

# *Oregon Ballast Water Program*

*PACIFIC BALLAST WATER GROUP MEETING  
MARCH 2016  
SACRAMENTO, CA*



State of Oregon  
Department of  
Environmental  
Quality

*Rian v. Hooff  
Department of Environmental Quality  
Portland, Oregon*

# Oregon Ballast Water Program

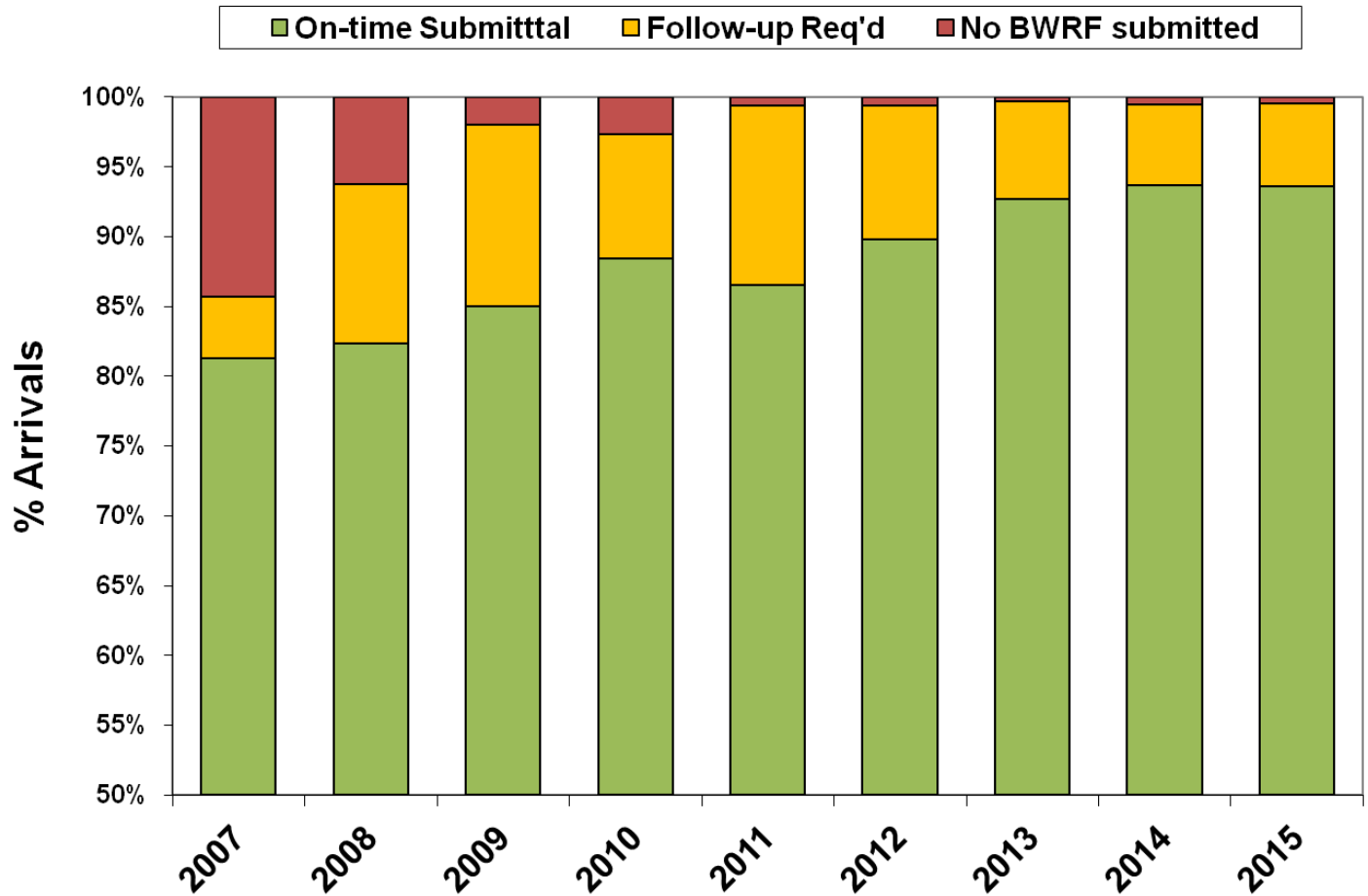
- Regulations established in 2001
- Program activities include;
  - Monitoring vessel arrivals for pre-arrival BWMR compliance
  - BWMR screening to identify high-risk arrivals
  - Vessel inspections & compliance verification sampling
  - Outreach & technical support
  - Enforcement actions
  - Stakeholder engagement & policy development
- Program funding:
  - Initial funding level of 1.0 FTE (2007) was increased to 1.5 FTE following implementation of new fee in 2012
  - Effective Jan 2016 fee is \$88 per qualifying voyage
  - 50/50 cost share between fee revenue and GF allocation



# BW Reporting Form Compliance

*BWRF  
required 24-hr  
prior to arrival  
in state waters*

*Reports filed  
for 99.6% of  
arrivals in  
2015*



# Vessel Arrival Trends

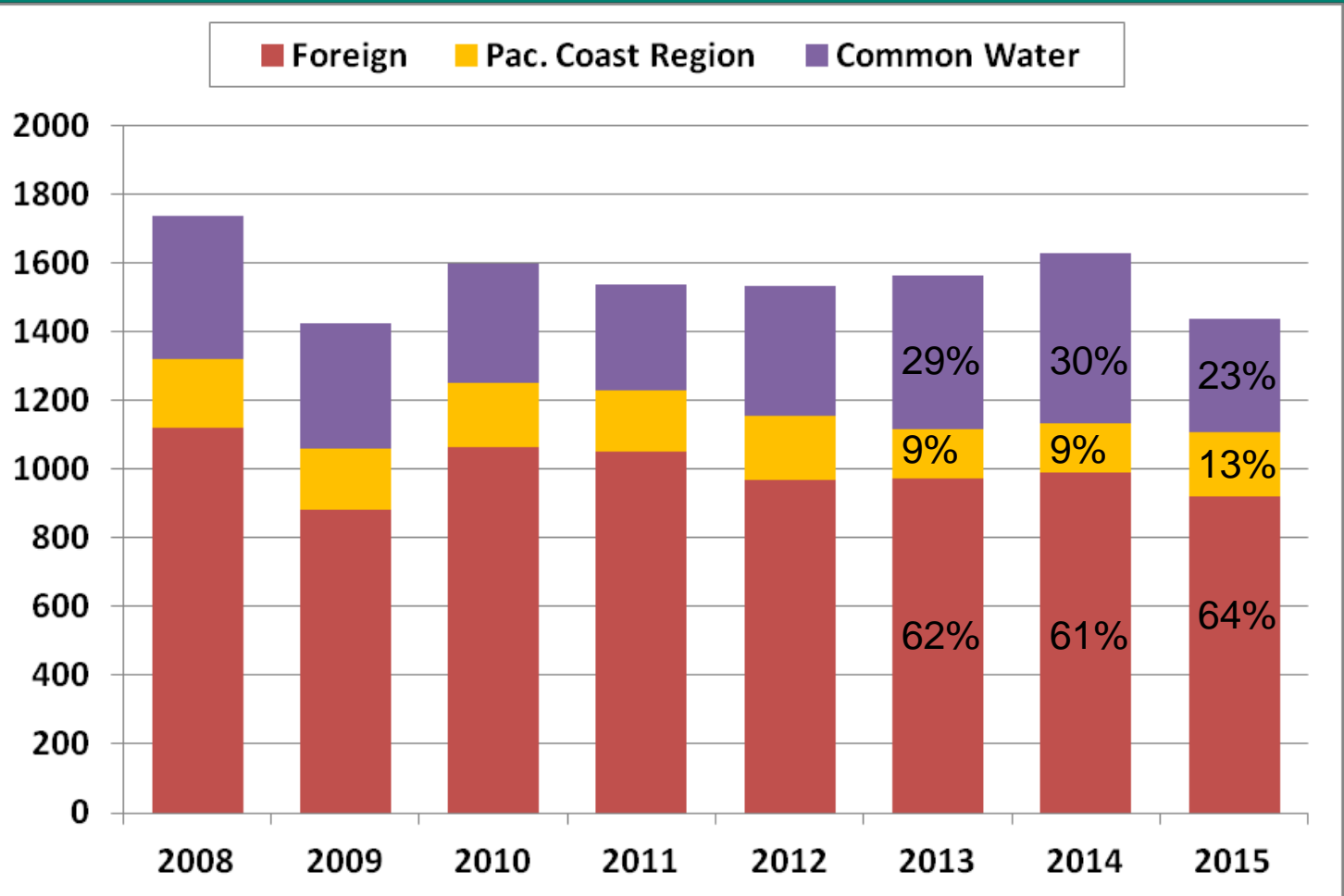
*Qualifying Voyages (QV) per year*

**2015**

768 unique  
vessels for  
1438 QV's

31% 1<sup>st</sup>  
timers

97% Col. R.  
3% Coos Bay

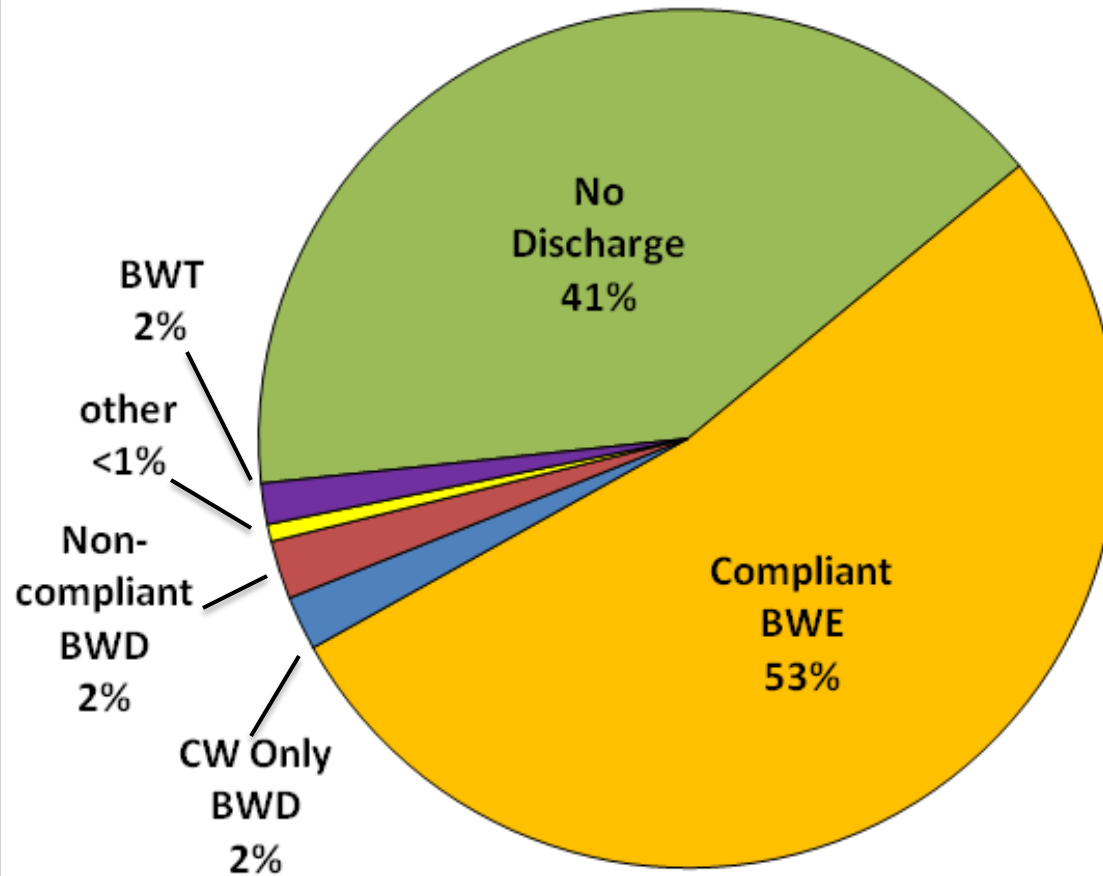




# Reported BW Management Behavior

*per arrival in 2015 (n=1438)*

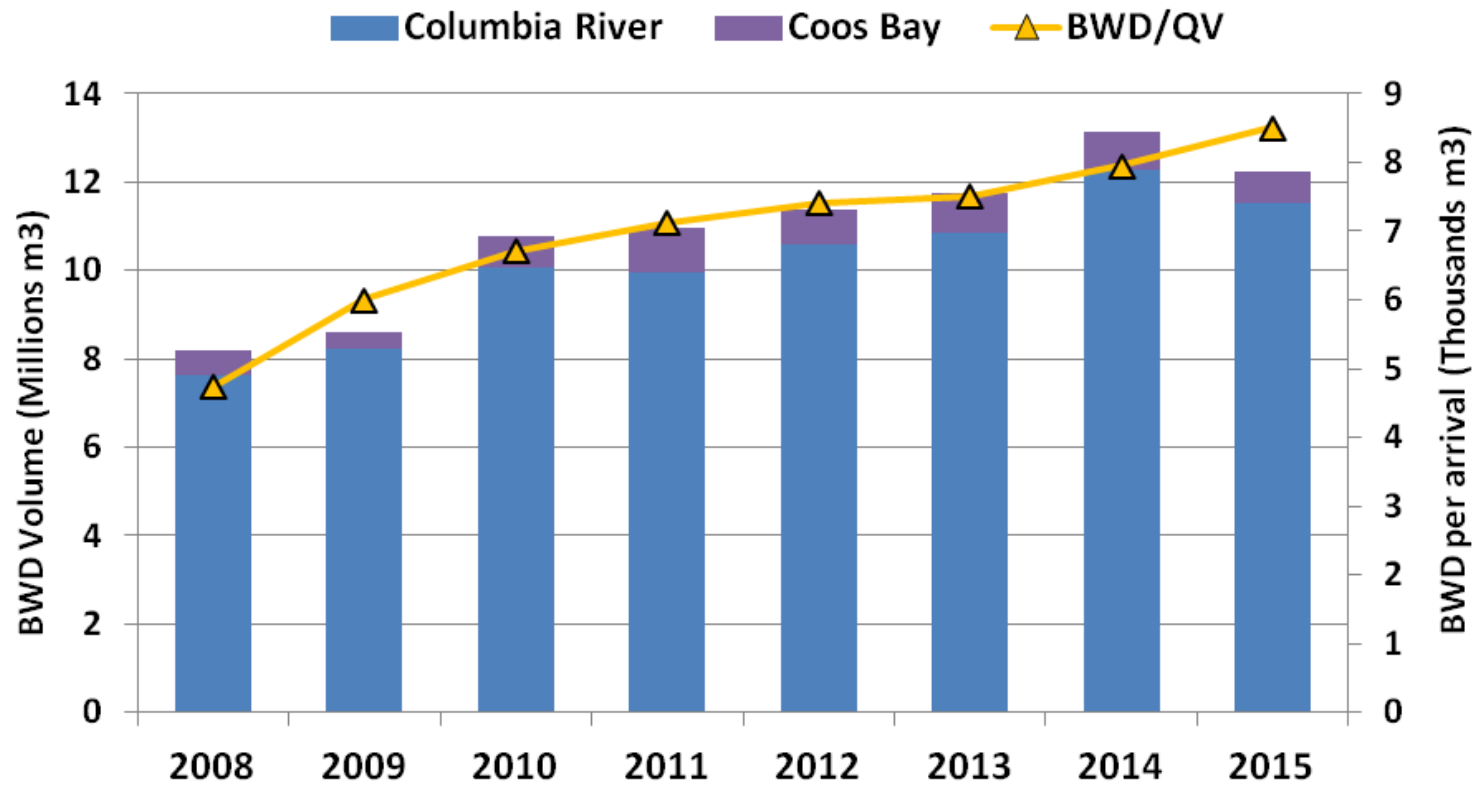
59% of  
Oregon  
arrivals  
discharged  
ballast to state  
waters in 2015



# Ballast Water Discharge Trends

**2015**  
**12.2 Million m<sup>3</sup>**  
**discharged to**  
**Oregon waters**

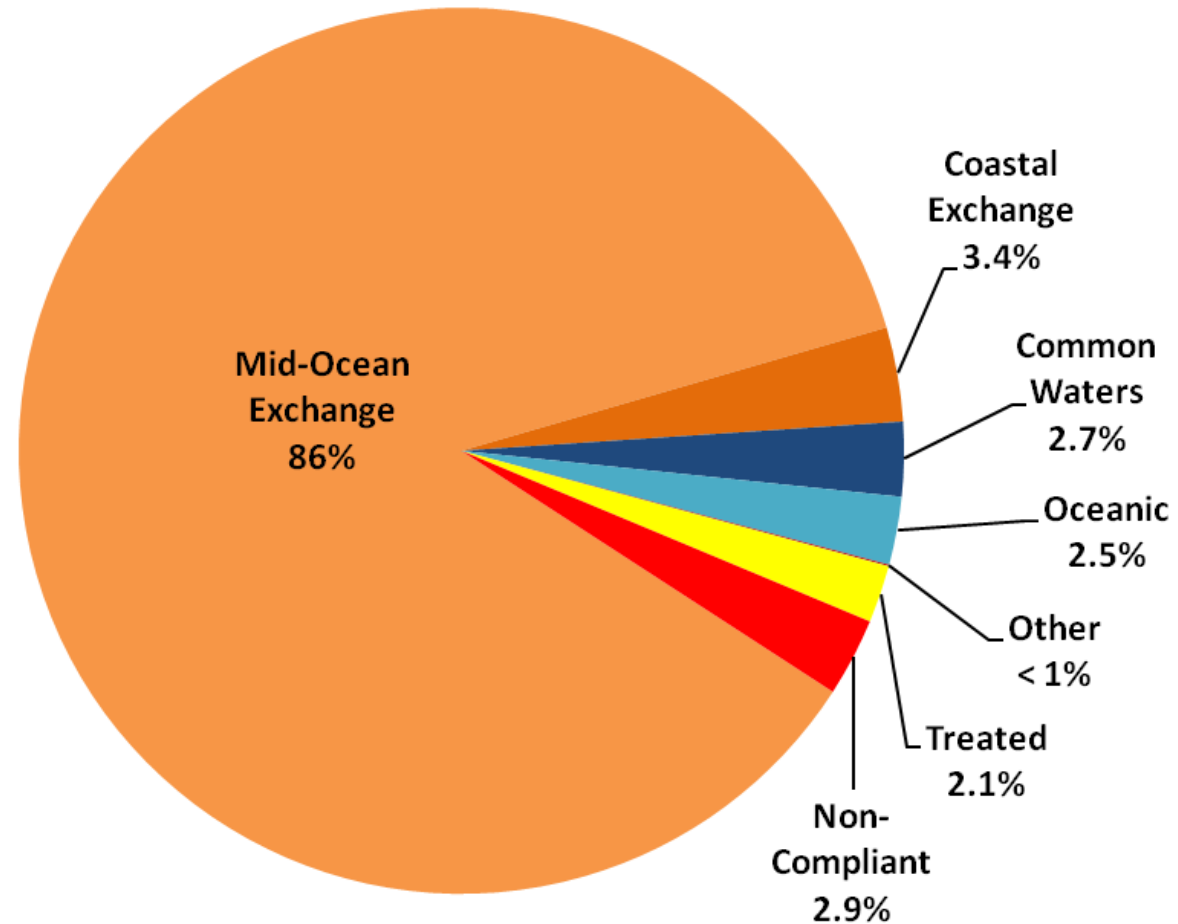
94% CR  
6% Coos Bay



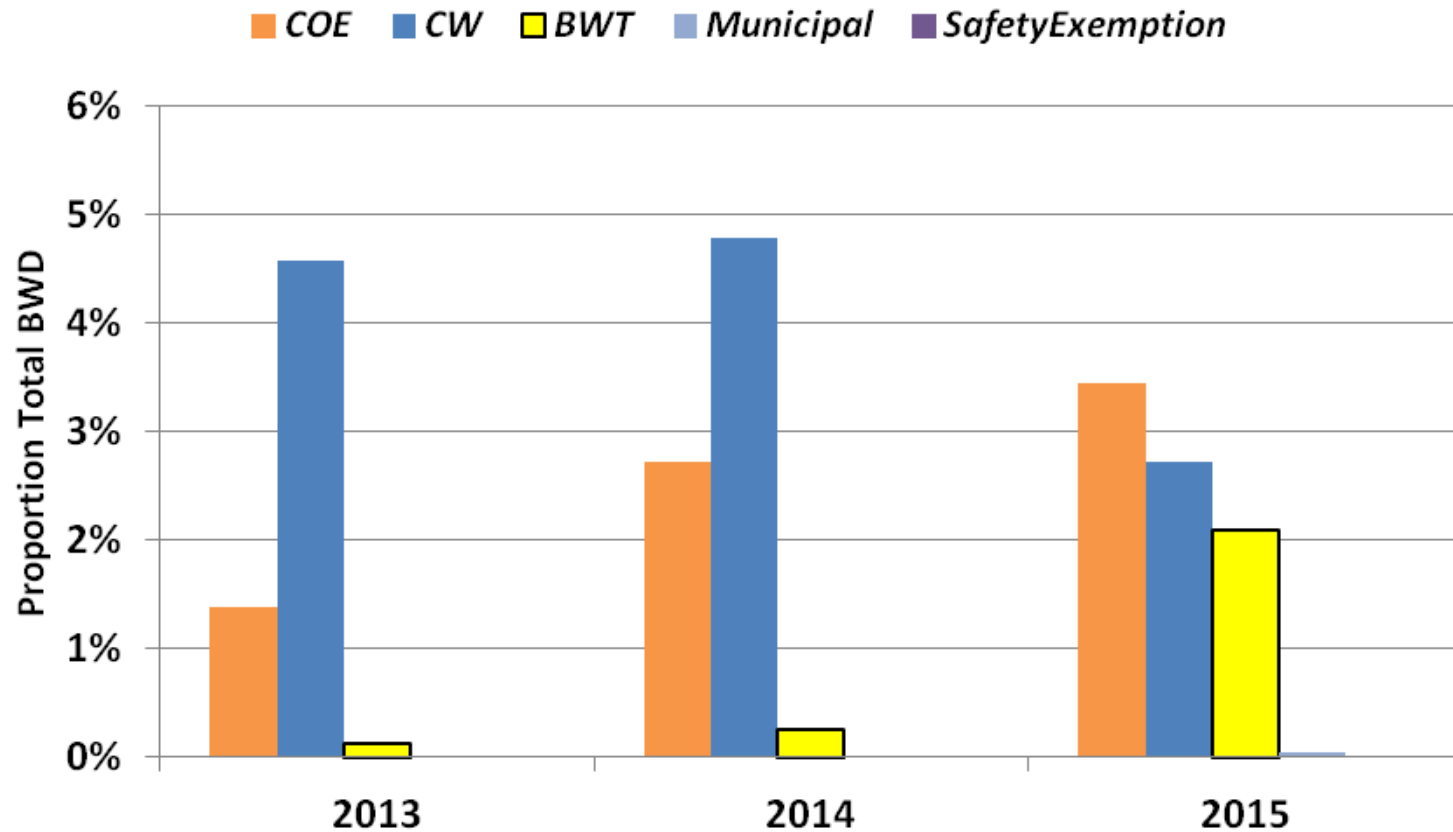
# Reported Ballast Management Status

*of 12.2 M m<sup>3</sup> discharged in 2015*

*86% of  
discharged  
ballast  
managed via  
mid-ocean  
exchange  
(MOE)*



# BWM Paradigm Shift: BWE → BWT



BWT  
Discharge: 15,892 m<sup>3</sup>  
(n = 1)

32,593 m<sup>3</sup>  
(n = 3)

256,854 m<sup>3</sup>  
(n = 19)

2016

? M m<sup>3</sup>



# Inspection Activities

## Inspection Objectives:

1. Outreach & Technical Service



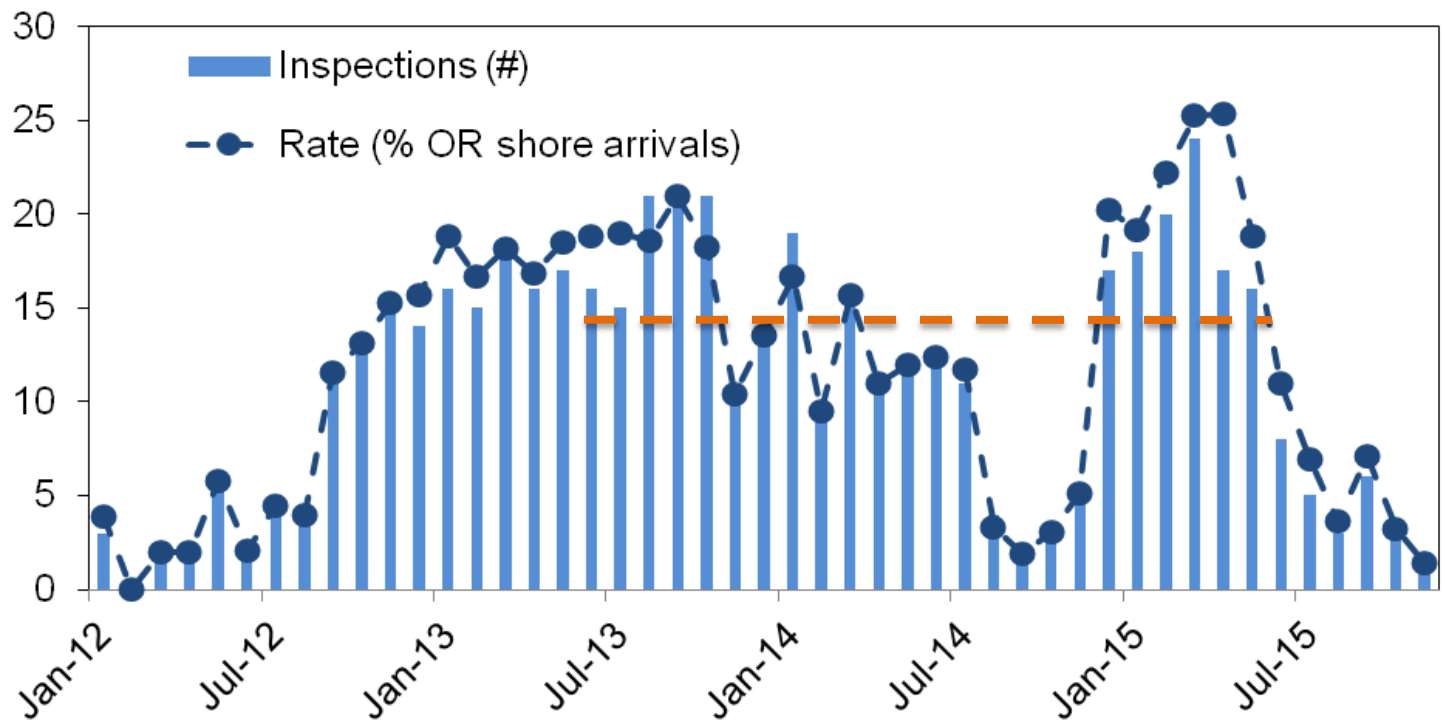
2. Audit of Shipboard Records



3. Compliance Verification via Sampling of Ballast water salinity



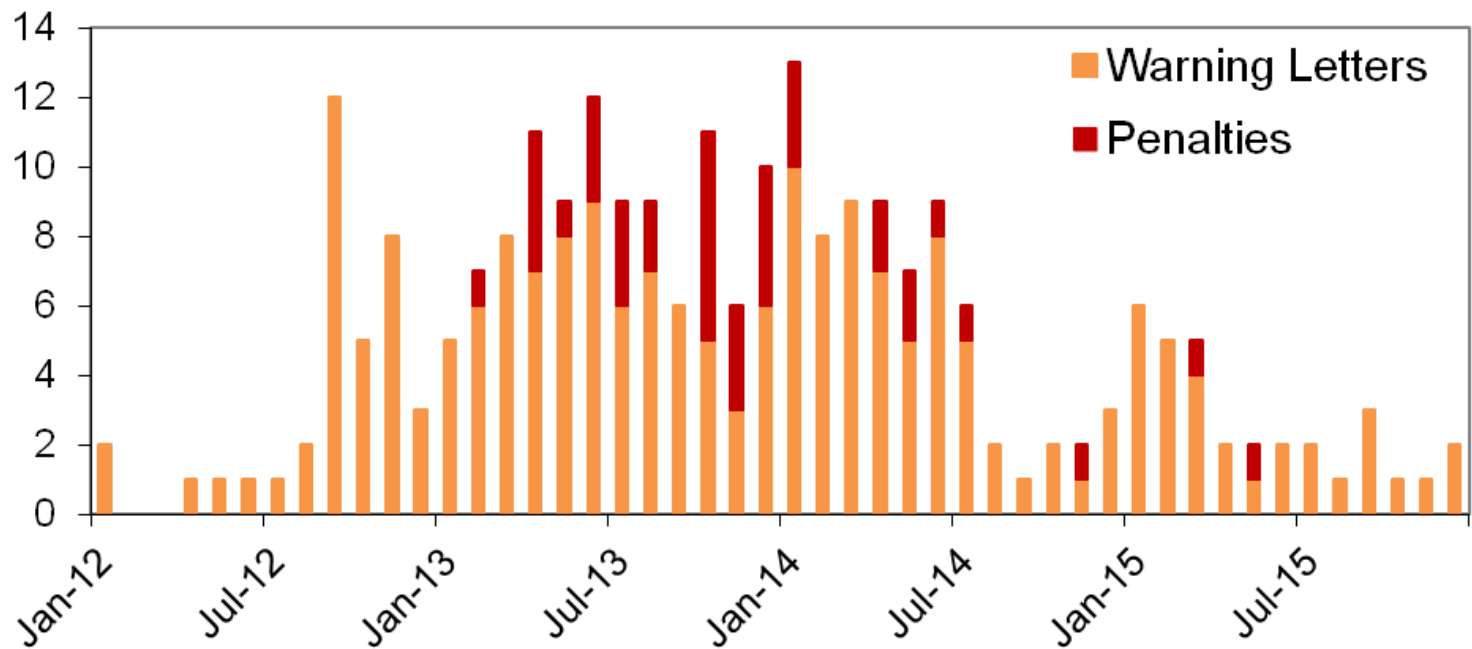
4. Assist with Corrective Action



# Enforcement Actions

*(number per month)*

*Enforcement  
Guidance  
Policies  
initiated  
beginning  
January 2013*

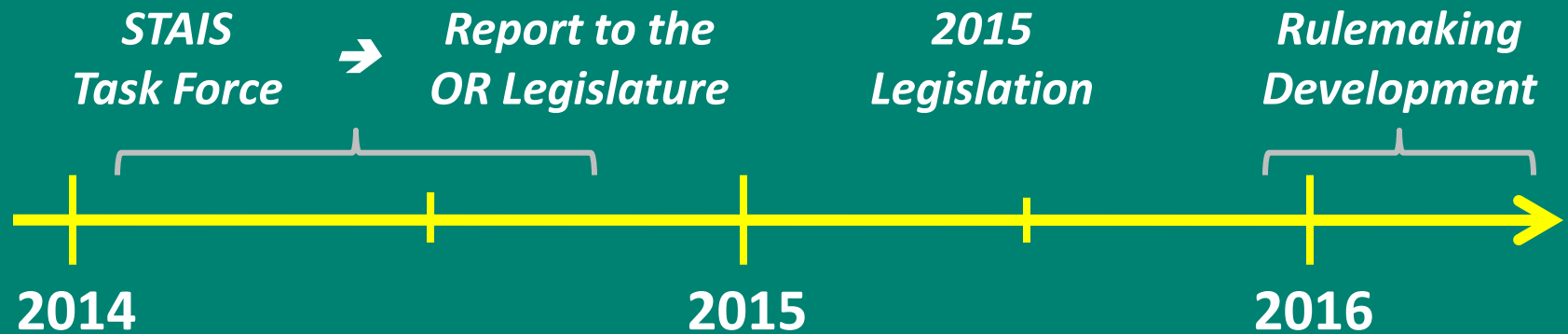


# Ballast Program Enforcement Actions

<b><u>Enforcement Action</u></b>	<b><u>2013</u></b>	<b><u>2014</u></b>	<b><u>2015</u></b>
<i>Warning Letters</i>	76	61	30
<i>Expedited Enforcement Offers Issued (Field Ticket)</i>	23	9	3
<i>Formal Enforcement Actions Issued</i>	1	2	0
<i>Combined Penalties</i>	\$23,250	\$70,600	\$12,000

*Base Penalty Values revised in January 2014*

## Recent Policy Developments



# DEQ BW Rulemaking 2016

## Objectives:

- *Support implementation of federal BWDS, but mitigate concerns with locally tailored solutions that are globally compatible*
- *Ensure that implementation of federal BWDS strategies do not result in increased risk of introductions to low-salinity ports in Oregon*
- *Develop ballast management strategy for freshwater ports that could facilitate west coast regional consistency*
- *Solicit advisory committee input to ensure that rules are adequately protective, practical and feasible.*

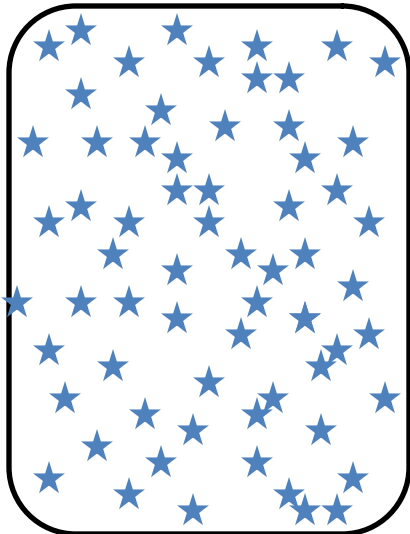
# Efficacy of IMO D2 BWDS is questionable for protecting freshwater ports

## SW Source → SW Port

(coastal marine organisms = high-risk)

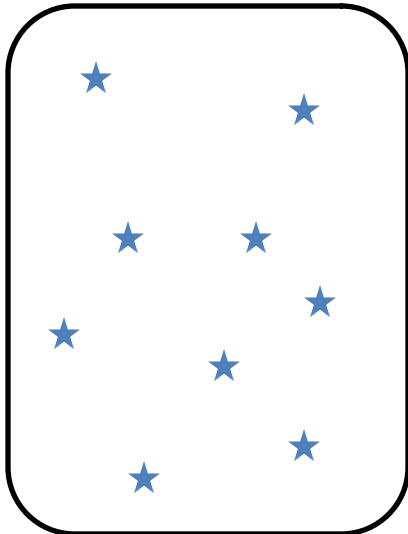
End-of-pipe discharge following:

**BWE**



1000's per m3

**BWT**



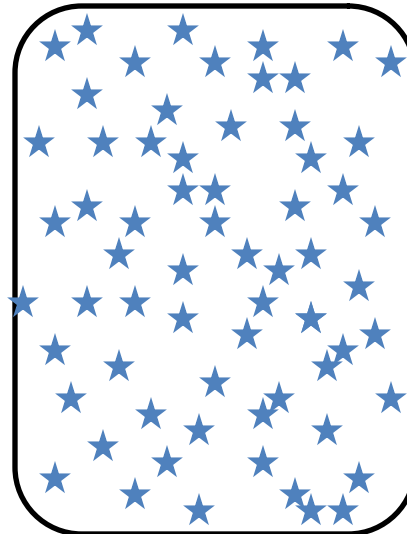
<10 per m3

## FW Source → FW Port

(freshwater organisms = high-risk)

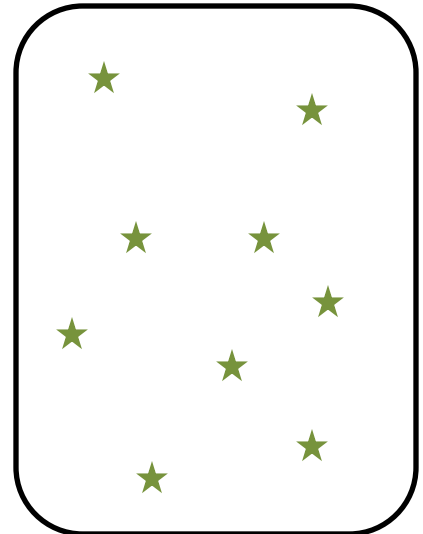
End-of-pipe discharge following:

**BWE**



1000's per m3

**BWT**



<10 per m3

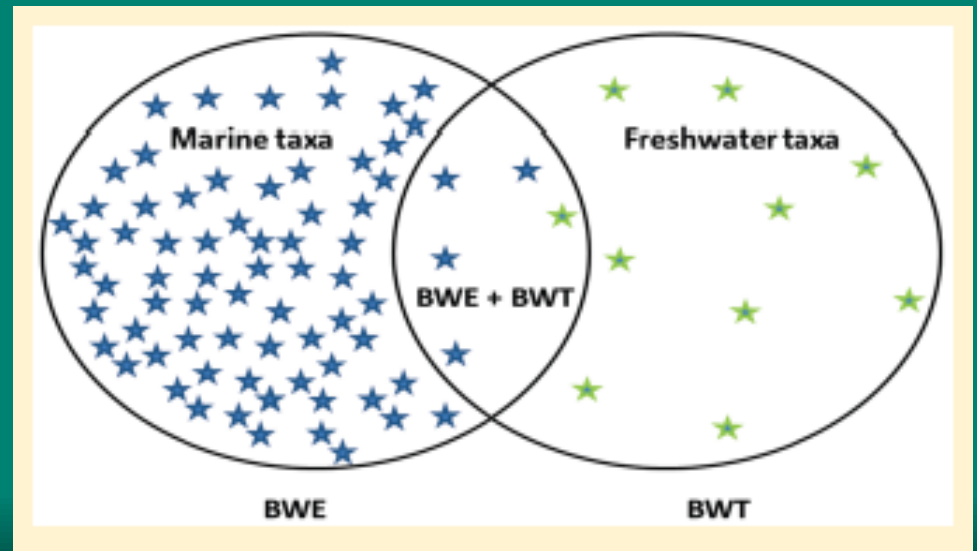
(Adapted from Briski et al 2015)



# BWE+BWT supporting rationale

- The combined BWE + BWT strategy targets two factors in the invasion process: propagule pressure and environmental tolerance
- Shipboard results demonstrate that BWE + BWT tanks contained mostly lower risk marine taxa unlikely to survive in recipient freshwater ecosystems
- Can be strategically applied to target high-risk voyages

*“BWE plus BWT proved to be more effective at reducing invasion risk to freshwater recipient systems than BWT alone”*



**Briski et al. (2015)** Combining ballast water exchange and treatment to maximize prevention of species introductions to freshwater ecosystems. *Environmental Science & Technology* 49, 9566–9573

# Primary discussion points regarding OR BWE+BWT proposal

- ❖ Consistency with policy criteria established in other jurisdictions
  - EPA VGP regulations for Great Lakes, or
  - State regulations established by MA, MI, MN, NY, RI, or
  - West Coast consistency (i.e. Canada proposal).

## BWE + BWT required if.....

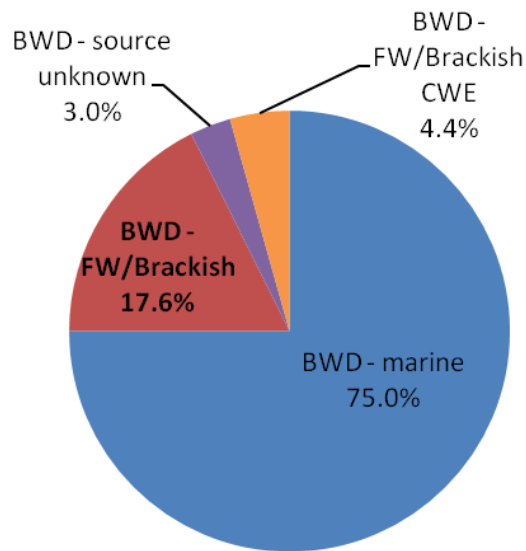
BWE+BWT Policy	BW Source Salinity	Receiving Port	Voyage Type
EPA (GL)	< 16 ppt	St. Lawrence / GL	fr/ outside EEZ
MA/MI/MN/NY/RI	all	all	fr/ outside EEZ
CANADA*	<i>all</i>	< 2 ppt	<i>fr/ outside EEZ</i>
Oregon	?	?	?

\* Tentative - based on Transport Canada IMO Implementation Plan

# Primary discussion points regarding OR BWE+BWT proposal

## Oregon BWD (volume) – Source Environment

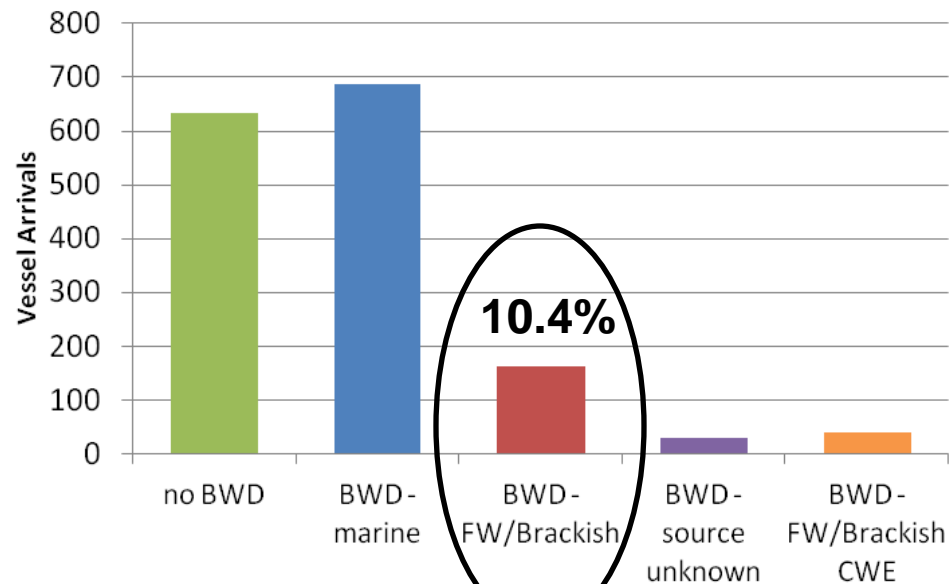
(12.5 Million m<sup>3</sup> per year)



(Adapted from Noble 2007)

## Oregon BWD (annual arrivals) – Source Environment

(n= 1550 per year)

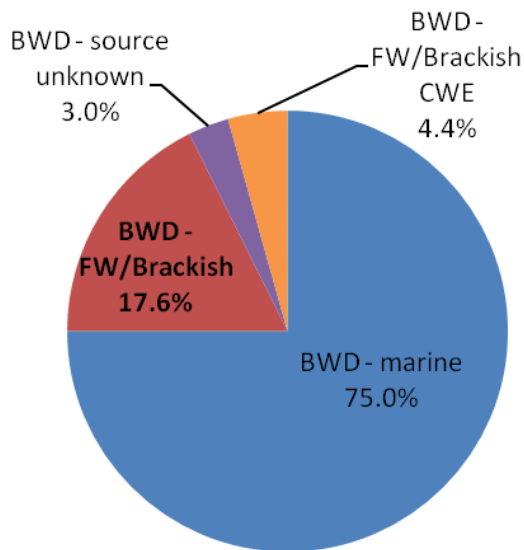


~ 10.4% of vessel arrivals to state  
waters (~ 162 per year) may be  
subject to BWE + BWT requirement

# Primary discussion points regarding OR BWE+BWT proposal

## Oregon BWD (volume) – Source Environment

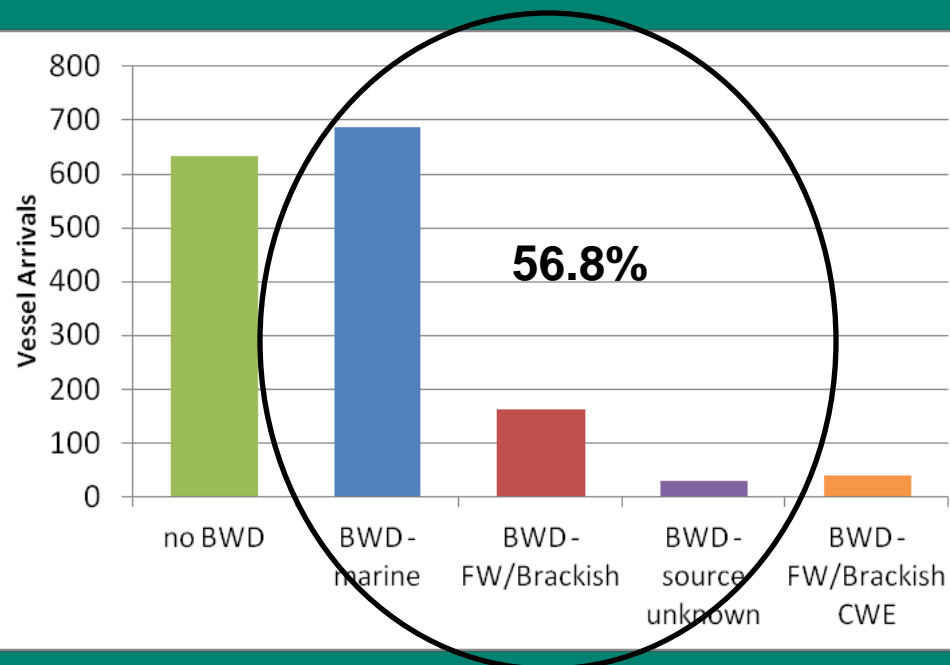
(12.5 Million m<sup>3</sup> per year)



(Adapted from Noble 2007)

## Oregon BWD (annual arrivals) – Source Environment

(n= 1550 per year)



~ 57% of vessel arrivals to state waters (~ 880 per year) may be subject to BWE + BWT requirement

# Primary discussion points regarding OR BWE+BWT proposal

- ❖ Consistency with criteria/policies established in other jurisdictions
  - EPA VGP regulations for Great Lakes, or
  - State regulations established by MA, MI, MN, NY, RI, or
  - West Coast consistency (i.e. Canada proposal)
- ❖ Exemptions
  - Use of BWT that meet BWDS higher than IMO/D-2
  - BWT design that can't accommodate BWE (e.g. short voyages)
- ❖ Outreach to vessel operators (non-compliance implications)
- ❖ Sunset Date?

# DEQ BW Rulemaking 2016

## Next Steps:

1. *Complete internal review of Advisory Committee input*
2. *Release proposed rule for public comment (April/May)*
3. *Prepare final rule to be considered for adoption by the Environmental Quality Commission*





# Oregon Ballast Water Management Program

*Questions or  
Comments?*



Photo credit: B. Bjorndal

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