# Using ballast water reports to assess introduction risk of invasive species

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## 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

	Duffust Water is	ianagement report	
Vessel Information	a		
Vessel name ID number Country of Registry Owner/operator	IMO number 💽		
Туре	Select vessel type	Gross Tonnag	e
Ballast water volume	units Select units	•	
Total ballast water ca	apacity	Number of tanks	on ship
Onboard BW Manag	ement System		
Last dry dock date			

Ballast Water Management Report

#### 

#### 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

#### 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.

Contact information

Submit report via e-mail Submit report on-line

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

Ballast Water History			
Tank name/number		Tank capacity Location(s)	
Event	Date	(for Management event include Start pt. / End pt.)	Volume
Discharge to US waters			
Select event			
If BW management was *no	t* conducted for this	tank, select one of the following reasons Select reason	

Tank name/number		Tank capacity	
Event	Date	Location(s) (for Management event include Start pt. / End pt.)	Volume
Discharge to US wa	ters		
Select event			

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Event	Date	(for Management event include Start pt. / End pt.)	Volume
Discharge to US wa	iters		
Select event			

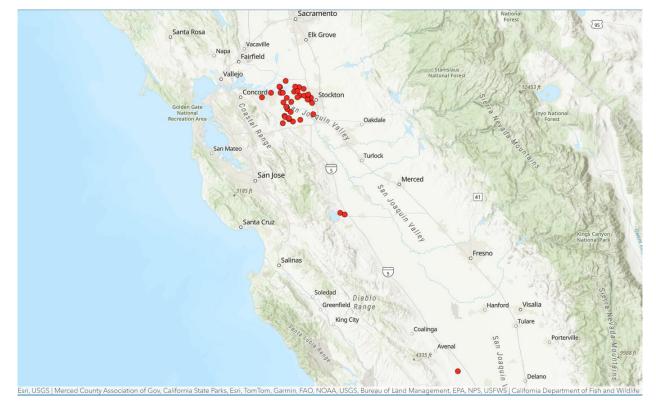
If BW management was \*not\* conducted for this tank, select one of the following reasons Select reason



# **Golden Mussel (Limnoperna fortunei)**

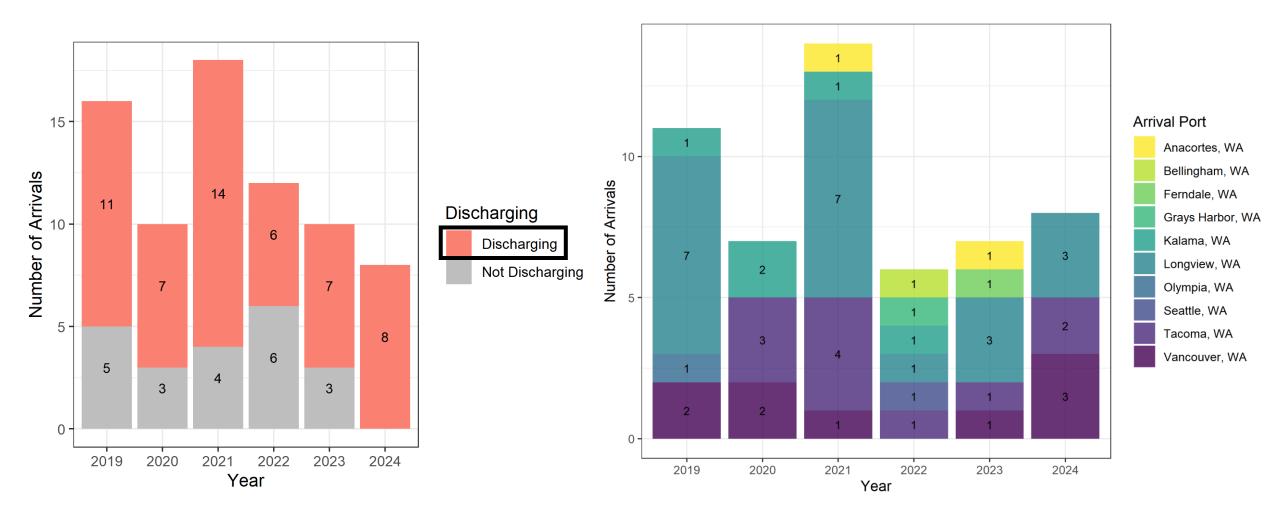
- Found in the Stockton, CA
  - Nearby ports are Pittsburg, Antioch
- Likely brought in through ballast water and/or biofouling
- Freshwater, but can tolerate up to 5ppt
- WDFW Recommends Prohibited Level 1 Classification





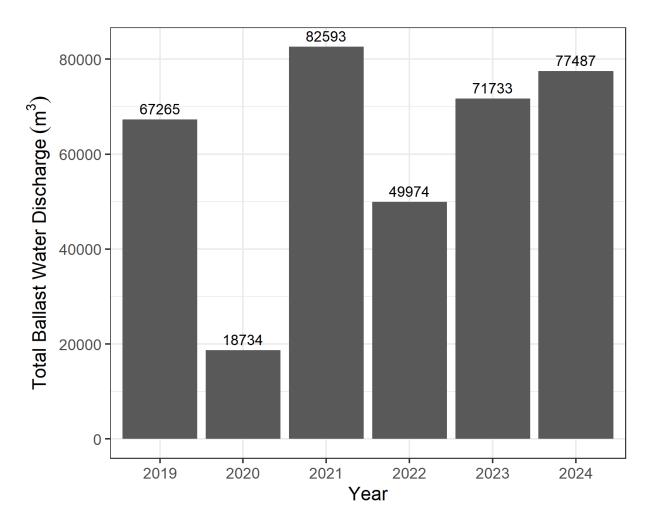


#### Arrivals to Washington from the Stockton, CA Area



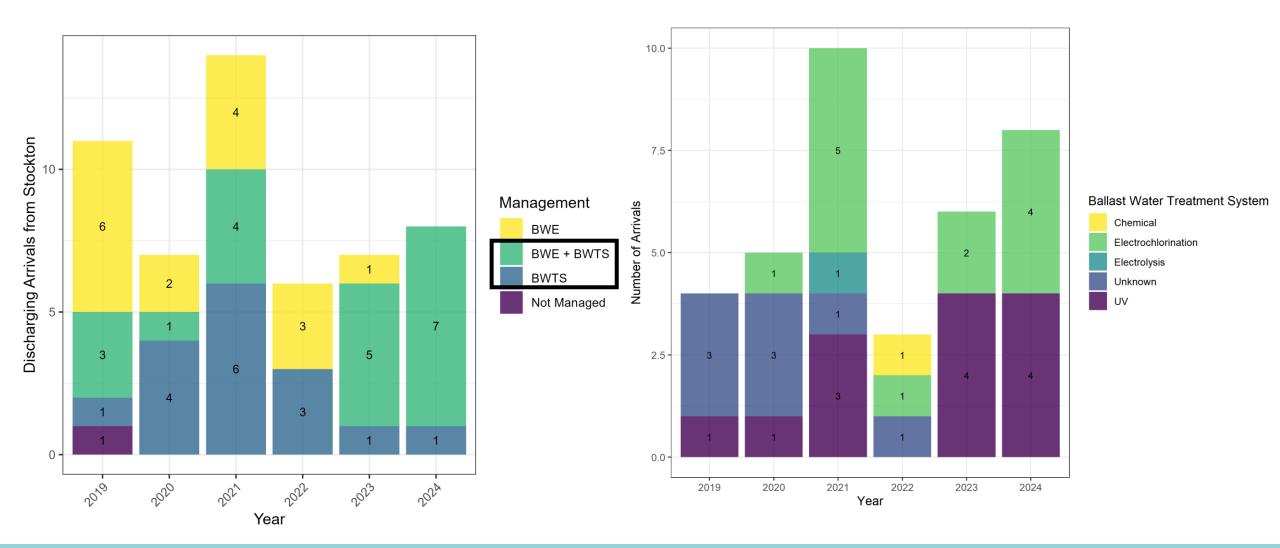


### **Volume discharged from Stockton area arrivals**



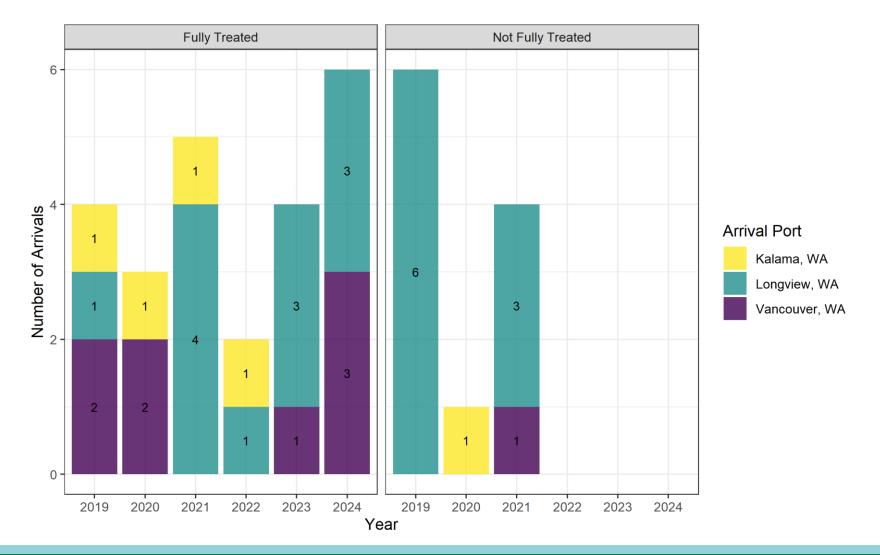


# **Discharging arrivals and BWTS Strategy**





# **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)



BOLTOVSKOY/WIKIMEDIA COMMONS (<u>CC BY-4.0</u>

 Active monitoring of vessels and port infrastructure would help prevent establishment



#### 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



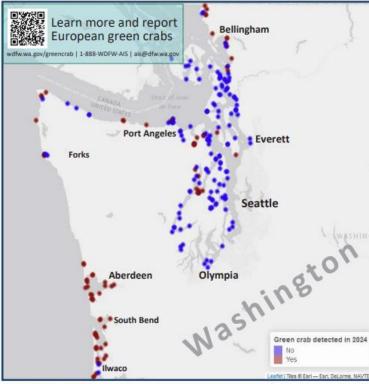


#### Map of common water ports and their invasion status

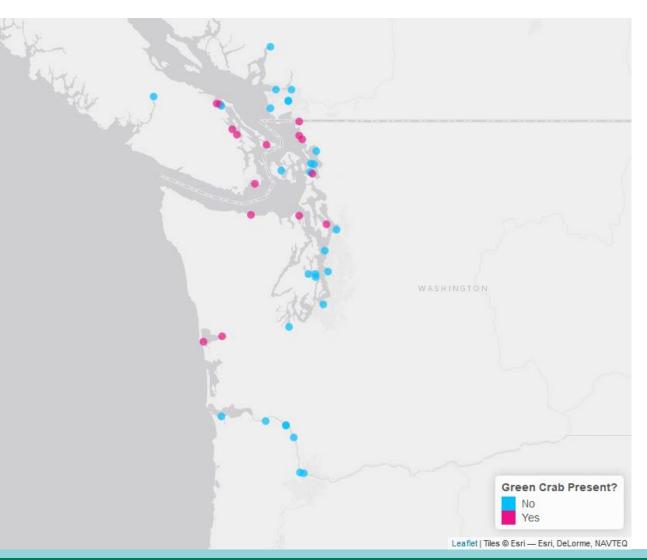
## 2024 European green crab detections



Monitoring for invasive European green crabs at the sites shown below is conducted by the Washington Department of Fish and Wildlife, Department of Natural Resources, Department of Ecology, Native American tribes, Washington Sea Grant, Northwest Straits Commission, U.S. Fish and Wildlife Service, county conservation districts, shellfish growers, and other partners and tidelands owners. For catch updates, visit wdfw.wa.gov/greencrabhub.

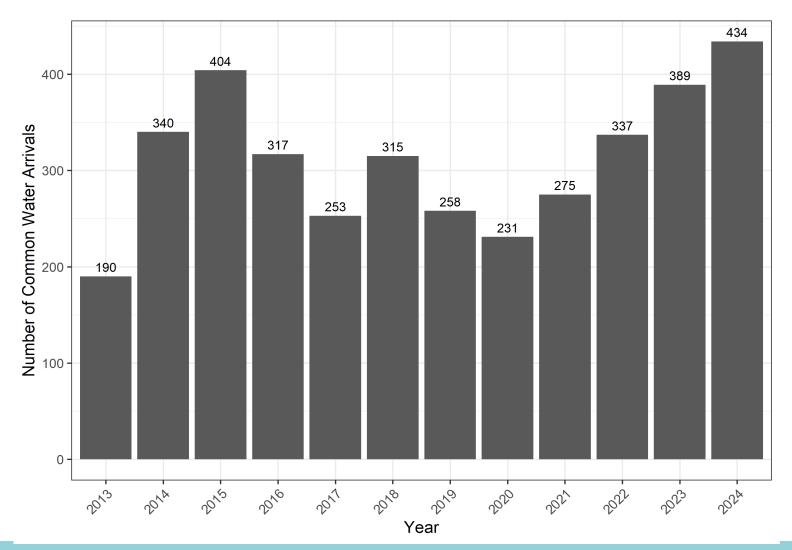


Request this information in an alternative format or language at wdfw.wa.gov/accessibility/requests-accommodation, 833-885-1012, TTY (711), or CivilRightsTeam@dfw.wa.gov.



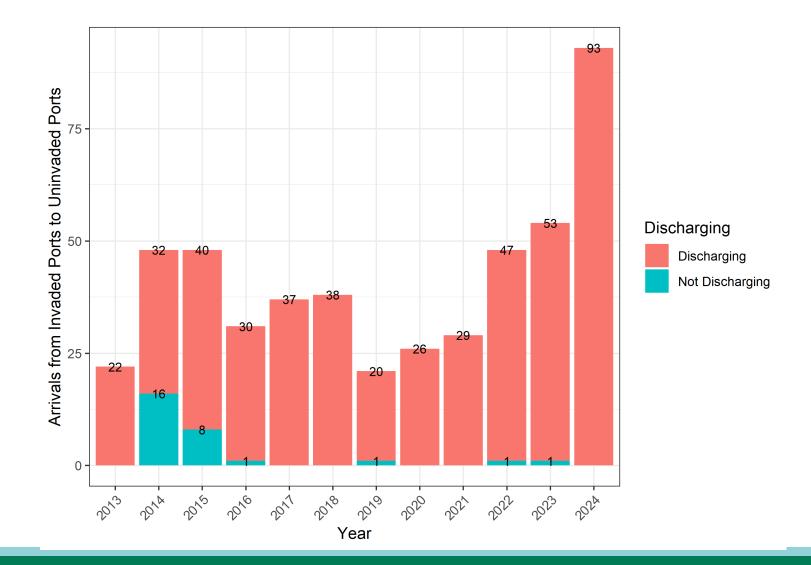


### **Total number of common water arrivals to WA**



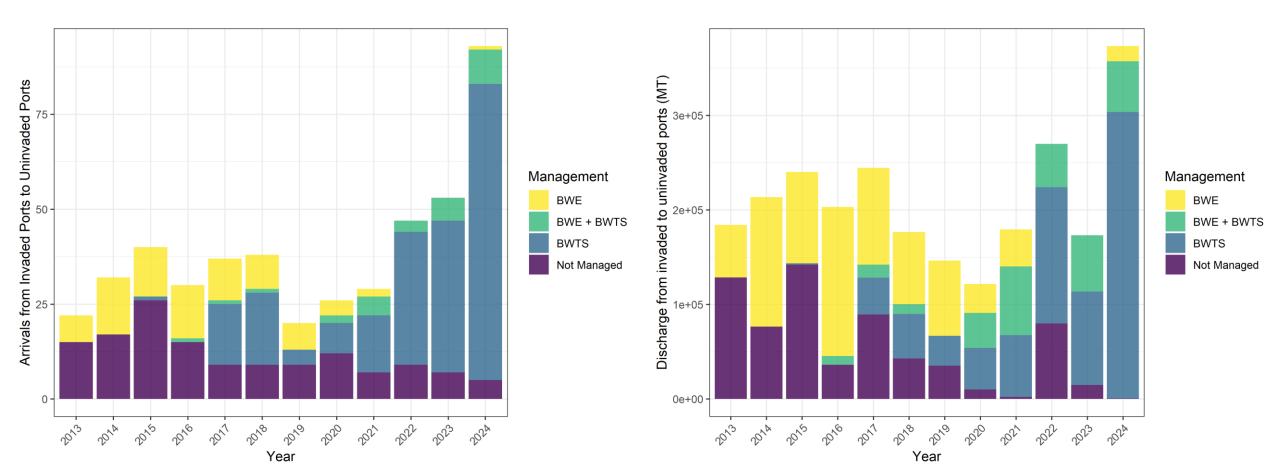


#### **Common water arrivals from invaded to uninvaded ports**



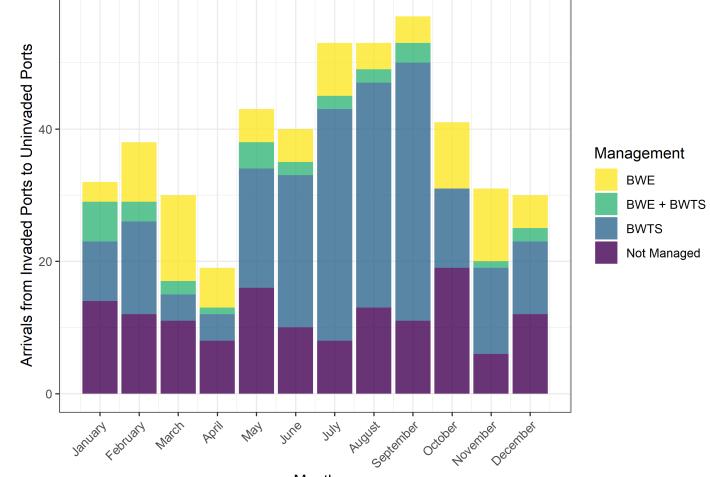


## **Discharging arrivals and management strategy**





# Seasonality of discharging arrivals and management strategy

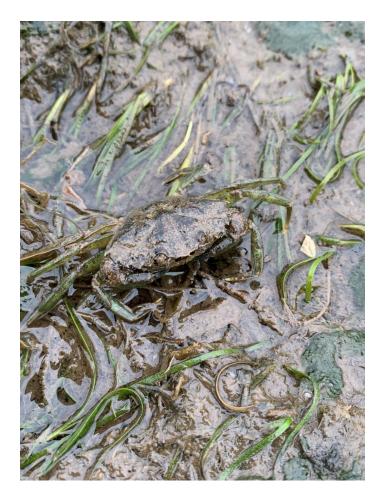


Month



### **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**

#### 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

Vessel Information	n					
Vessel name						
ID number	IMO n	umber 💽				
Country of Registry	Selec	t country			•	
Owner/operator						
Туре	Selec	t vessel type	e	•	Gross Tonnage	
Ballast water volume	units	Select units	s -			
Total ballast water ca	apacity				Number of tanks on ship	
Onboard BW Manag	ement s	System				
Last dry dock date						

Ballast Water Management Report

Voyage Information		
Arrival port (port and state)	Select state	•
Arrival date		
Last port (port and country)	Select country	•
Next port (port and country)	Select country	•
Total ballast water on board	Number of tanks in ballast	
	Number of tanks discharged	

#### Certificate of accurate information

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by CFR 151.2050(g).	· · ·
Responsible Officer's name and title	

Report type Select report type

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Submitted by
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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?

Vessel Informatio	n					
Vessel name						
ID number	IMO n	umber 🔄				
Country of Registry	Selec	t country			•	
Owner/operator						
Туре	Selec	t vessel type	е	•	Gross Tonnage	
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Last dry dock date						
Voyage Informati	on					
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Arrival date						
Last port (port and c	ountry)				Select country	-
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				Nur	nber of tanks discharged	L

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### **Questions?**

**Ben Rubinoff**, <u>Benjamin.Rubinoff@dfw.wa.gov</u>