Using ballast water reports to assess introduction risk of invasive species

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Washington Department of FISH & WILDLIFE

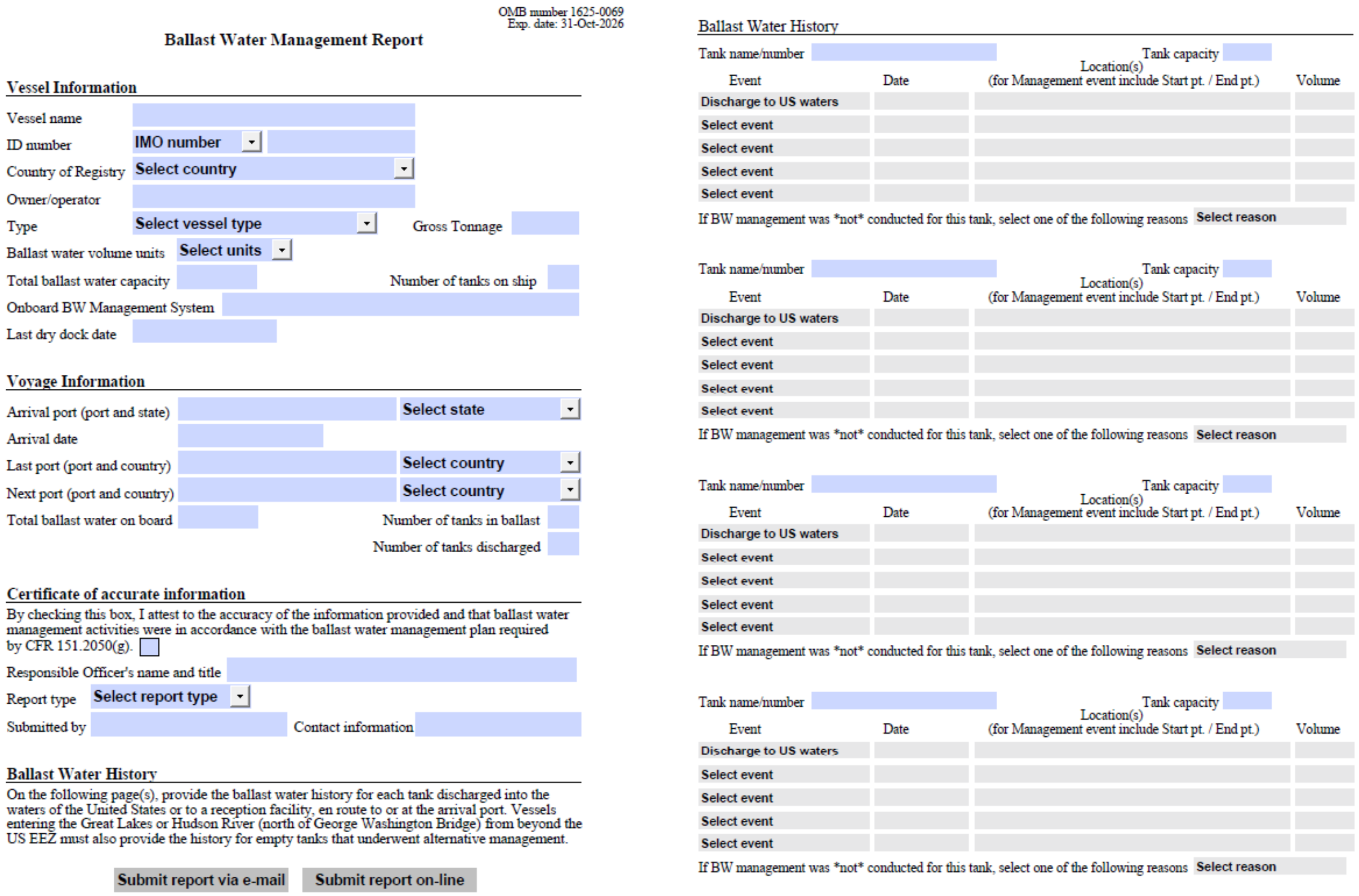
Washington Ballast Water Report Form

What can't it tell us?

- Biological information
- If management was effective
- Exact quantity discharged per source

What can it tell us?

- BW origin
- Management operations
- Potential risk of introduction



OMB number 1625-0069
Exp. date: 31-Oct-2026

Ballast Water Management Report

Vessel Information

Vessel name
ID number — IMO number
Country of Registry — Select country
Owner/operator
Type — Select vessel type — Gross Tonnage
Ballast water volume units — Select units
Total ballast water capacity — Number of tanks on ship
Onboard BW Management System
Last dry dock date

Voyage Information

Arrival port (port and state) — Select state
Arrival date
Last port (port and country) — Select country
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Total ballast water on board — Number of tanks in ballast
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Certificate of accurate information

By checking this box, I attest to the accuracy of the information provided and that ballast water management activities were in accordance with the ballast water management plan required by CFR 151.2050(g).

Responsible Officer's name and title
Report type — Select report type
Submitted by — Contact information

Ballast Water History

On the following page(s), provide the ballast water history for each tank discharged into the waters of the United States or to a reception facility, en route to or at the arrival port. Vessels entering the Great Lakes or Hudson River (north of George Washington Bridge) from beyond the US EEZ must also provide the history for empty tanks that underwent alternative management.

Submit report via e-mail | Submit report on-line

Ballast Water History

Tank name/number — Tank capacity

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Discharge to US waters			
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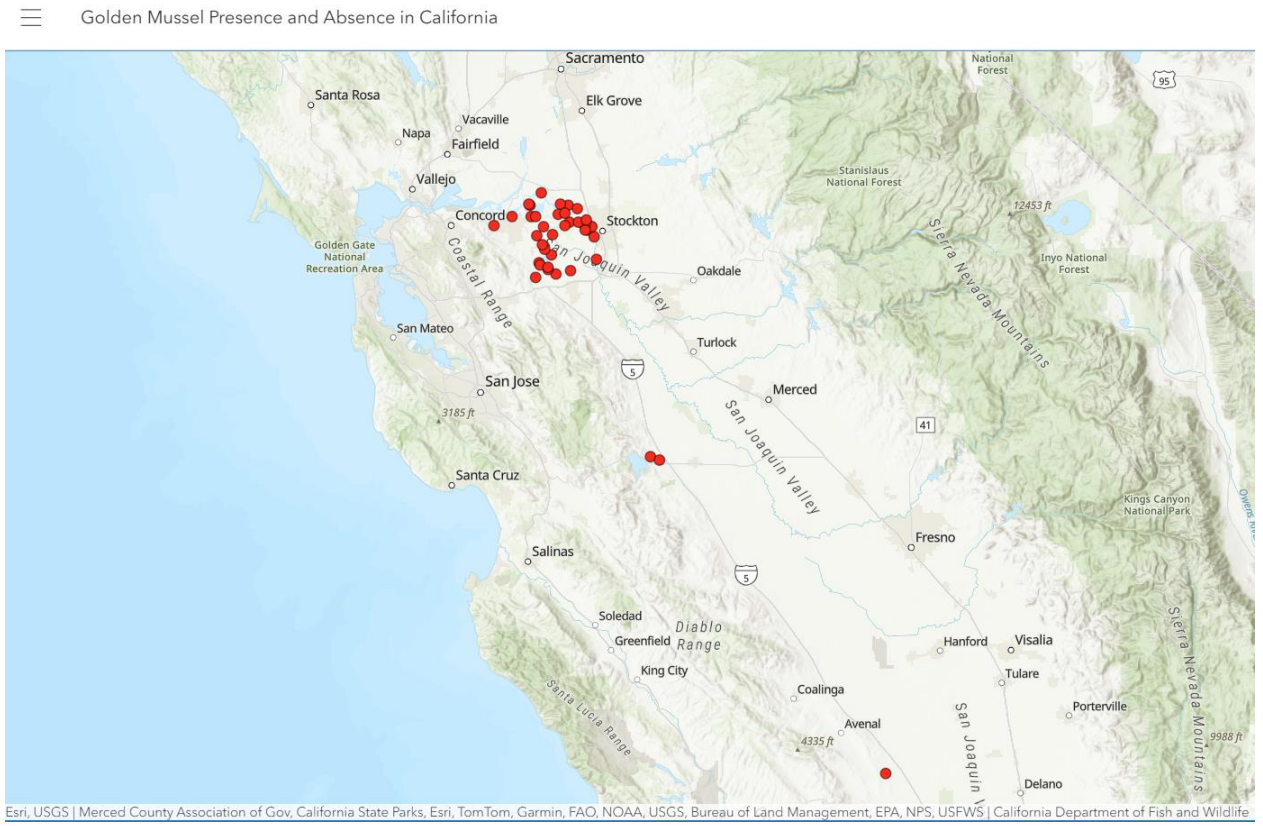
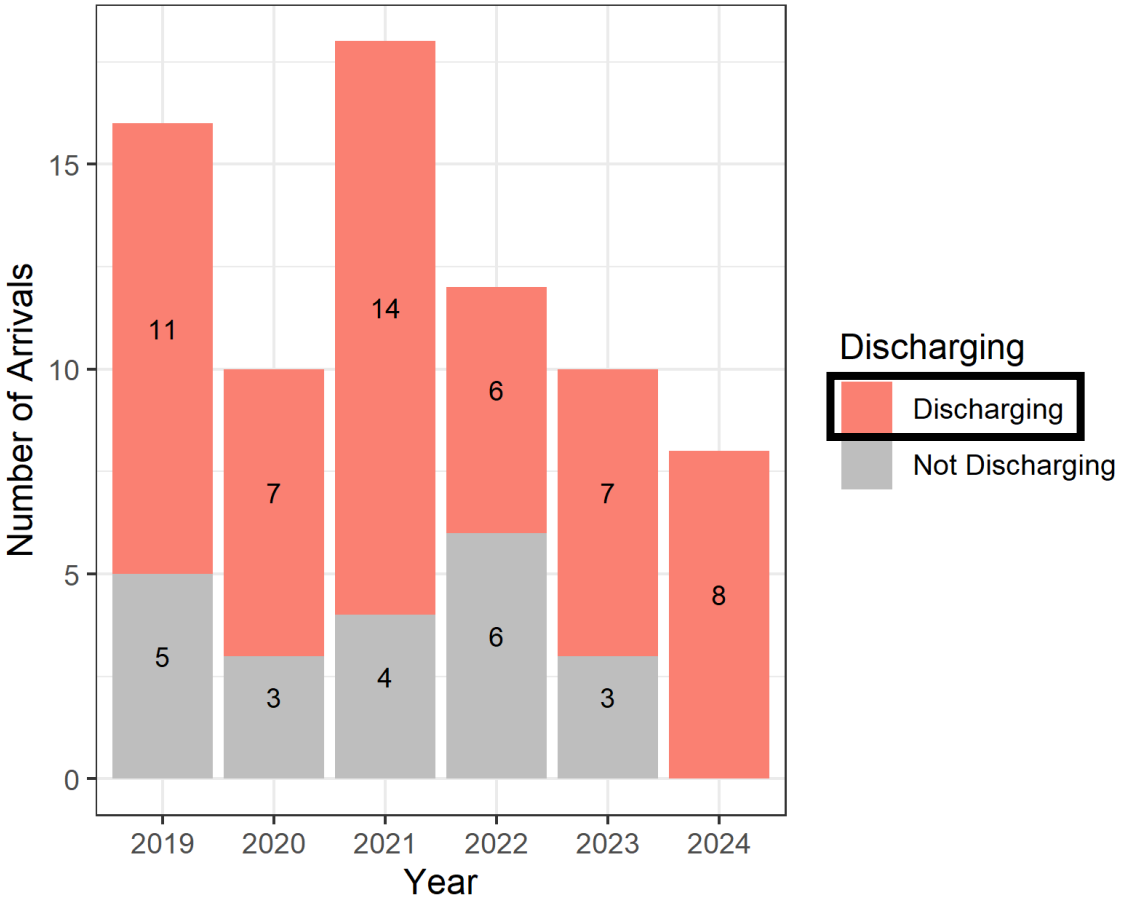
Golden Mussel (*Limnoperna fortunei*)

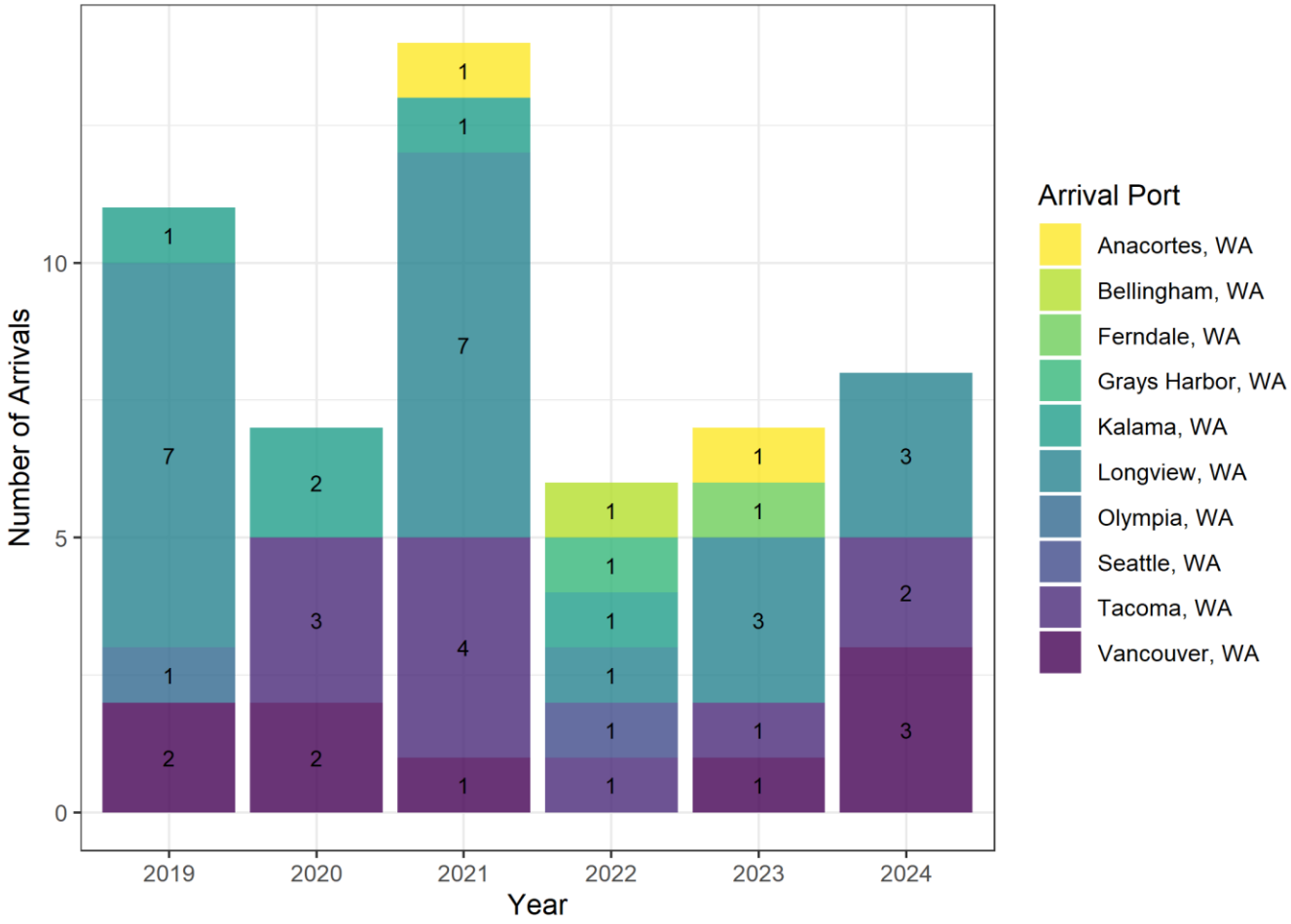
BOLTOVSKOY/WIKIMEDIA COMMONS (CC BY-4.0)

- Found in the Stockton, CA
  - Nearby ports are Pittsburg, Antioch
- Likely brought in through ballast water and/or biofouling
- Freshwater, but can tolerate up to 5ppt
- WDFW Recommends Prohibited Level 1 Classification

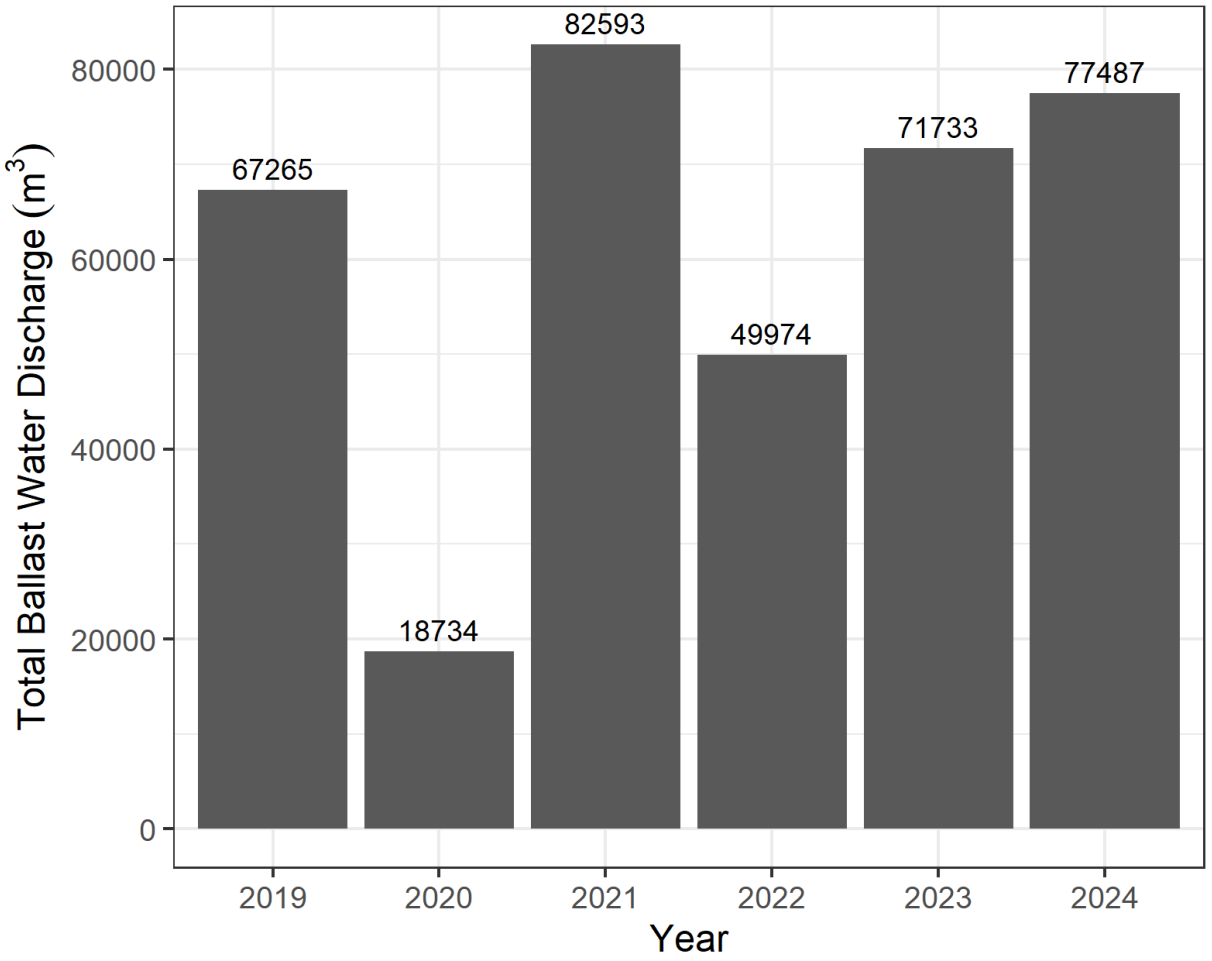


Arrivals to Washington from the Stockton, CA Area

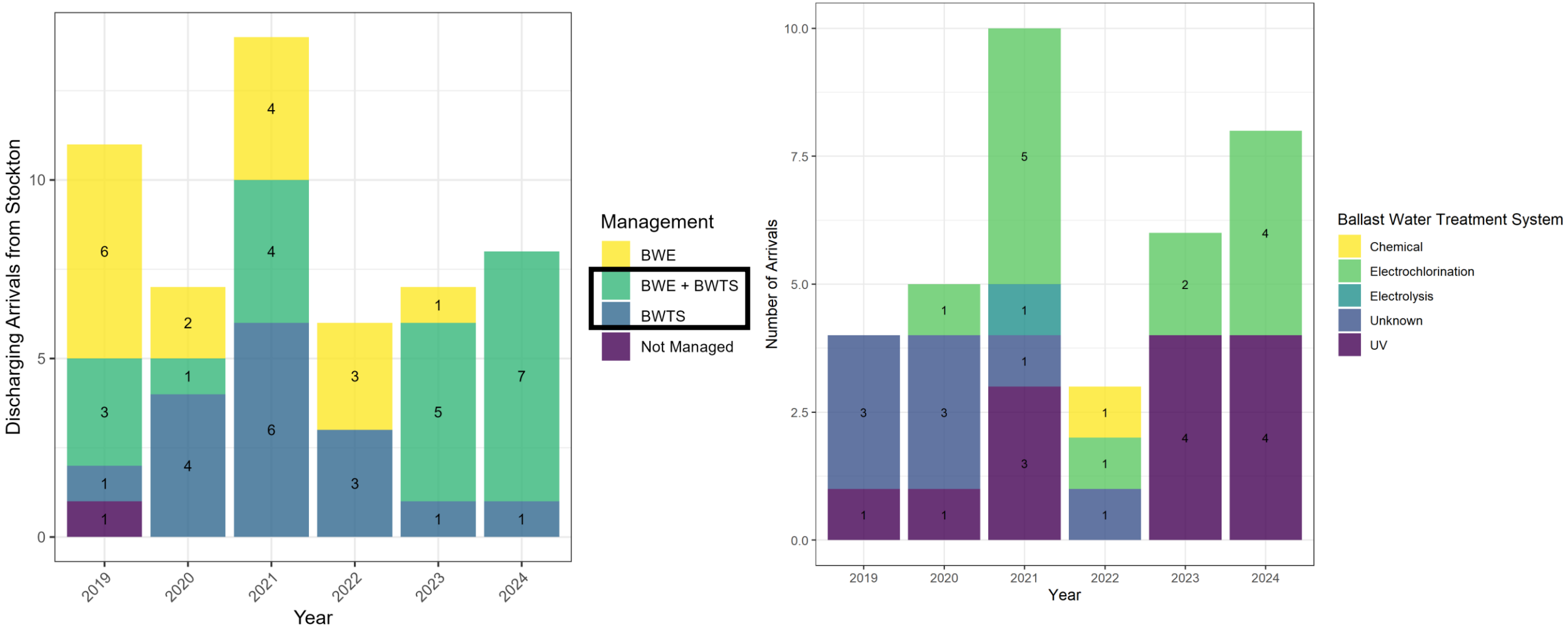




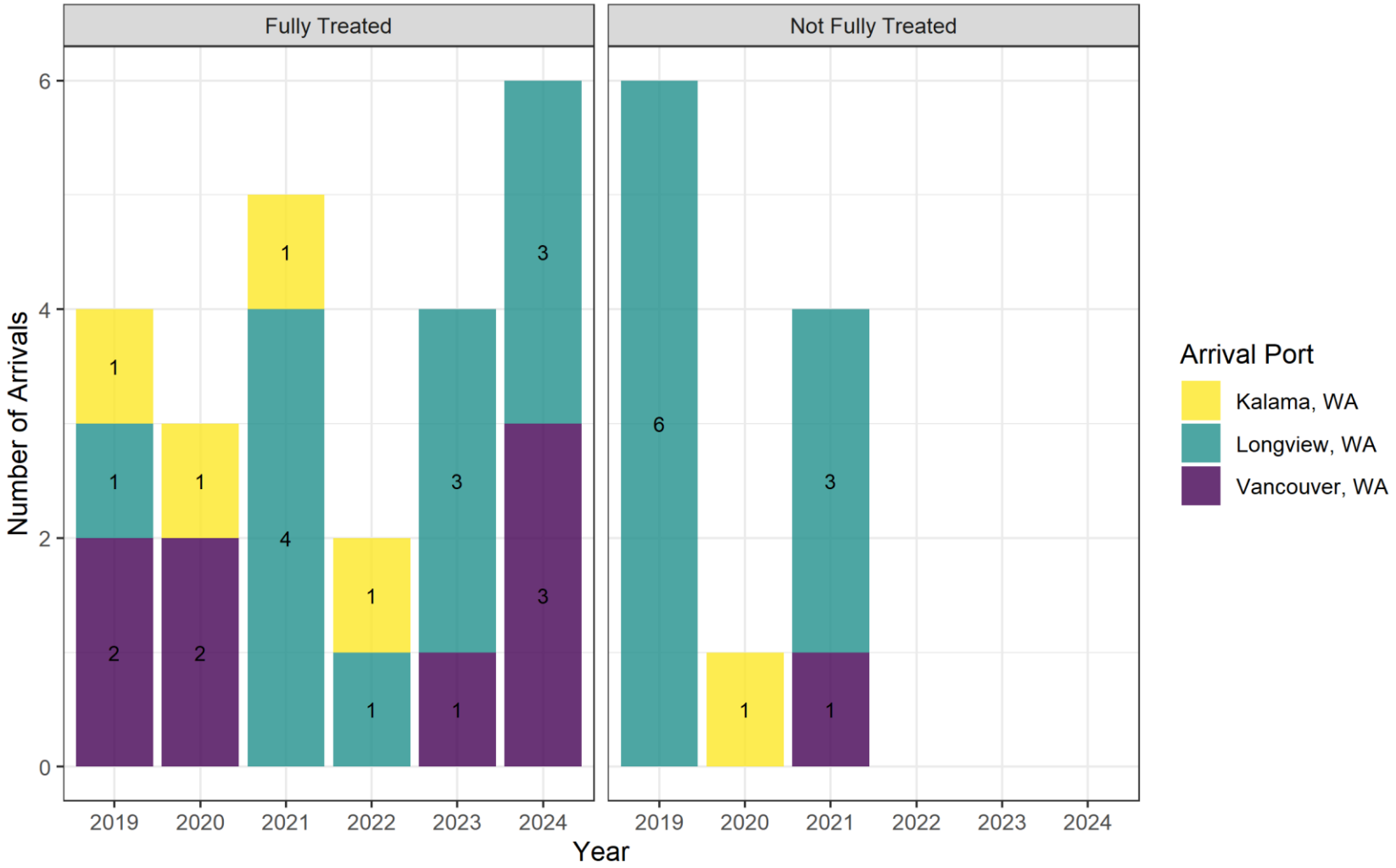
Volume discharged from Stockton area arrivals



Discharging arrivals and BWTS Strategy



Discharging arrivals to WA freshwater ports



Summary of *Limnoperna fortunei* risk in Washington

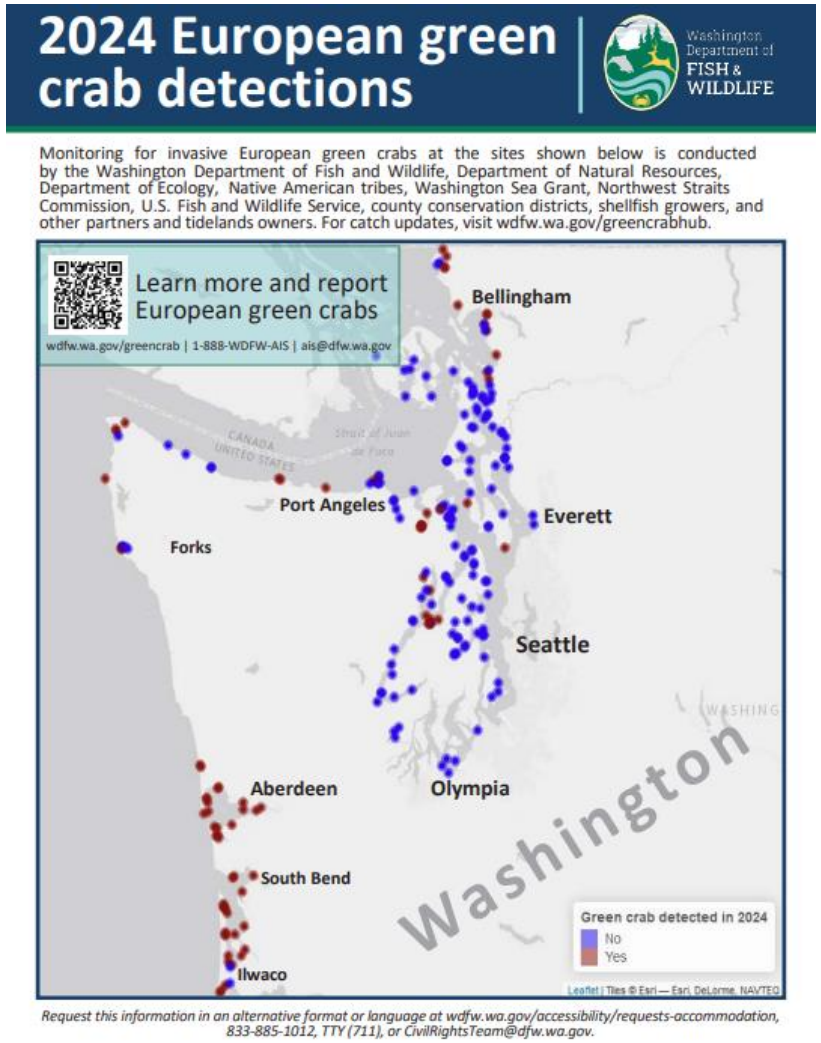
- Total of 74 arrivals to Washington from the Stockton Area (2019-2024)
- 367,786 MT of Ballast Water
- Majority of discharges are treated, but there are still some untreated discharges
- BWTS might not be totally effective (e.g. high turbidity ports)
- Active monitoring of vessels and port infrastructure would help prevent establishment

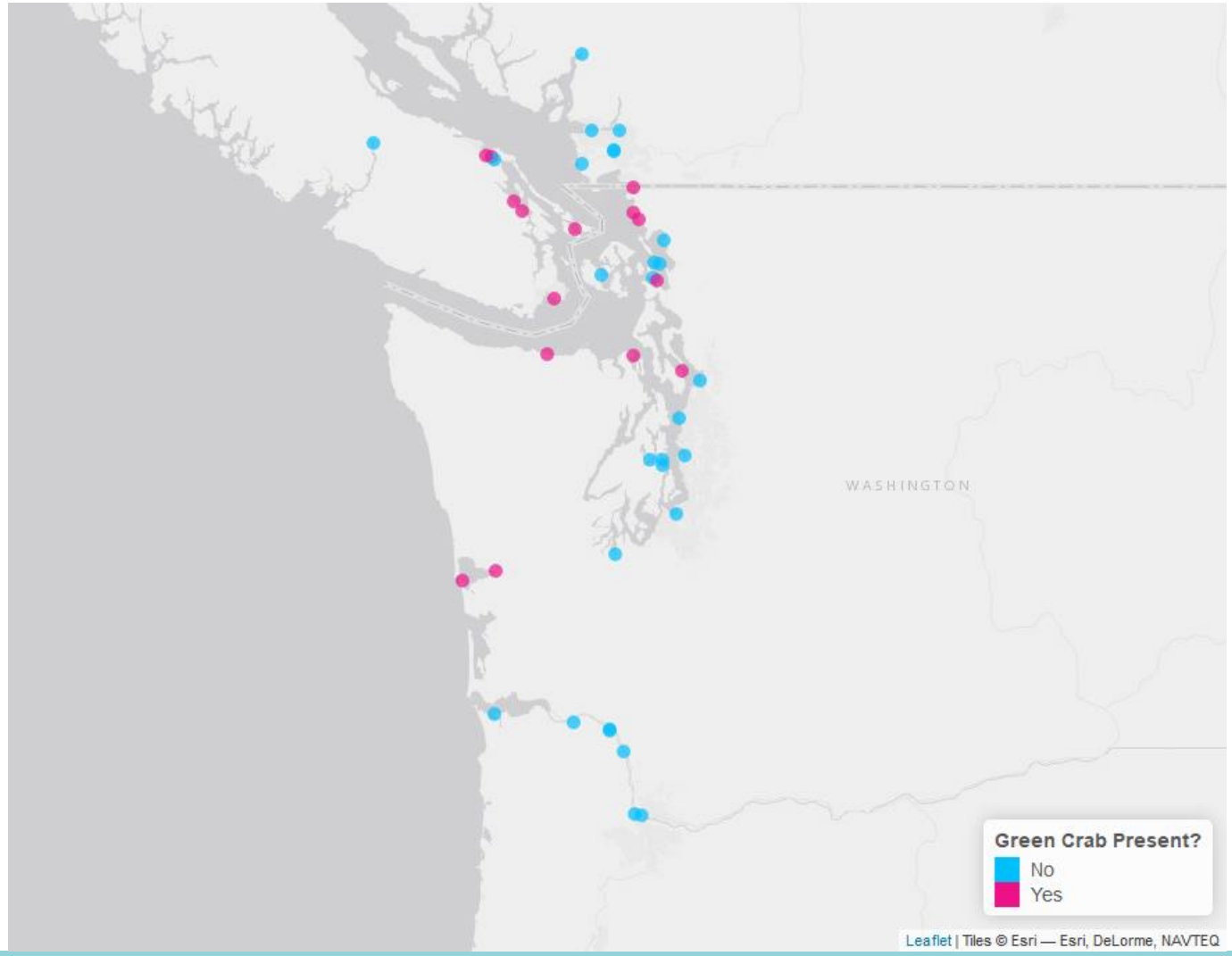
BOLTOVSKOY/WIKIMEDIA COMMONS (CC BY-4.0)

European green crab (*Carcinus maenas*)

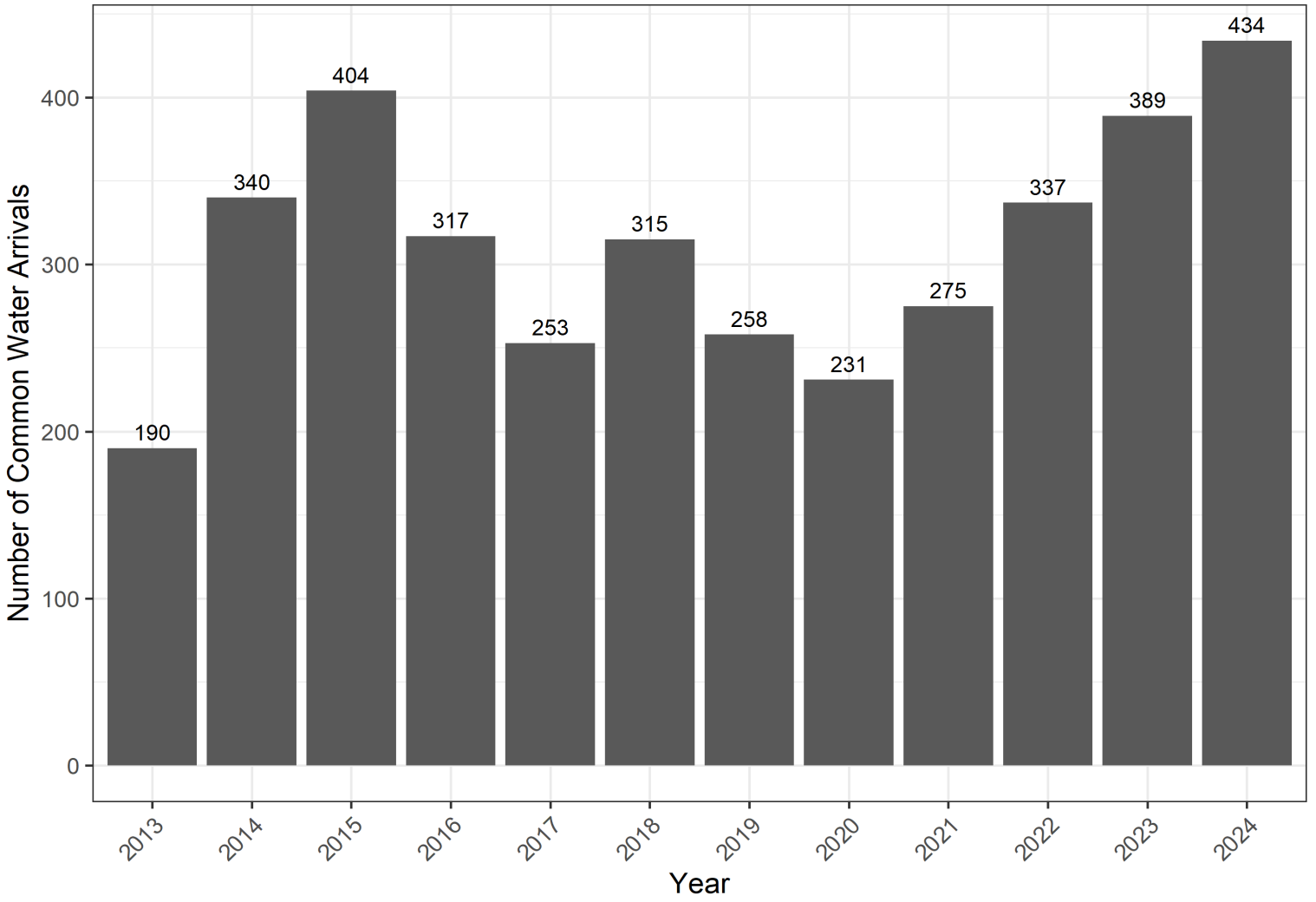
- Initial introduction to east coast in mid-1800s
- Detected in San Francisco Bay in 1989
  - Believed to have been through ballast water
- Detected in Willapa Bay in 1998
- Populations have grown, but many portions of the Puget Sound are uninvaded
- Lack of common water voyage management regulations

Map of common water ports and their invasion status

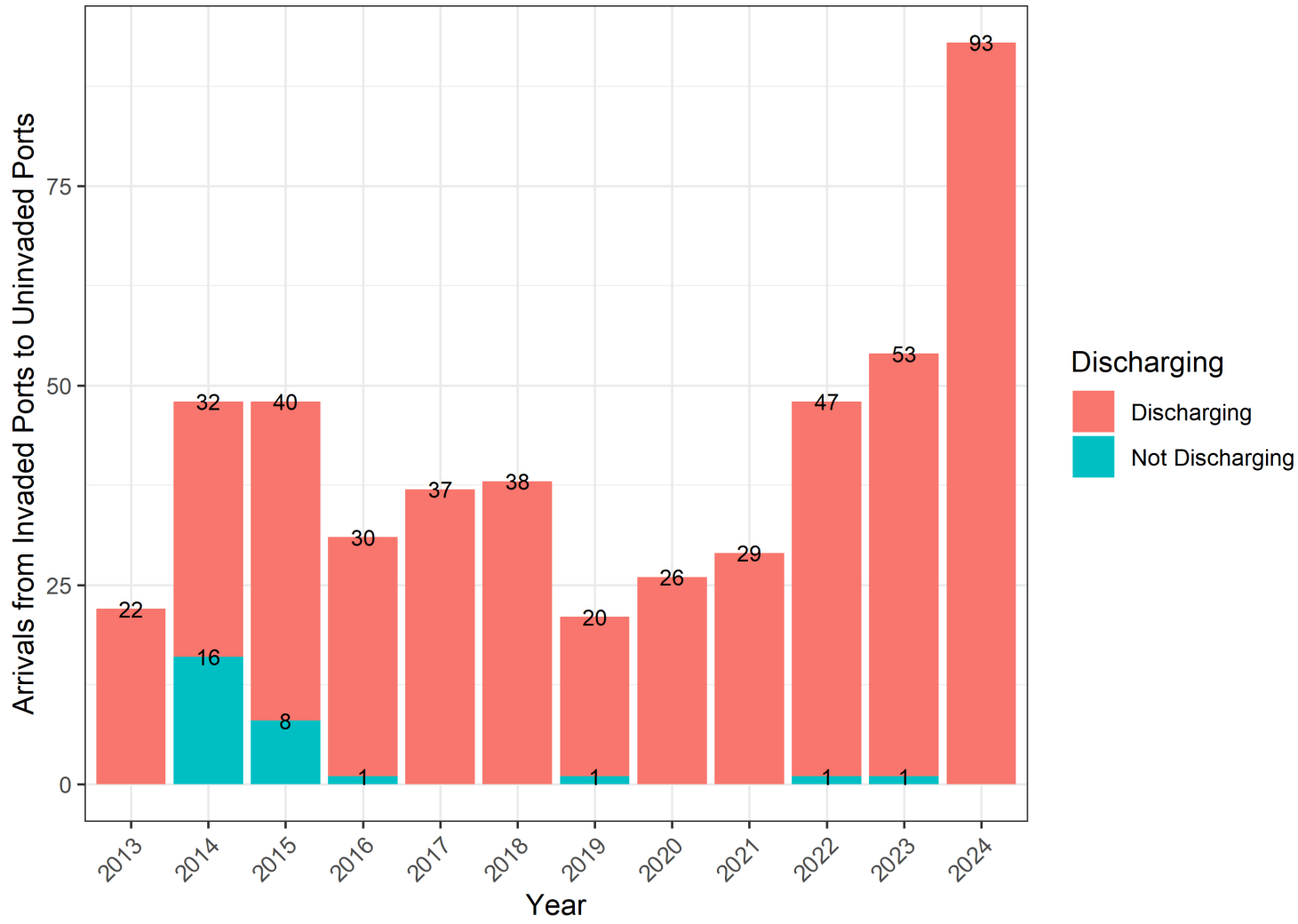




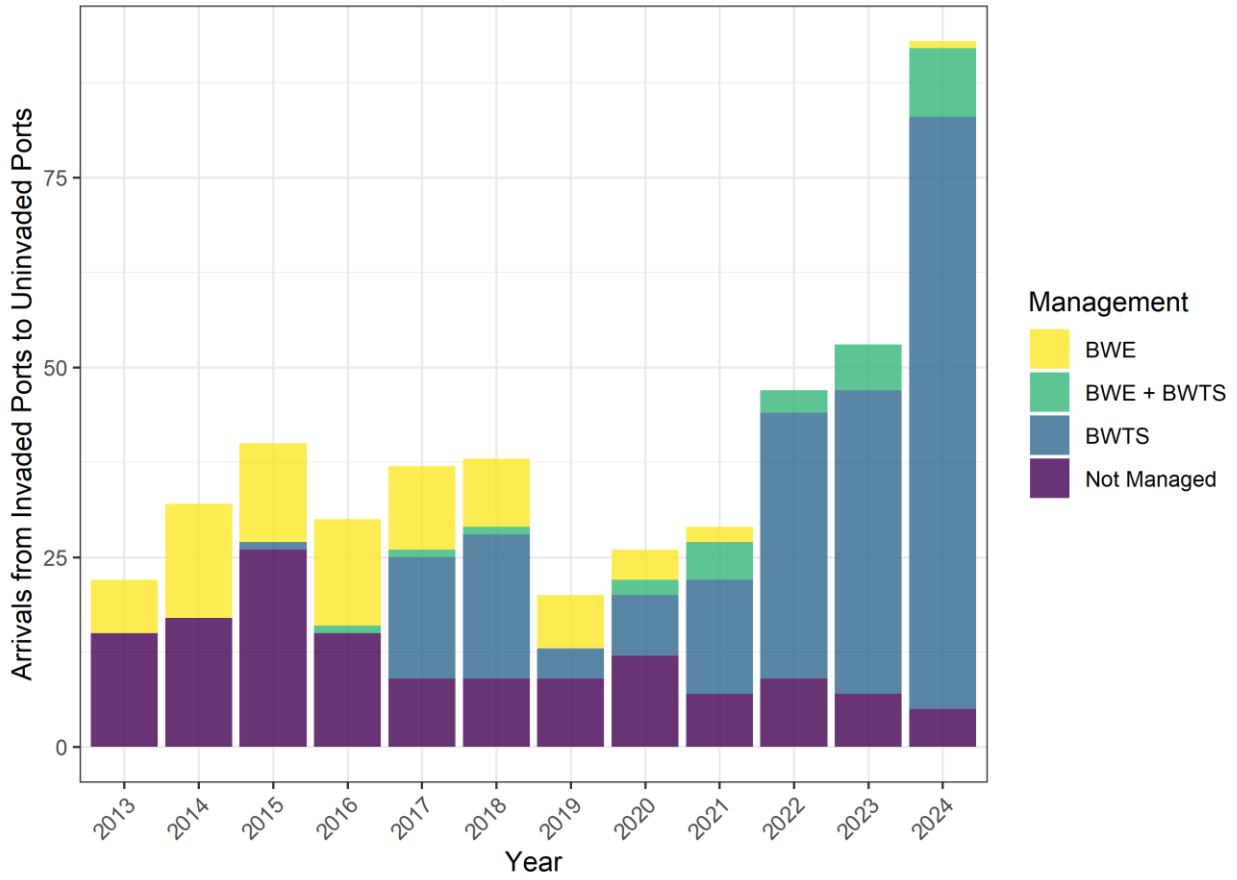
Total number of common water arrivals to WA

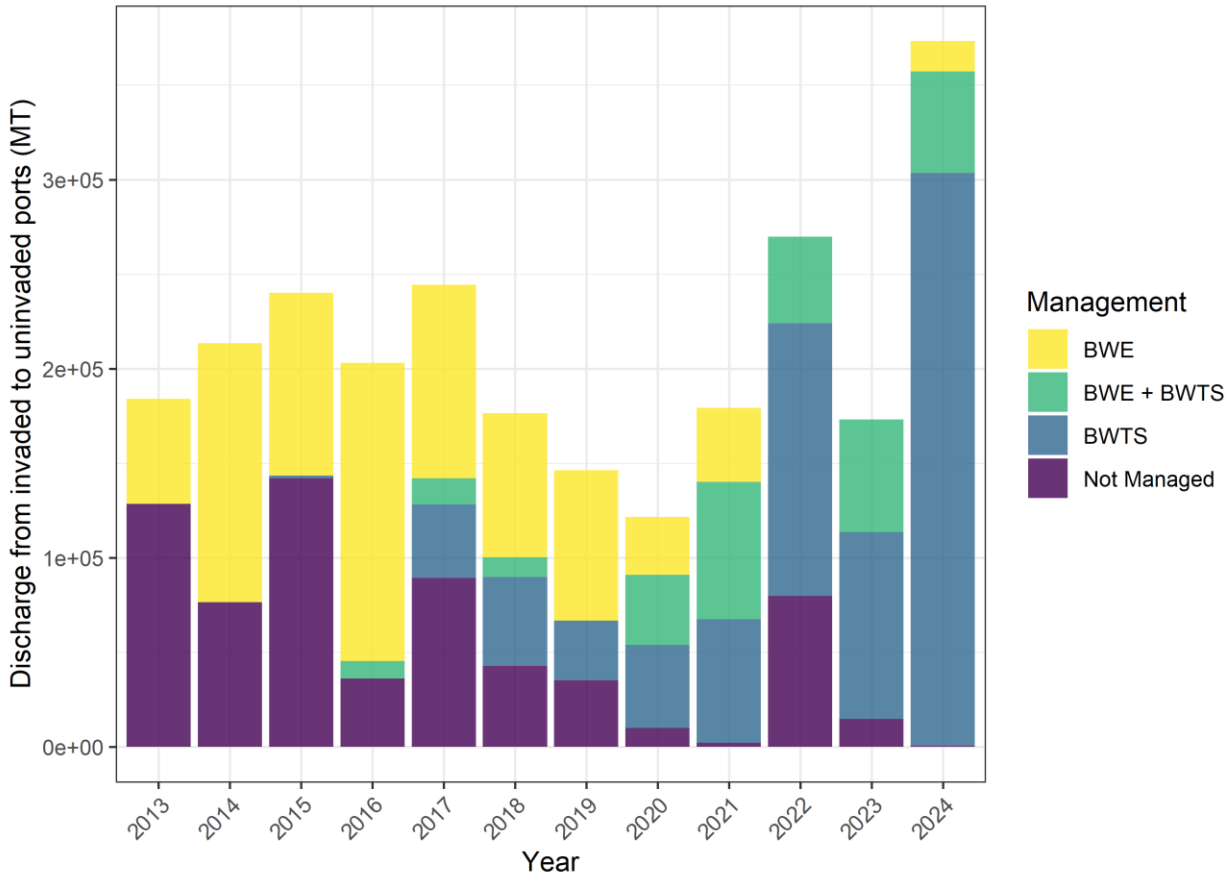


Common water arrivals from invaded to uninvaded ports

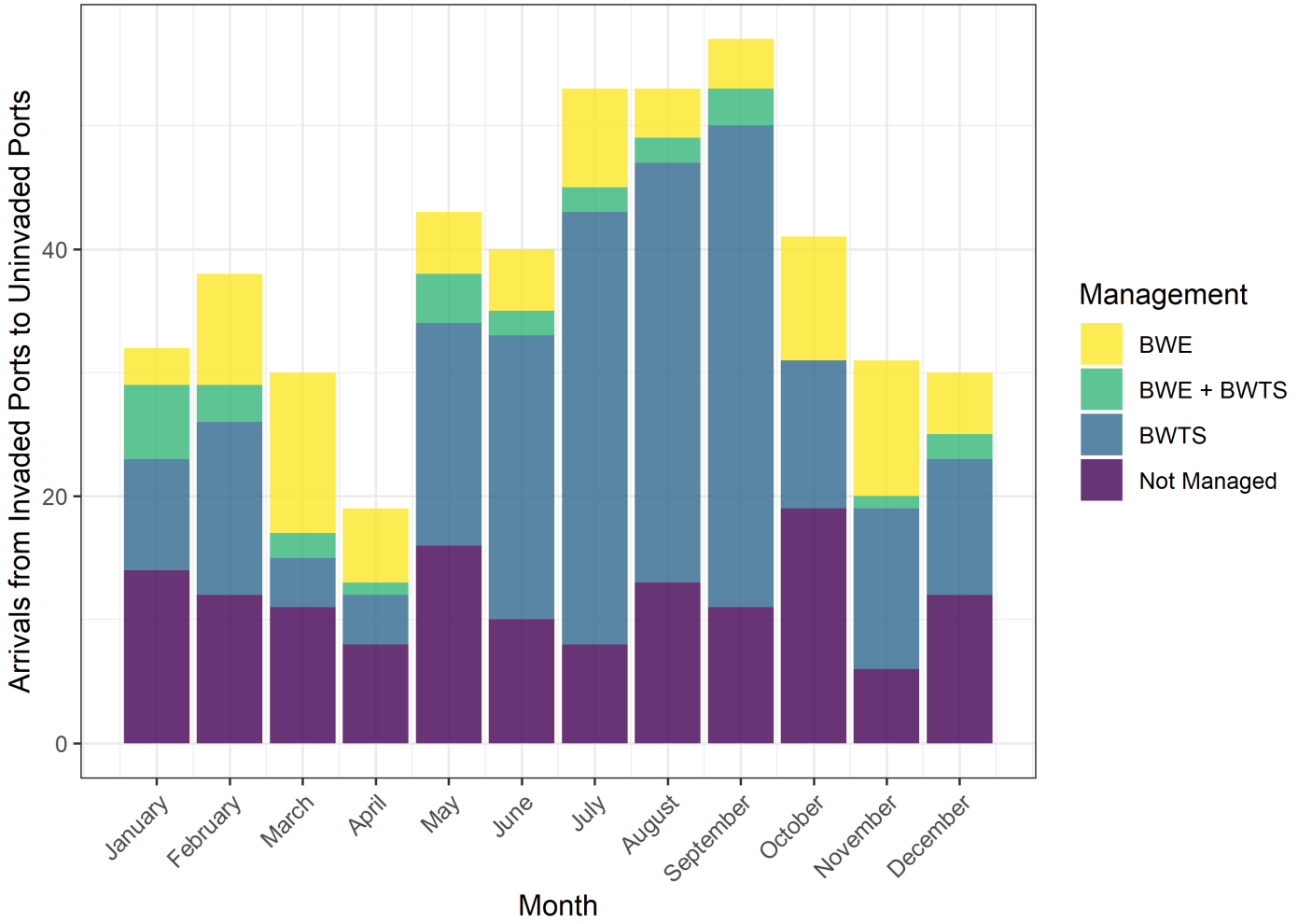


Discharging arrivals and management strategy





Seasonality of discharging arrivals and management strategy



Summary of EGC transport risk in Washington

- 17 of the 49 common water ports are invaded with EGC
- ~41 arrivals per year from invaded to uninvaded ports
- Majority of discharged water is treated
- There have always been >5 arrivals with unmanaged discharges per year

Ballast water reports can inform risk assessments

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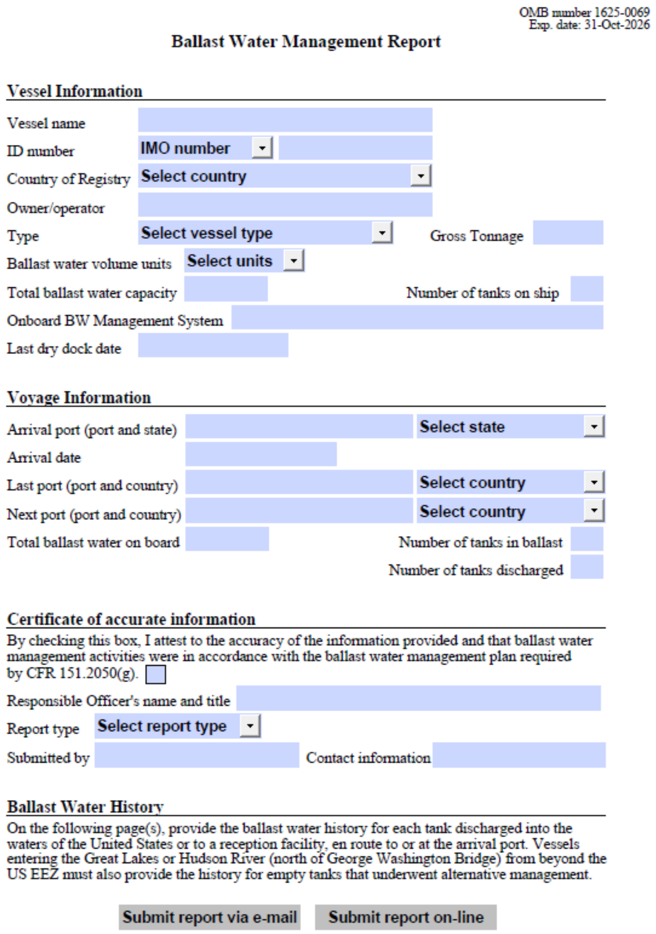

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Ballast water reports can inform risk assessments

Additional Questions

- Other analyses or information we can pull from these forms?
- What defensible/rigorous quantitative approaches could we conduct on this information?
- What other information is critical to collect to understand invasion risk?

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Questions?

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