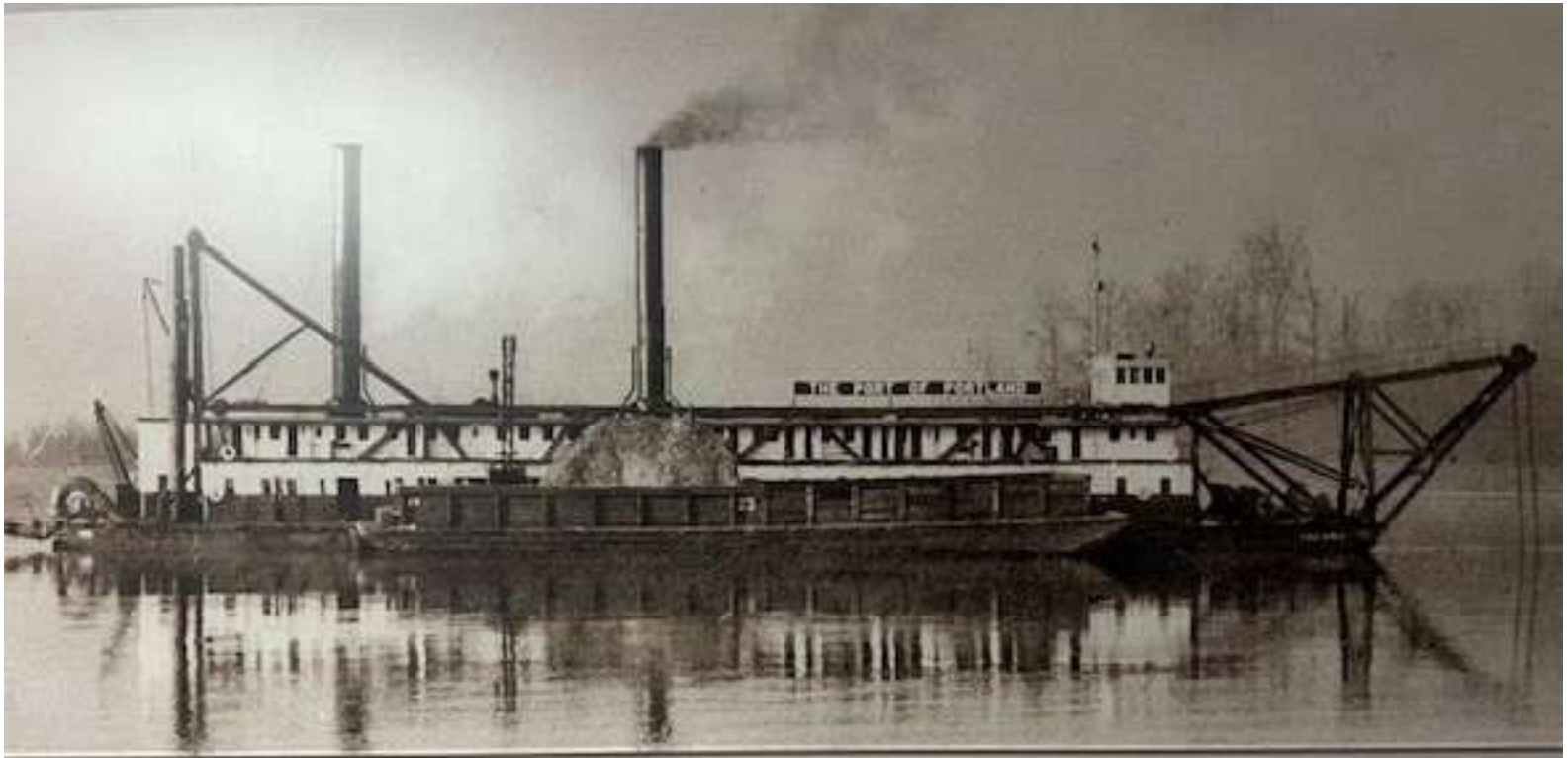
- 1898-1921 – Portland 600 HP 20”
- 1902-1918 – Columbia I 1600 HP 30”
- 1912-1930 – Willamette 1600 HP 30”
- 1916-1930 – Tualatin 2000 HP 30”
- 1921-1938 – Columbia II 2700 HP 30”
- 1925-1965 – Clackamas 2700 HP 30”
- 1965-Present – Oregon 5000 HP 30”

Dredge Portland (1898 – 1922)

Dredge *Portland* (1898-1922)

The Port of Portland initially borrowed the city dredge to maintain the shipping channel, but it proved unfit, as the annual freshets built shoals faster than the antiquated equipment could clear them. In 1898, the *Portland*, a twenty-inch pipeline dredge, was put into service. It was a wooden hulled vessel with a 600-horsepower pump that could move up to 8,000 cubic yards of sand a day. The dredge met its end in 1922 when it sank in the Willamette River.

Dredge Columbia 1 and 2 (1902 – 1941)



Dredge *Columbia I* and *Columbia II* (1902-1941)

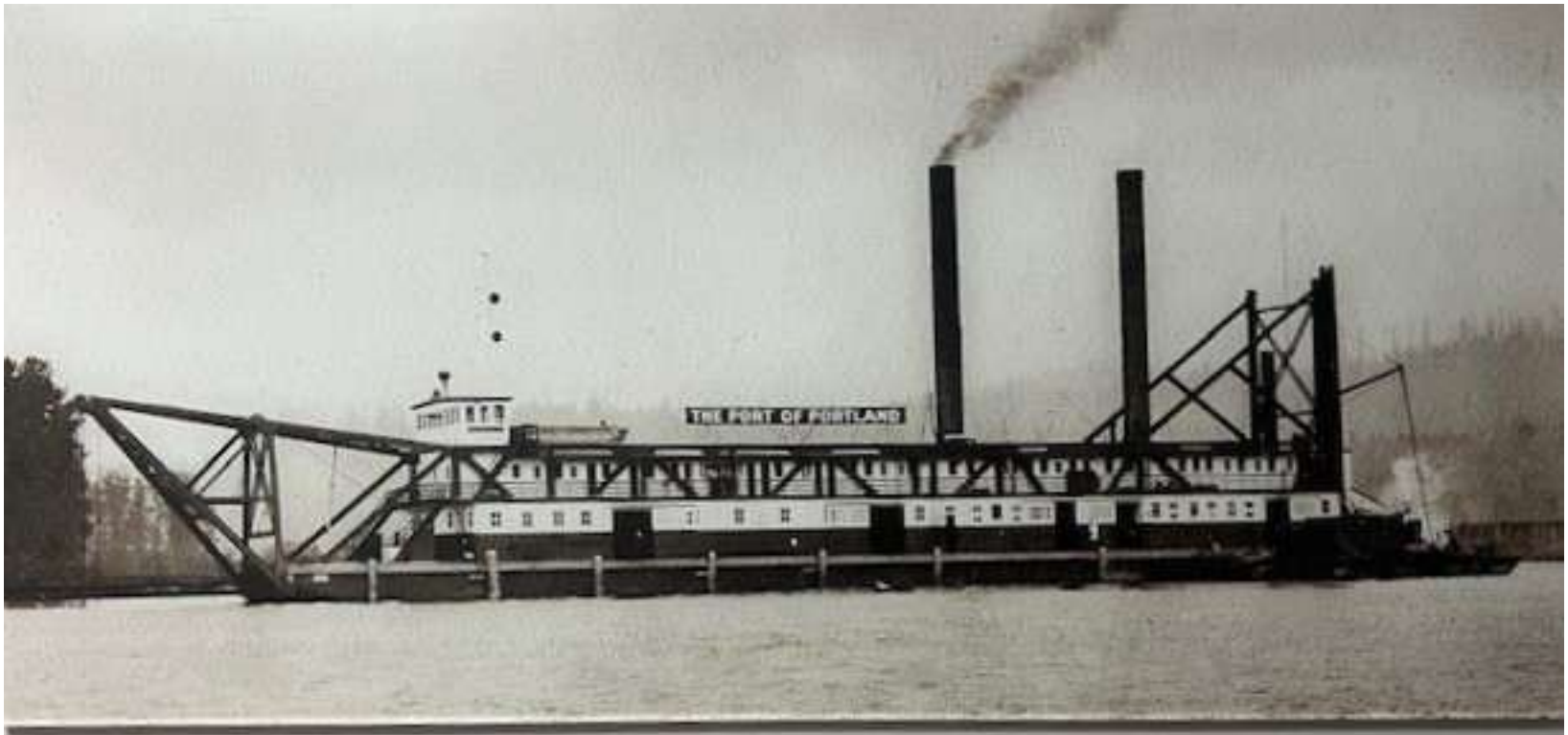
In order to keep up with channel maintenance, the Port needed additional dredging equipment. In 1902, the *Columbia* was launched. A thirty-inch pipeline dredge with a 1600-horsepower pump, it had the capacity to move 20,000 cubic yards per day. Rebuilt in 1921, with a steel hull replacing the original wooden one, it was renamed the *Columbia II*. In 1941, the dredge was sold and towed to Wake Island, where the Japanese navy destroyed it on December 7, 1941.

Dredge Willamette (1912 – 1930)

Dredge *Willamette* (1912-1930)

With the deepening of the channel depth in the Columbia River from twenty-five to thirty feet, the Port sought an additional dredge to assist with the workload, and so, the *Willamette* was constructed in 1912. It was a thirty-inch pipeline dredge, with a steel hull and a 1,600-horsepower pump. It was sold in 1930 and was destroyed while working in the Pacific Ocean during World War II.

Dredge Tualatin (1916 – 1946)



Dredge *Tualatin* (1916-1946)

In 1916, the Port acquired the *Tualatin*, a thirty-inch pipeline dredge, with a 2,000-horsepower pump. It was sold to a private dredging company in 1930. Towed to the South Pacific to assist in building harbors during World War II, it sank in a typhoon in 1946.

Dredge Clackamas (1925 – 1965)

Dredge *Clackamas* (1925-1965)

Launched in 1925, the *Clackamas* was a thirty-inch pipeline dredge with a 2,700-horsepower pump. It was the first Port dredge with a diesel-electric engine, replacing steam as the principal means of powering the pump. It was decommissioned in 1965, with the arrival of the *Oregon*.

PORT OF PORTLAND
OREGON

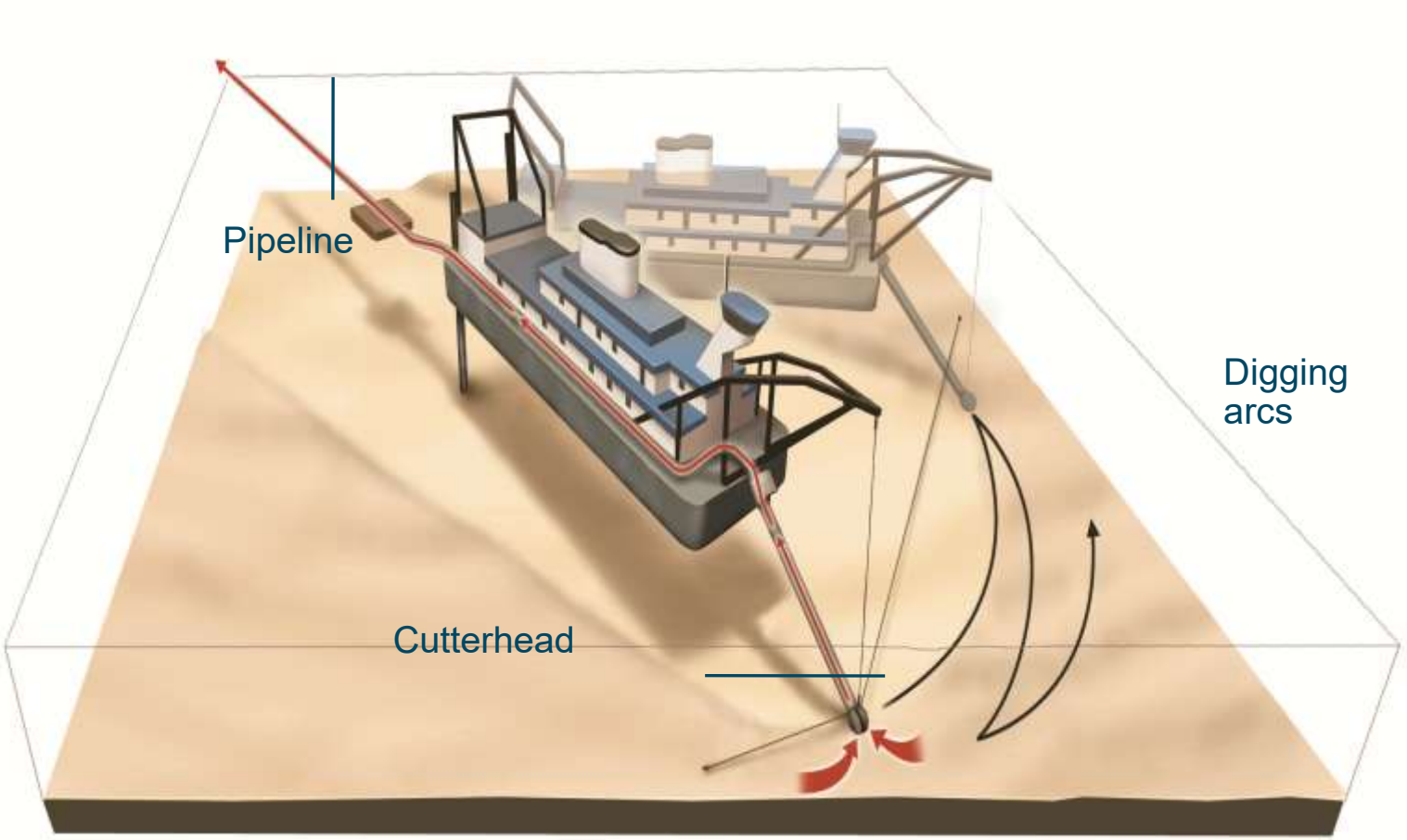
Dredge Oregon History

- Hull constructed in 1944
  - Mississippi River tow boat
- Purchased by the Port in 1965
  - Converted to 30” Cutter Suction Dredge
- Repowered in 2014
- Dredging in the Columbia River for 60 years
- Studying replacement options

Types of Dredging

- **Cutter Suction Dredge** (Dredge Oregon)
  - Move large amounts of material
  - Numerous placement options
  - Not very maneuverable
- **Hopper Dredge**
  - Highly maneuverable
  - Limited placement options
- **Clamshell / Bucket**
  - Specific target areas around docks and marinas

Cutter Suction - How Does it Work ?



PORT OF PORTLAND
Possibility. In every direction.™

Dredged Material Placement

Dredge material is currently placed in one of three ways:

Beach Nourishment

Upland Placement

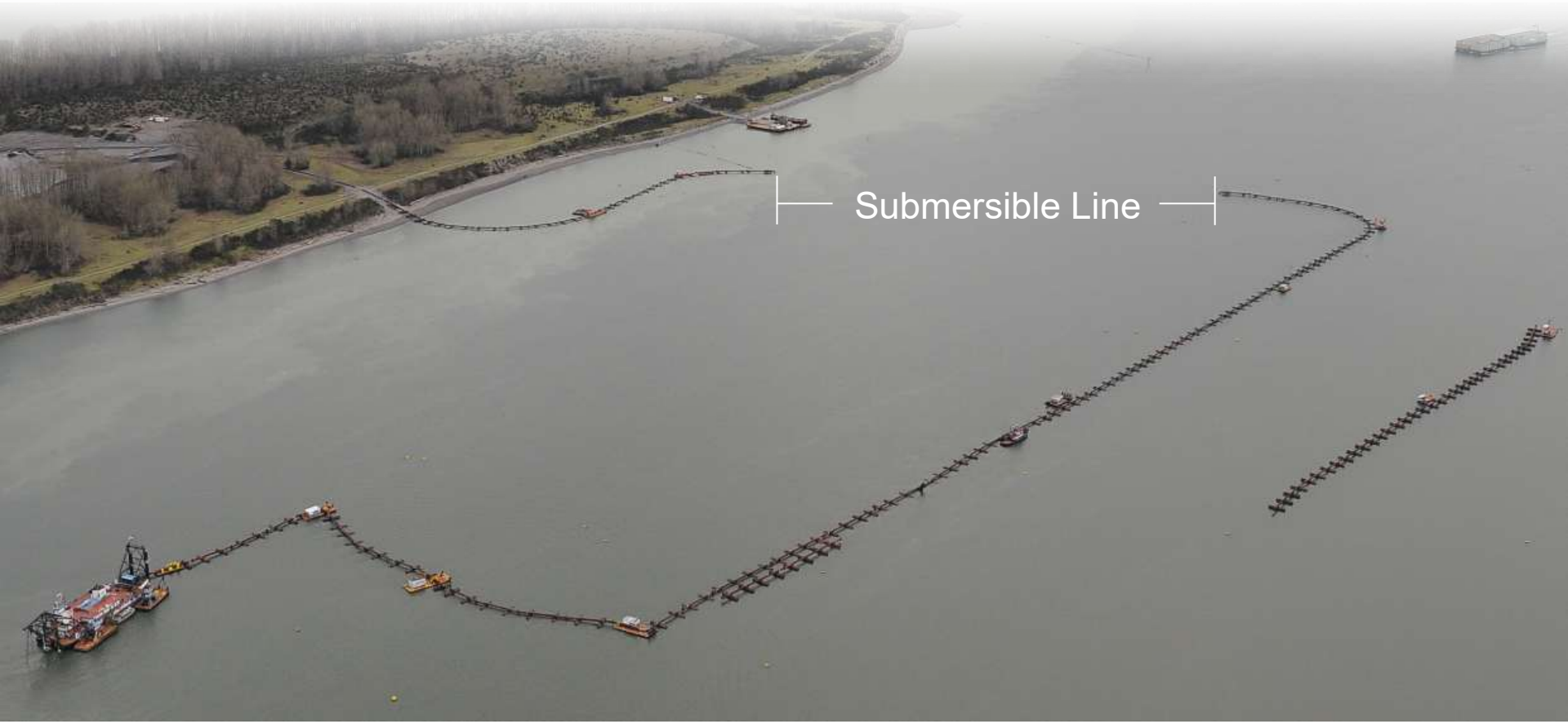
In-Water Placement

Operational Overview

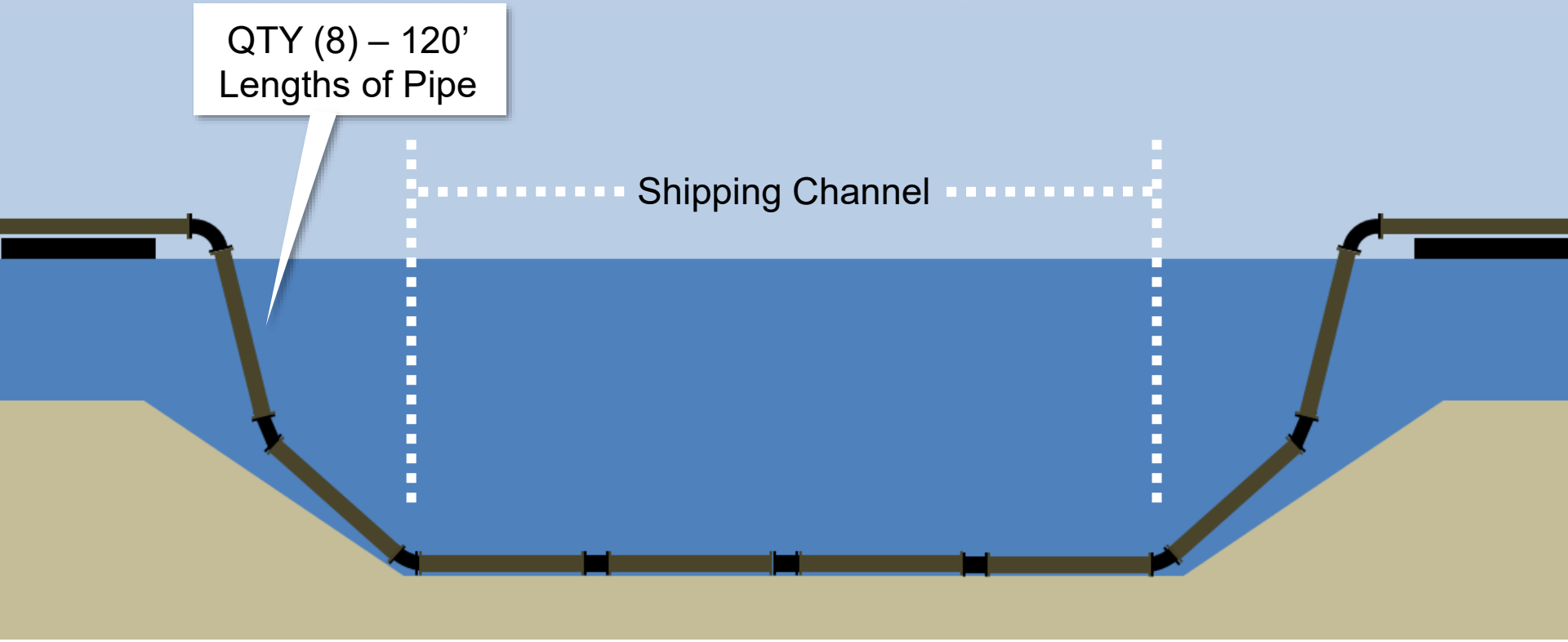
- Dredge Oregon Operates 24 hrs/day 5-6 days per week during the dredge season.
- Typical Season
  - DREDGING - JUNE thru DECEMBER
  - LAYOFFS / STANDBY – JANUARY
  - MAJOR MAINTENANCE / TRAINING – FEB thru MAY
- $28 M budget – FY 2024

Typical Dredge Setup

Floating Discharge Pipe



Submersible Discharge Pipe

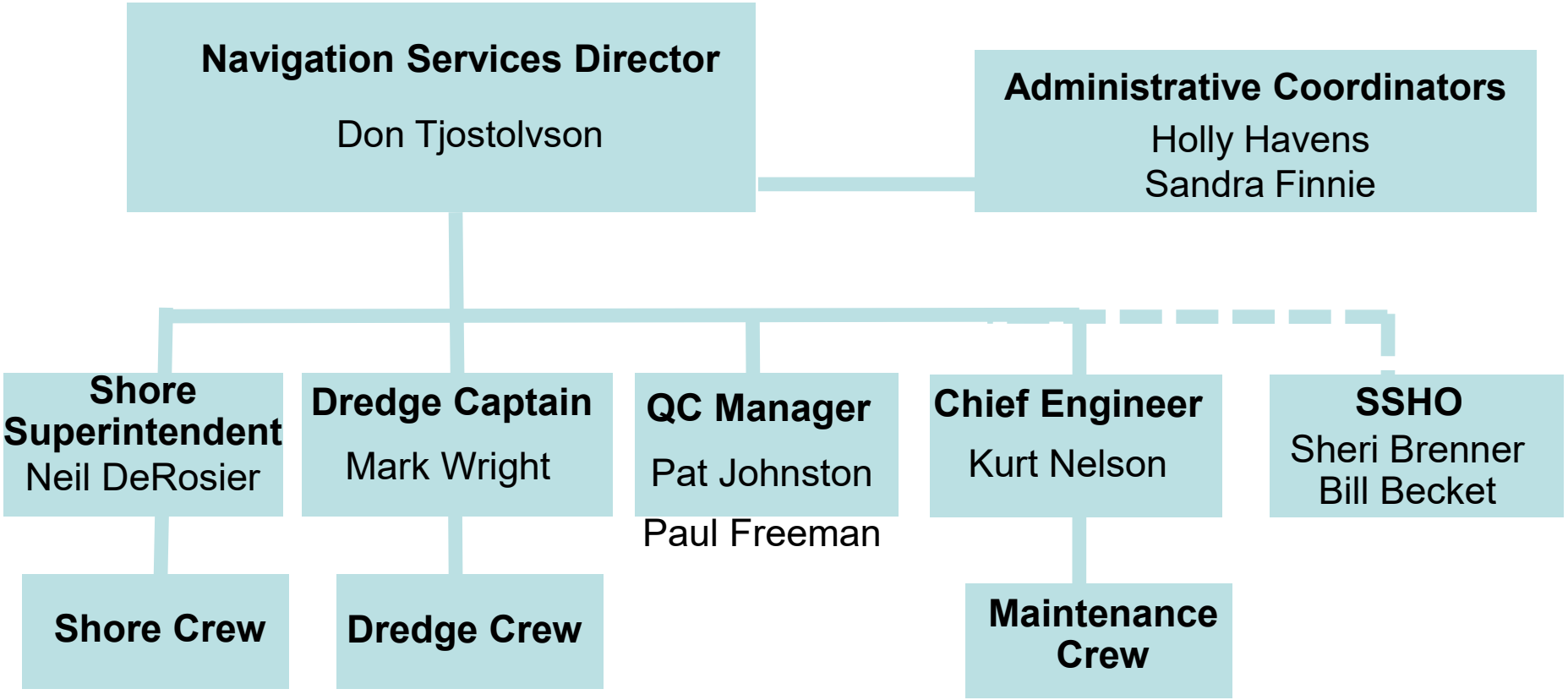


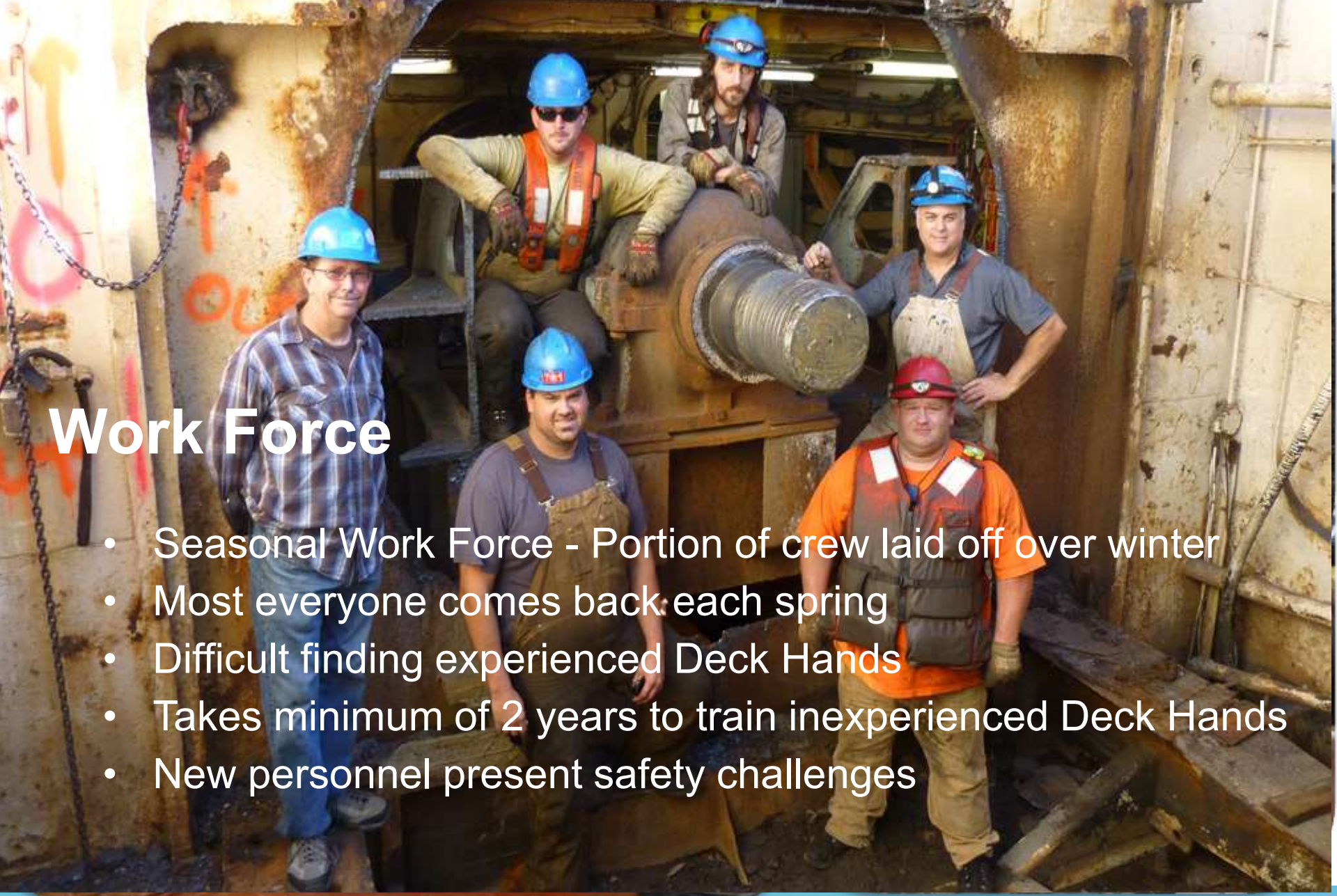
U.S. Army Corps of Engineers Contract

- Port owns and operates the Dredge OREGON
- Currently in Year 9 of a 10 Year Contract 2017–2027
- Very Unique Contract Between Port and USACE
- Cost Reimbursement – No Profit

Navigation Division – Organization

9 Administrative Staff, 45 Represented Staff





Work Force

- Seasonal Work Force - Portion of crew laid off over winter
- Most everyone comes back each spring
- Difficult finding experienced Deck Hands
- Takes minimum of 2 years to train inexperienced Deck Hands
- New personnel present safety challenges

Annual Schedule

Dredging June through December

1 -2 Month **Layoff Period** (varies by year)

Major Maintenance February through May

Major Maintenance

PIPE MAINTENANCE

Kubota

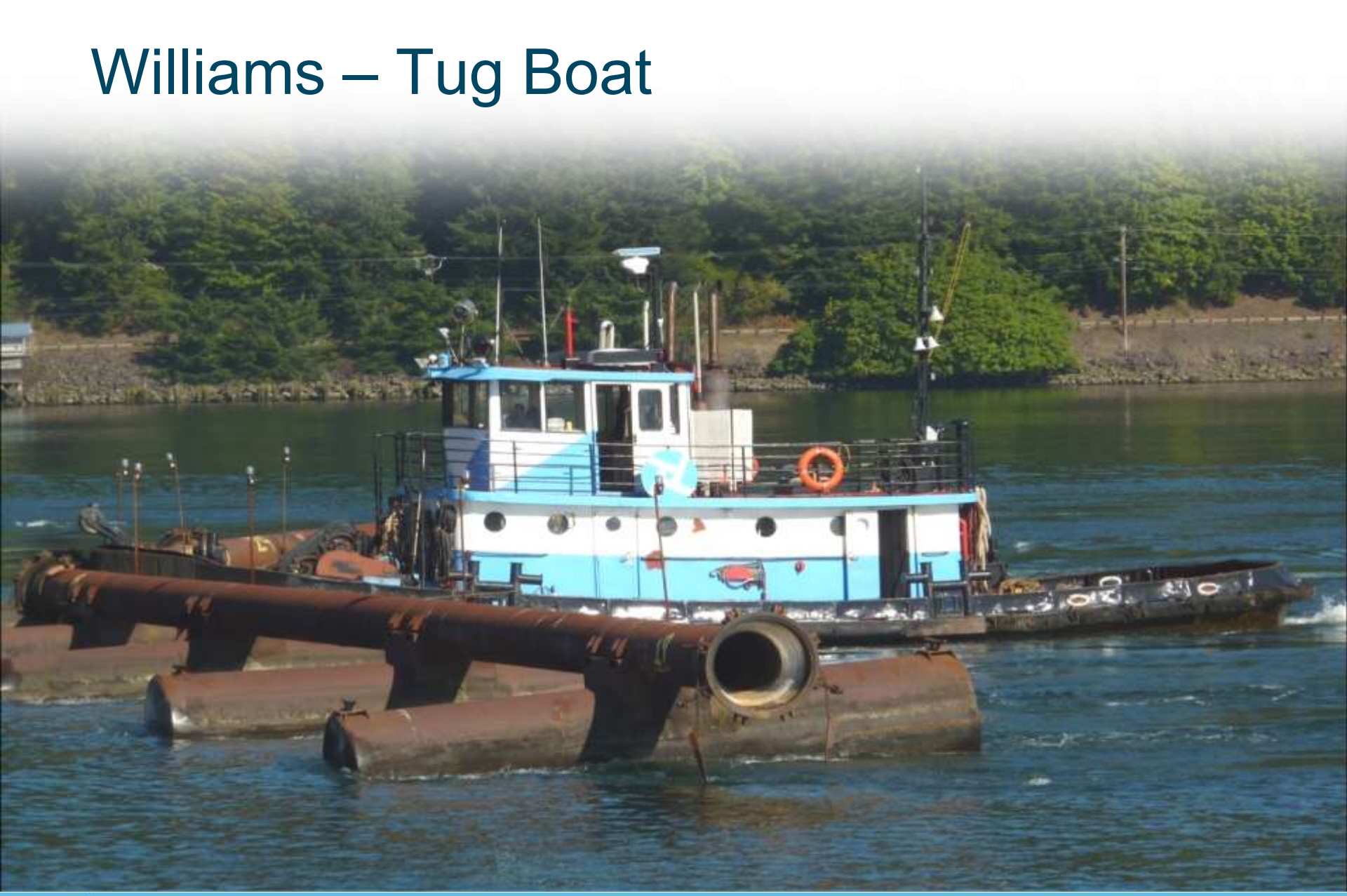
Equipment Loading on Barge

Crew Boat

Clackamas – Dredge Tender

Ivanoff - Tender

Williams – Tug Boat



Orin L Green - Survey Boat

Floating Pipe

Caterpillar D8

Loader

DREDGE TOURS

QUESTIONS ?