Ballast Mechanics

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Lake Carriers' Association

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LAKE CARRIERS' ASSOCIATION

Founded 1880; one of the oldest trade associations in the nation

14 members with 56 vessels working exclusively on the Lakes carrying 100-120 millions tons per year

All U.S-Flag Jones Act-qualified

- American built, owned, and crewed

Great Lakes and St. Lawrence Seaway

- Primarily upper 4 Great Lakes

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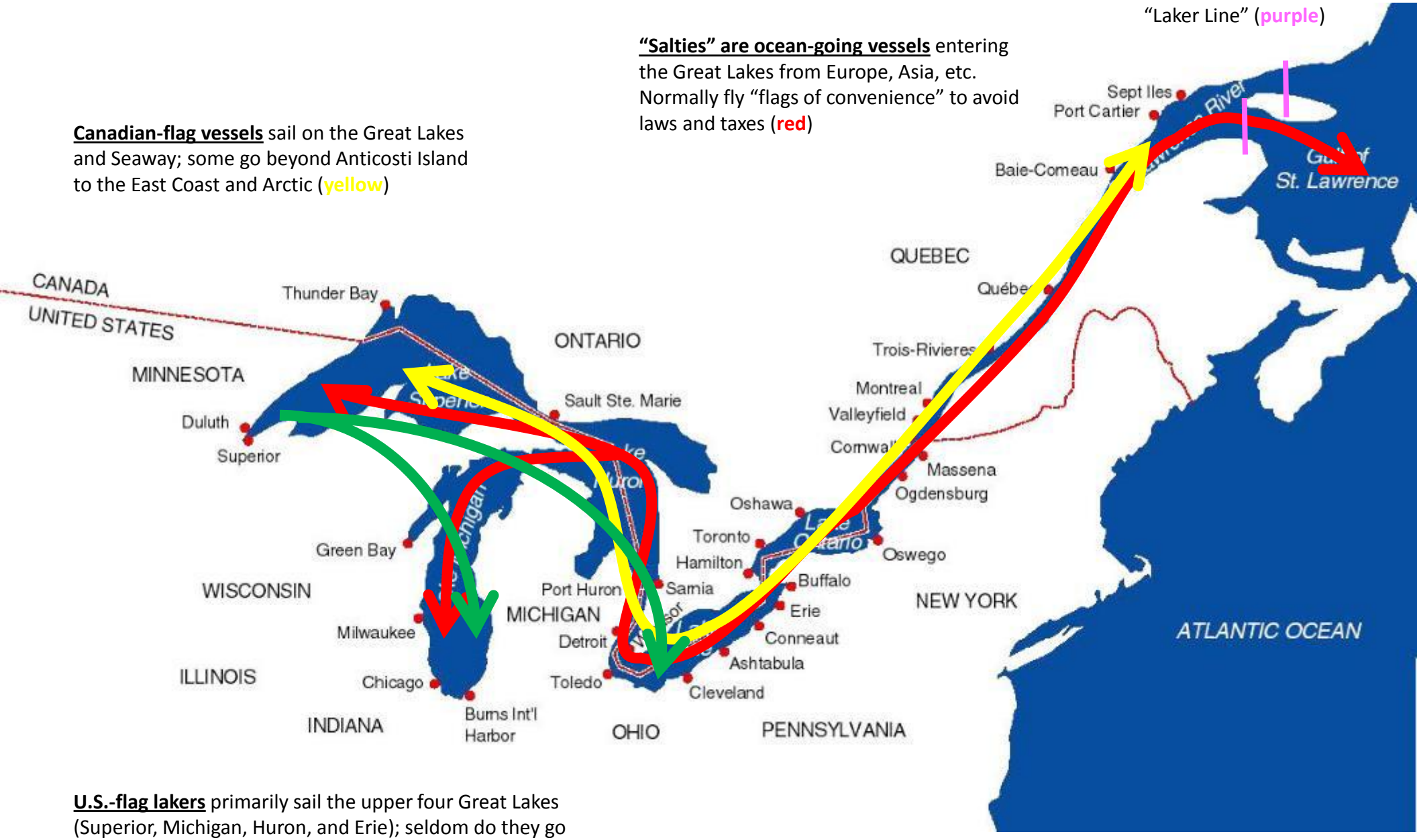
Anticosti Island:
"Laker Line" (**purple**)

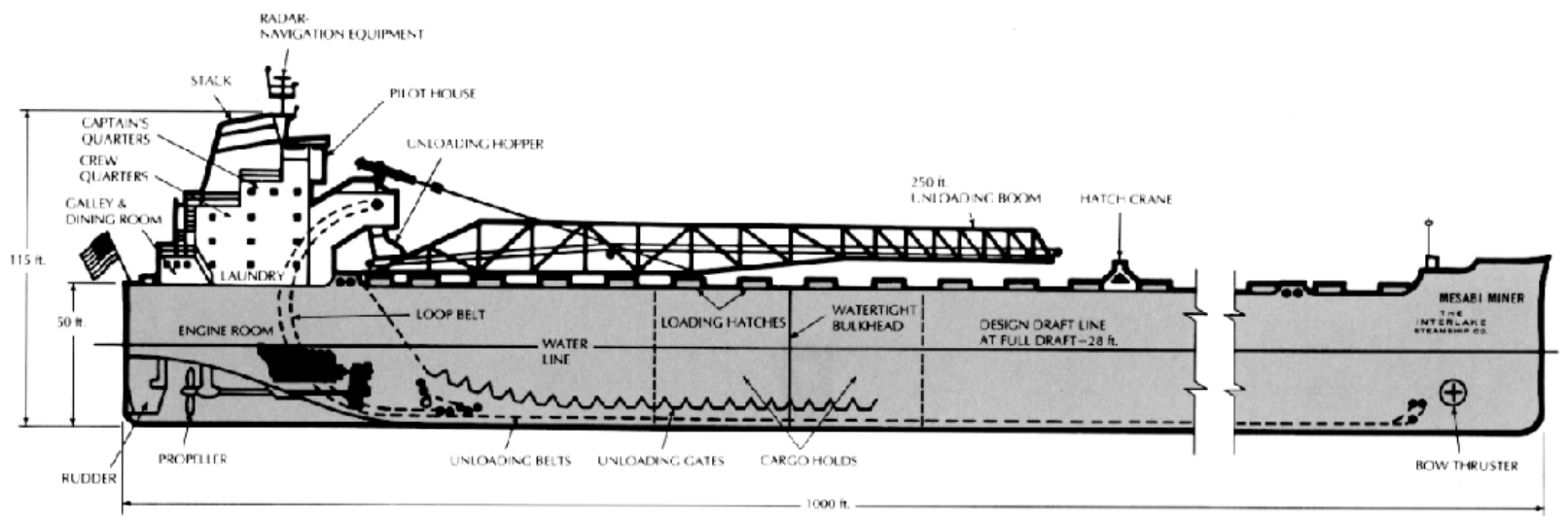
"Salties" are ocean-going vessels entering the Great Lakes from Europe, Asia, etc. Normally fly "flags of convenience" to avoid laws and taxes (**red**)

Canadian-flag vessels sail on the Great Lakes and Seaway; some go beyond Anticosti Island to the East Coast and Arctic (**yellow**)



U.S.-flag lakers primarily sail the upper four Great Lakes (Superior, Michigan, Huron, and Erie); seldom do they go beyond the Welland and never past Anticosti Island (**green**)

VESSEL DESCRIPTION



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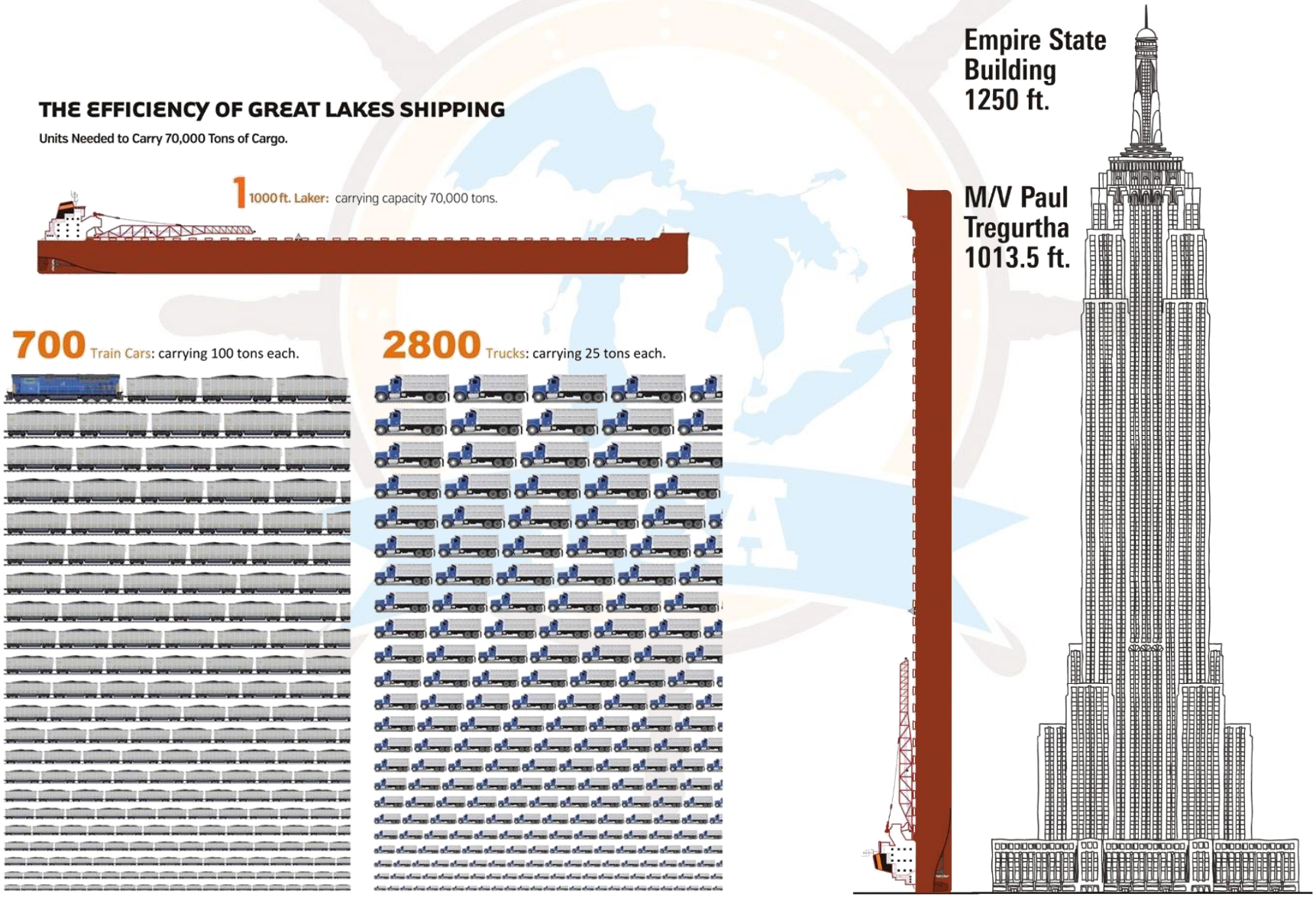
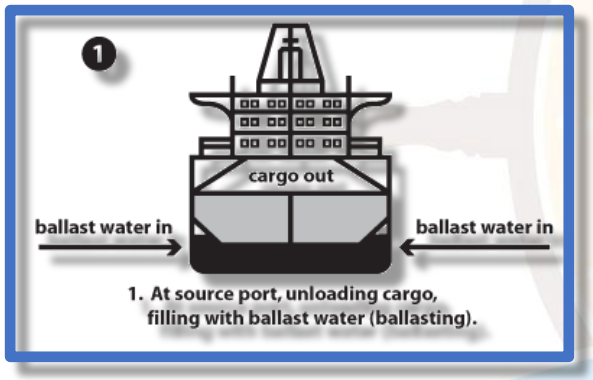
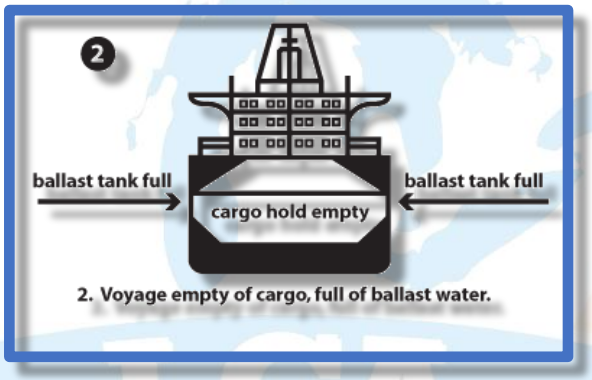


Self-unloading Lakers

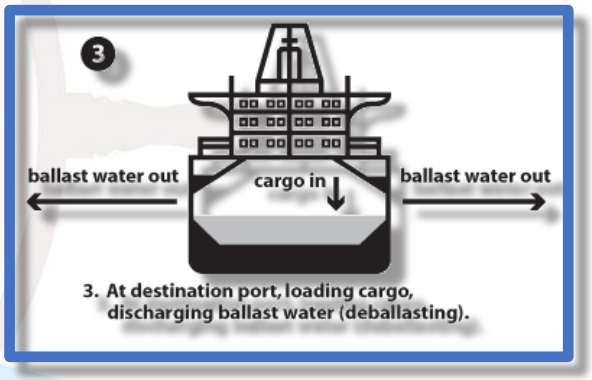
BALLASTING



1. At source port, unloading cargo, filling with ballast water (ballasting).



2. Voyage empty of cargo, full of ballast water.

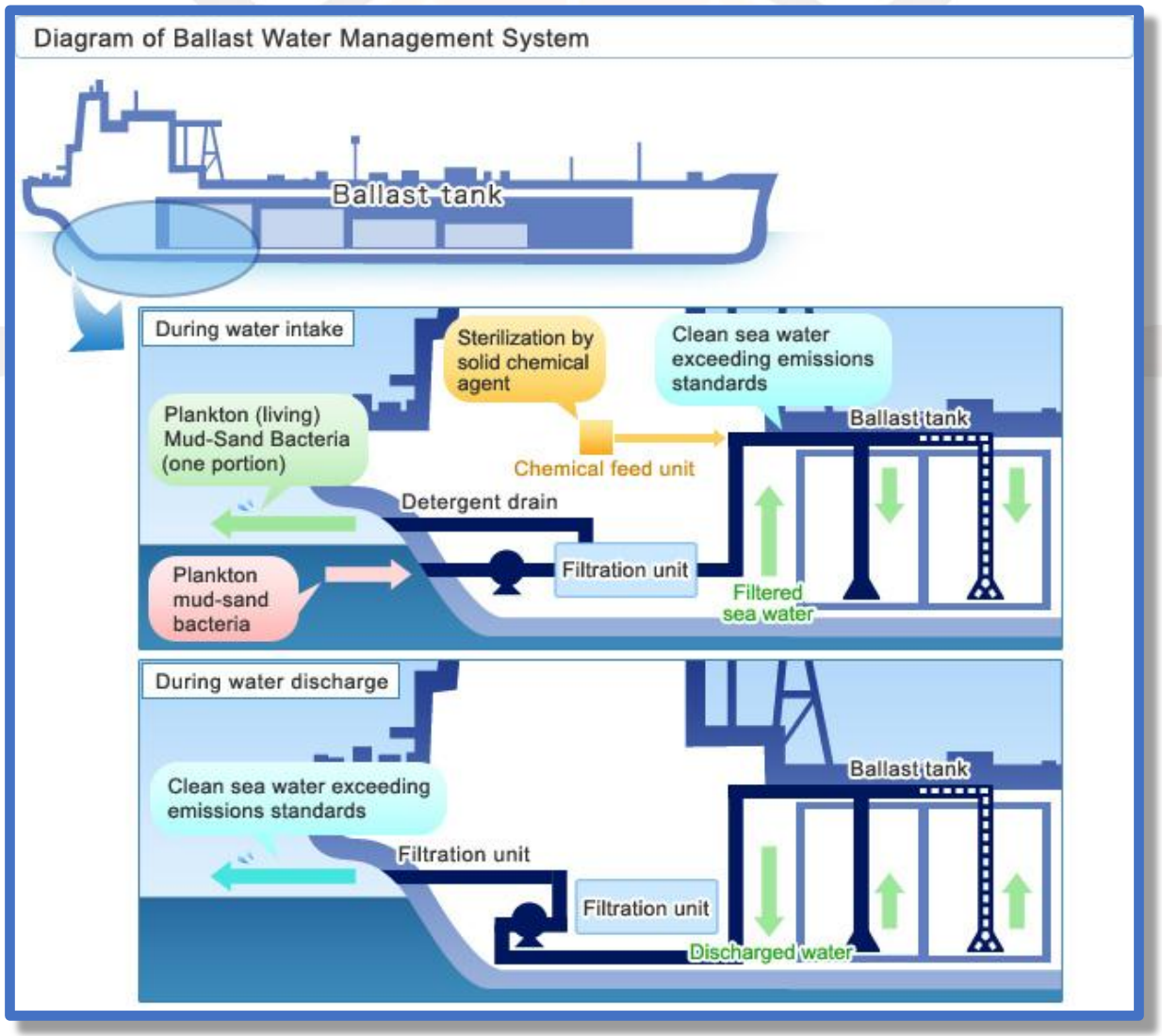


3. At destination port, loading cargo, discharging ballast water (deballasting).

Ballast Water Treatment

- On-board ballast water treatment system
- Discharge ballast water to shoreside treatment facility
- Intake potable water for ballast
- NOBOB (no ballast on board)
- Best management practices

BASIC TREATMENT PROCESS



U.S.-flag 1,000' Laker

16.4 million gallons
of ballast water
Enough to submerge a hockey rink
under **129 feet** of water

2015-build Saltie

5.1 million gallons
40 feet of water

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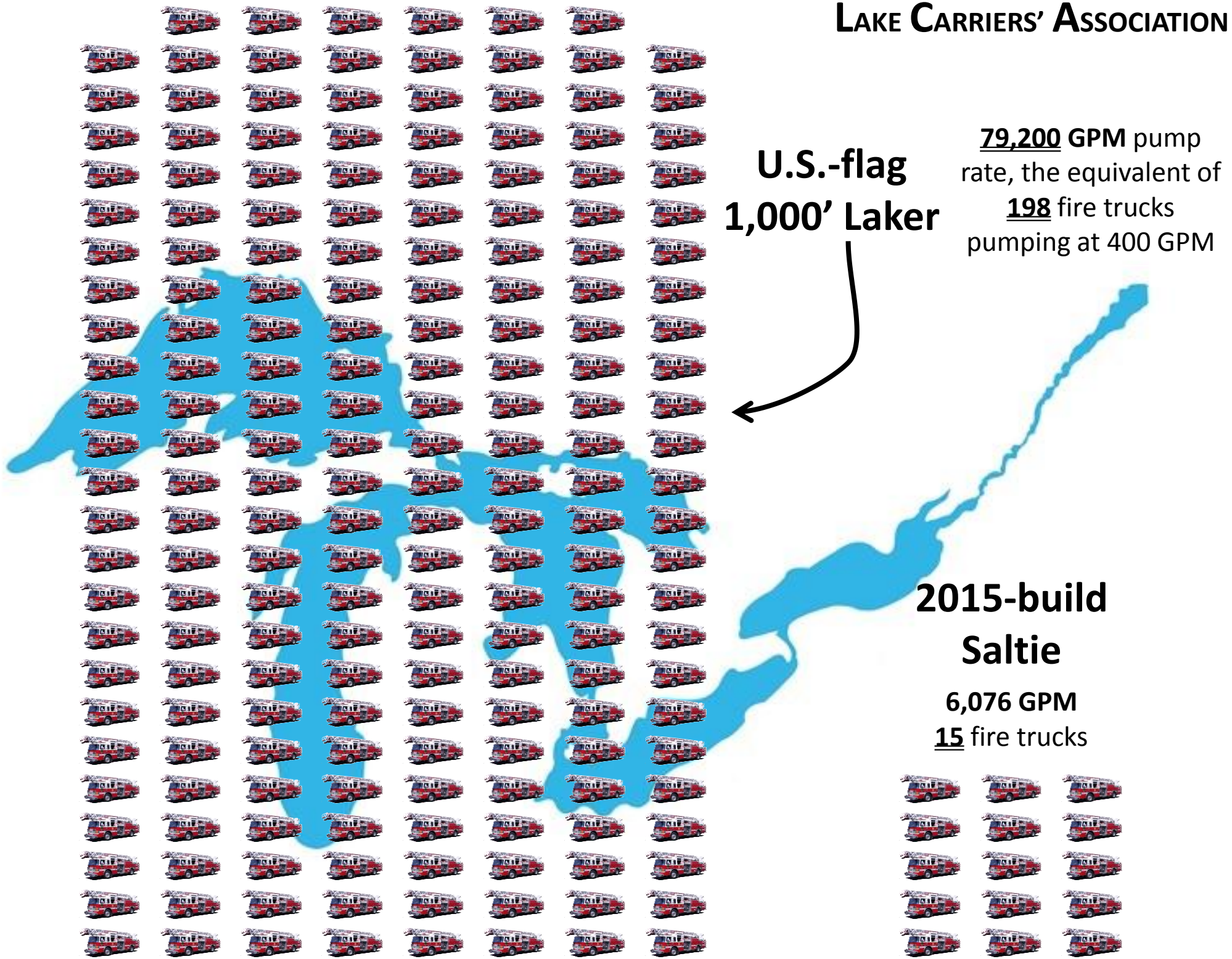
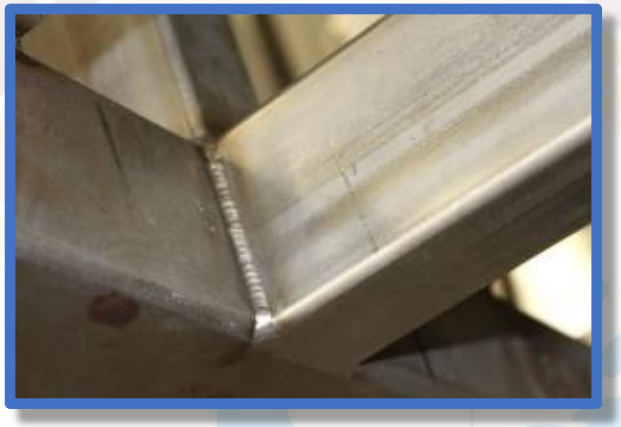


BALLAST TANKS



Ballast Water Treatment

By the numbers:

- 56 – U.S.-flag Lakers on the Great Lakes
- 80 – Additional Canadian-flag Salty-Lakers
- 55,138 – Cargo-carrying vessels worldwide
- 0 – USCG Type Approved ballast water treatment systems

Shore-side Treatment

By the numbers:

- Ballast water as wastewater:
  - $166,948.95 – cost to process 1,000’ vessel (2016)
  - $262,817.50 – cost in 2022
- Ballast water as potable water:
  - $70,032.86 – cost in 2016
  - $79,442.46 – cost in 2020
- 50 – trips per year per 1,000’ vessel
- 13 – number of 1,000’ vessels on the Great Lakes

CLEVELAND: DOCKS VS. PORTS

Port Inland, Michigan

MN Waste and Potable Waters

Wastewater treatment:

- Certified wastewater treatment professional

Potable water:

- 0.038 mg/l Cl_2 limit

61,727,335,589

MPCA VGP Study Plan

- Sample ports for intake and discharge
- Seasonal sampling events
- Samples at ports and on vessels tied together
- Two years of data
- Decades more required for risk/release assessment
- Partners

QUESTIONS?