

Patterns of Vessel Traffic and Ballast Water Management in California

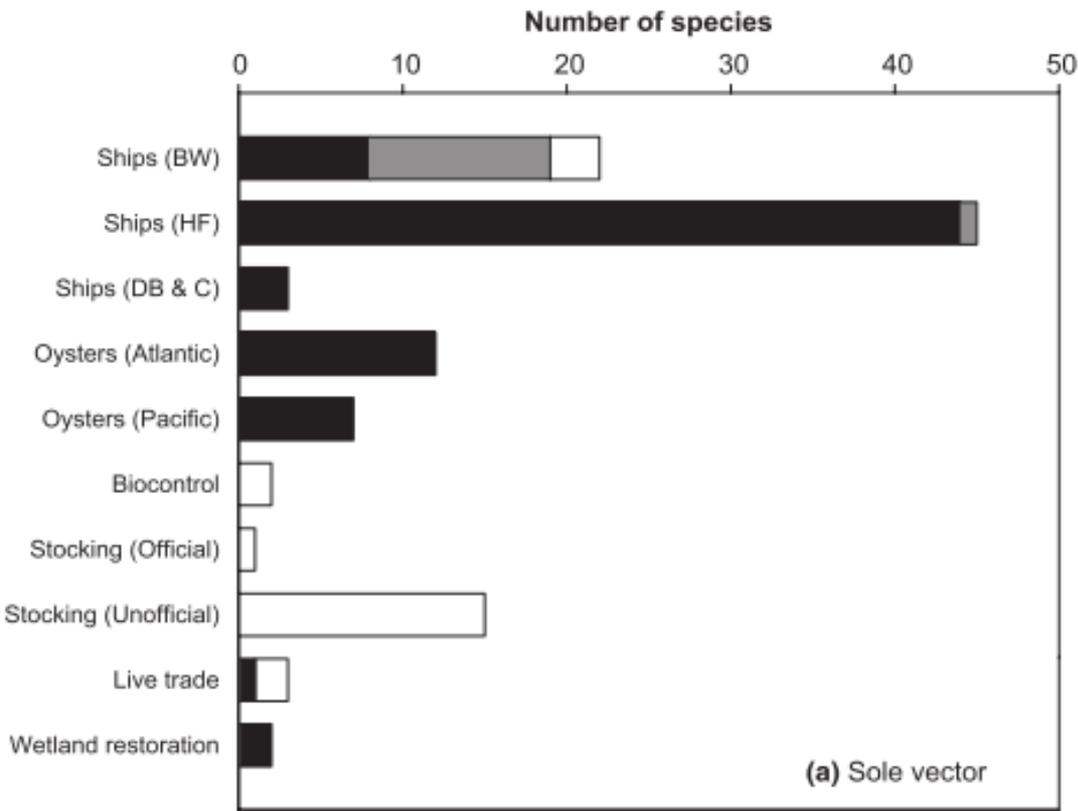
By Raya Nedelcheva

Marine Invasive Species Program, California State Lands Commission

Prevention First 2014
October 8th, 2014



In California



(Ruiz et al. 2011)

Many vectors contribute to NIS introductions in the state, but by far ballast water and biofouling play the largest role

- Each ballast water discharge event has the potential to release over **21.2** million individual organisms (Minton et al. 2005).

California Marine Invasive Species Program Authority & Legislative History

Origin: 1999 Ballast Water Management for Control of Nonindigenous Species Act (AB 703)

- Ballast water management
- Reporting forms
- Vessel inspections

Renewal & Enhancement: 2003 Marine Invasive Species Act (AB 433)

- Coastal voyages
- Performance standards
- Non-ballast vessel vectors (biofouling)

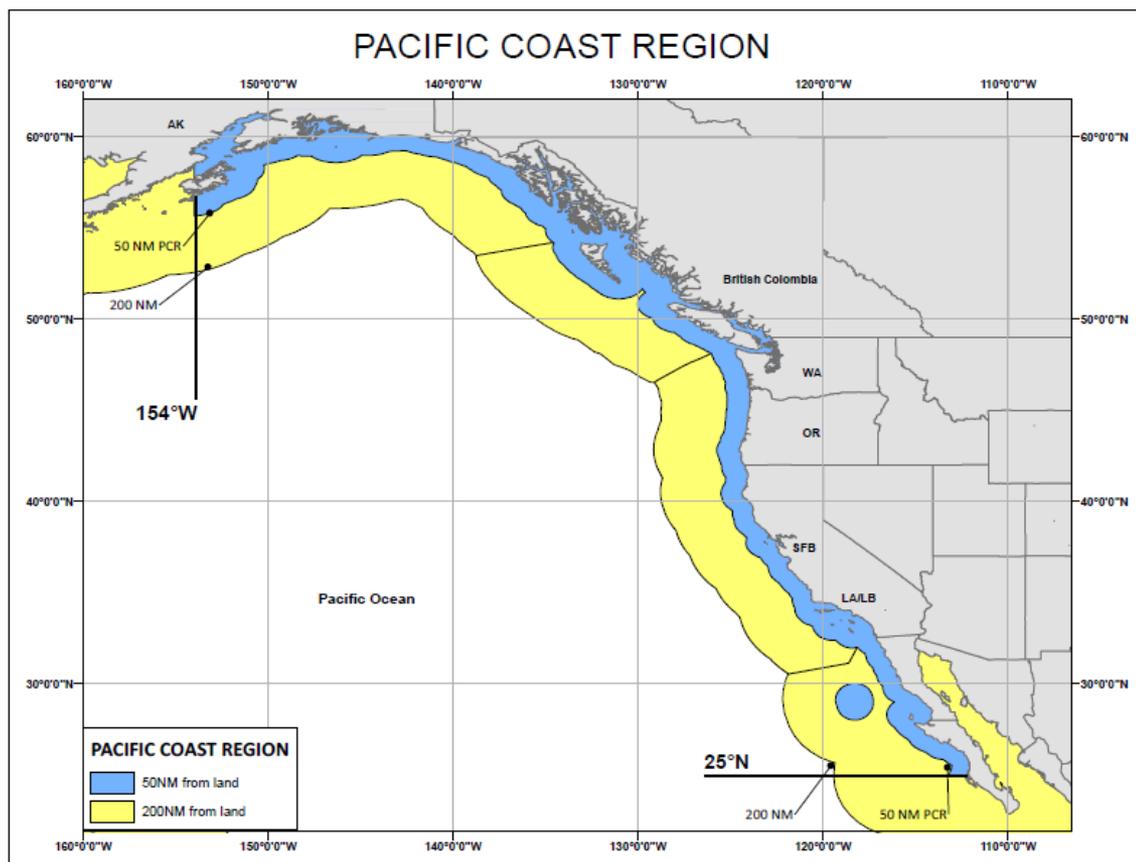


California Environmental Protection Agency

STATE WATER RESOURCES CONTROL BOARD



Current State of Regulations



Reporting:

- Each Port

Management:

- BW management for vessels arriving from PCR ports and non-PCR ports

No exemption for deviation and delay of voyage

- Arrivals from within PCR, ballast water from within PCR: Exchange >50 NM
- Arrivals from within PCR, ballast water from outside PCR: Exchange >200 NM
- Arrivals from outside: Exchange >200 NM

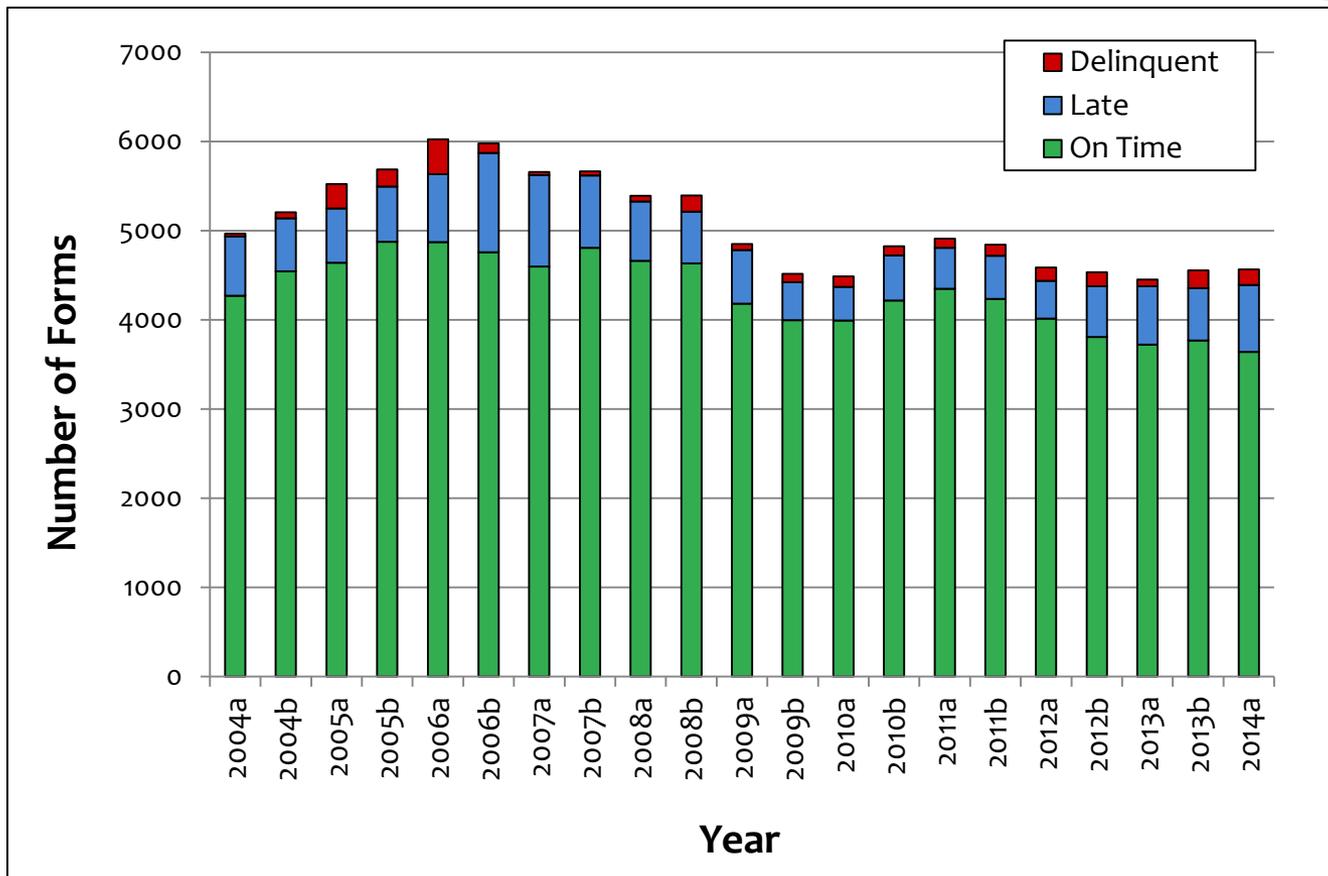
Data Collection Method

Ballast Water Reporting Form: Database

- Forms contain information on source, exchange, and discharge locations
- Quality-controlled database extending back to 2002
 - Reporting requirements changed in 2004. Most consistent set of data available is from 2004 to 2014.

Submission Compliance

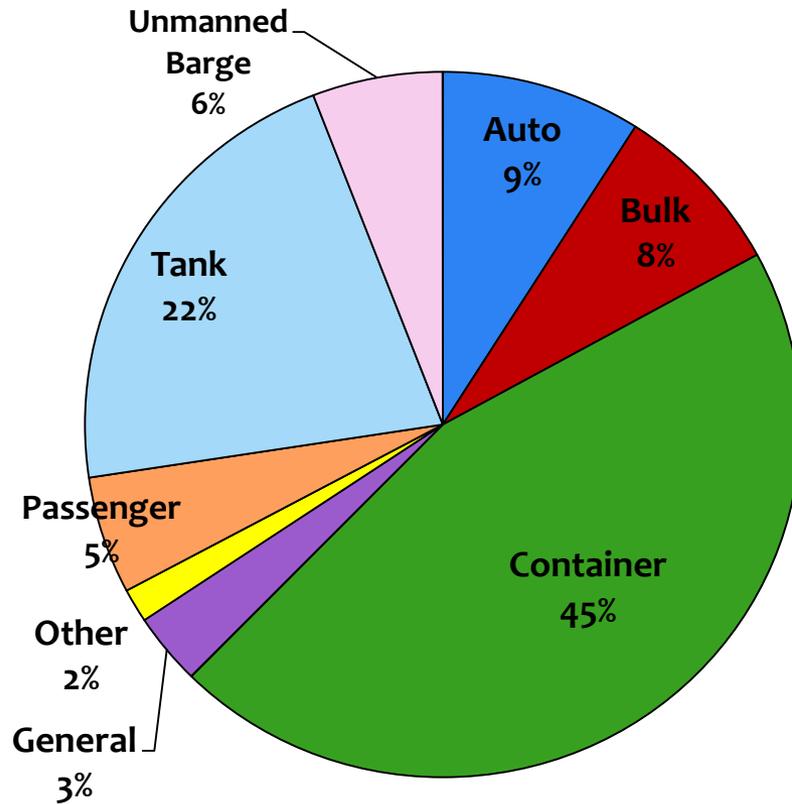
2004-2014



- On average 97% submission compliance rate
- About 9,500-10,000 arrivals per year

Arrivals by Vessel Type

2012-2014

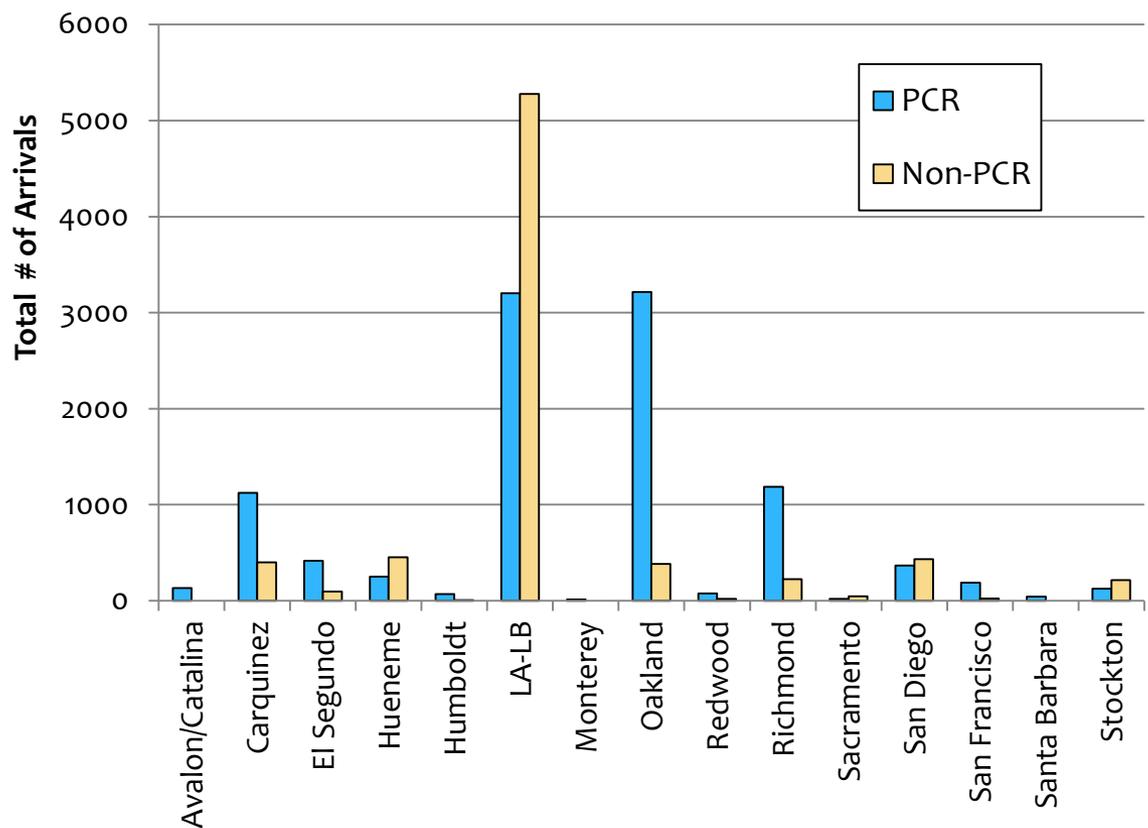


- Nearly half of all arrivals to California from July 2012 to June 2014 were container vessels



Vessel Arrivals

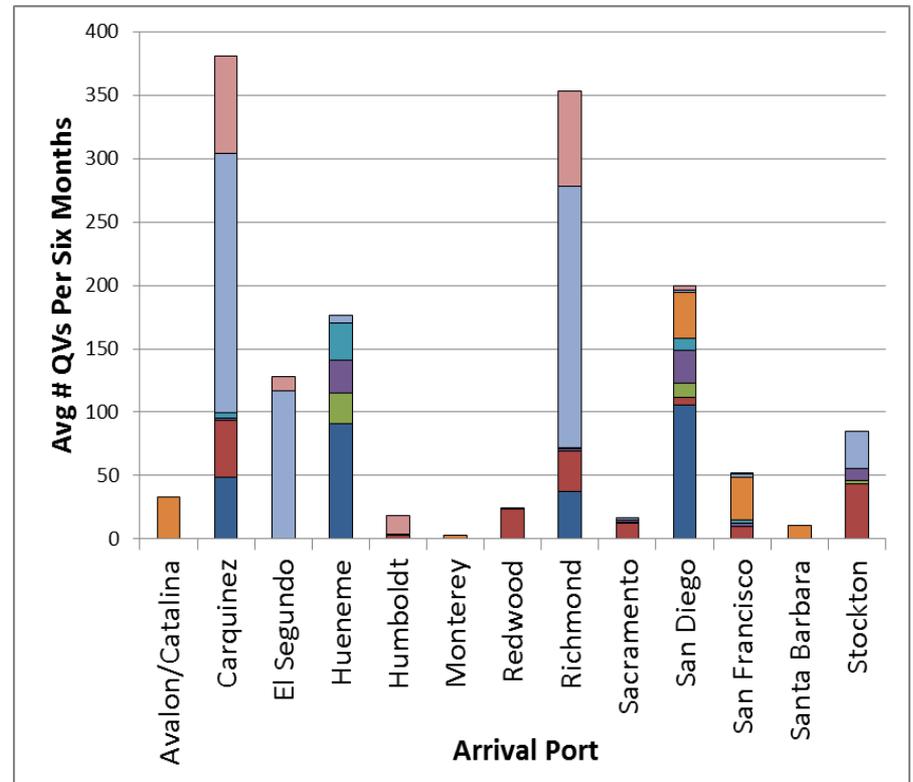
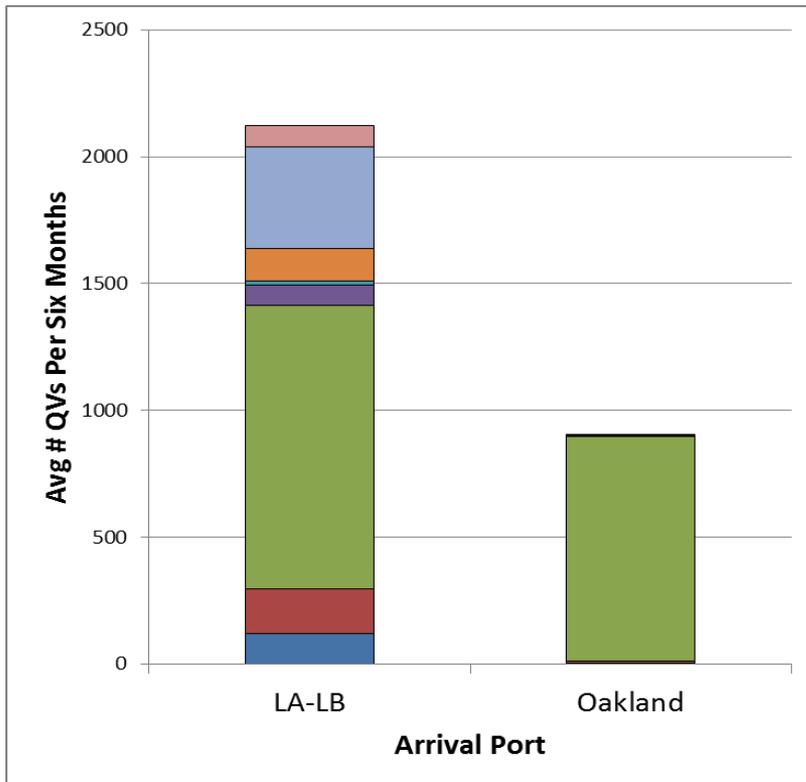
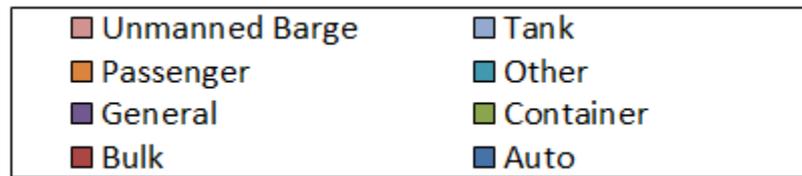
2012-2014



- The Ports of LA-LB and Oakland accounted for 67% of all arrivals to the State
- The Ports of LA-LB receives by far the most Non-PCR arrivals to the State
- The Ports of LA-LB and Oakland received about the same number of PCR arrivals

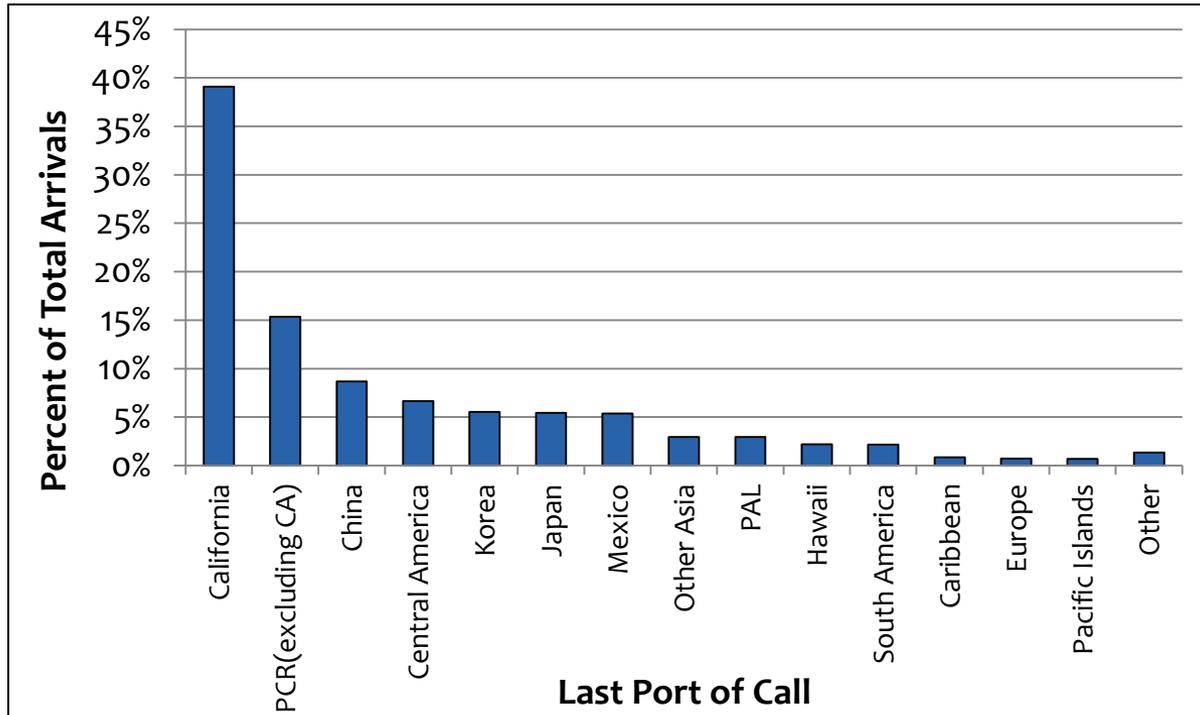
Vessel Type Per Port

2012-2014



Last Port of Call

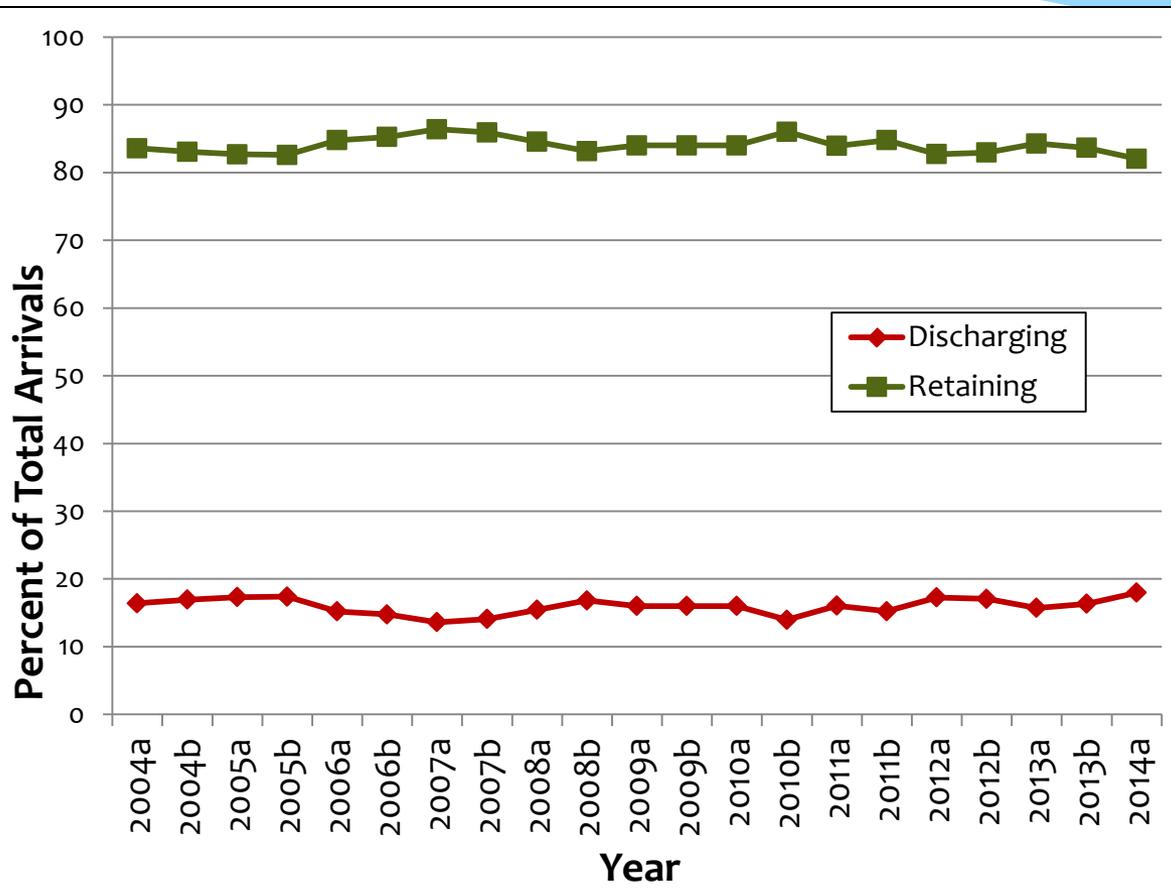
2012-2014



- The majority of arrivals come from other California ports.
- Second most common arrivals are from other PCR ports.
- Non-PCR arrivals are primarily from Asian ports (~20%).

Ballast Water Management

2004-2014



Management Options:

- Retention (84%)
- Ballast Water exchange
- Discharge to a reception facility*
- Alternative management methods

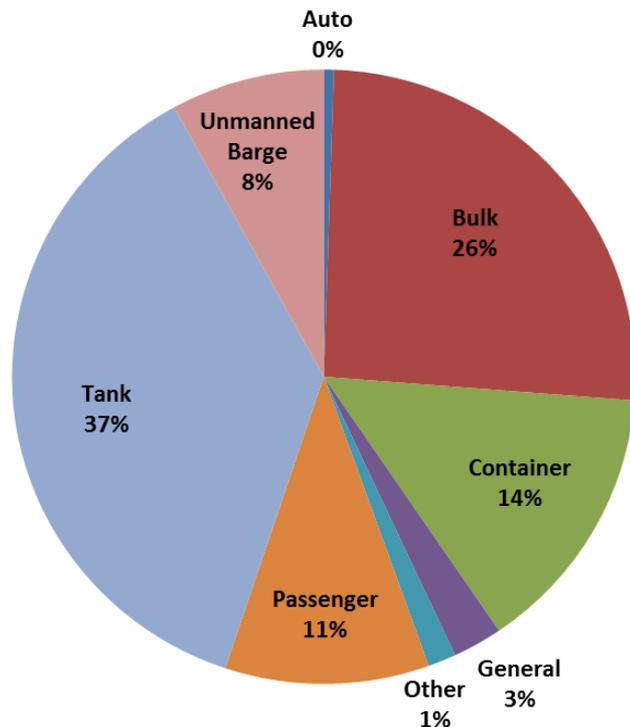


* Currently not available

Number of vessels discharging Per Vessel Type

2012-2014

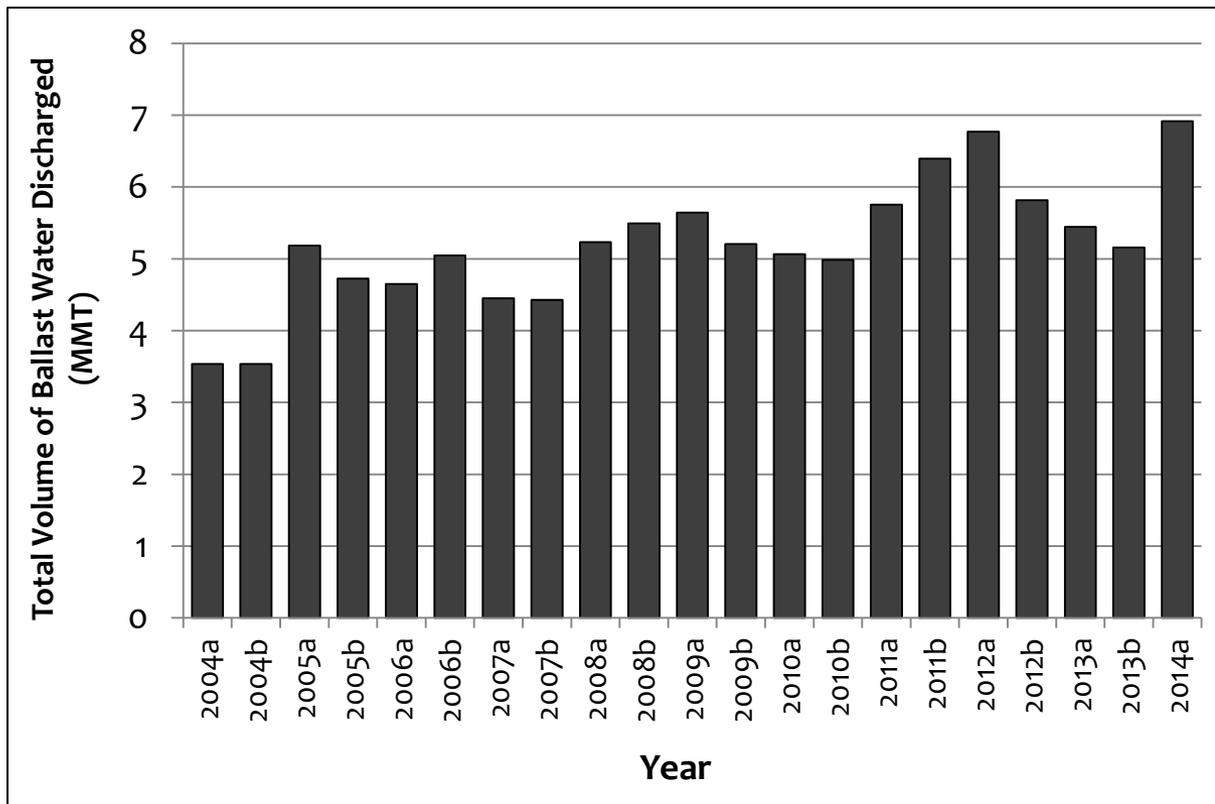
% of QV Type Discharging



- More Tank and Bulk vessels discharge than any other vessel type
- The percent of Tank vessels discharging has doubled since the previous two year period between June 2010 and July 2012

Discharge Volume

2004-2014

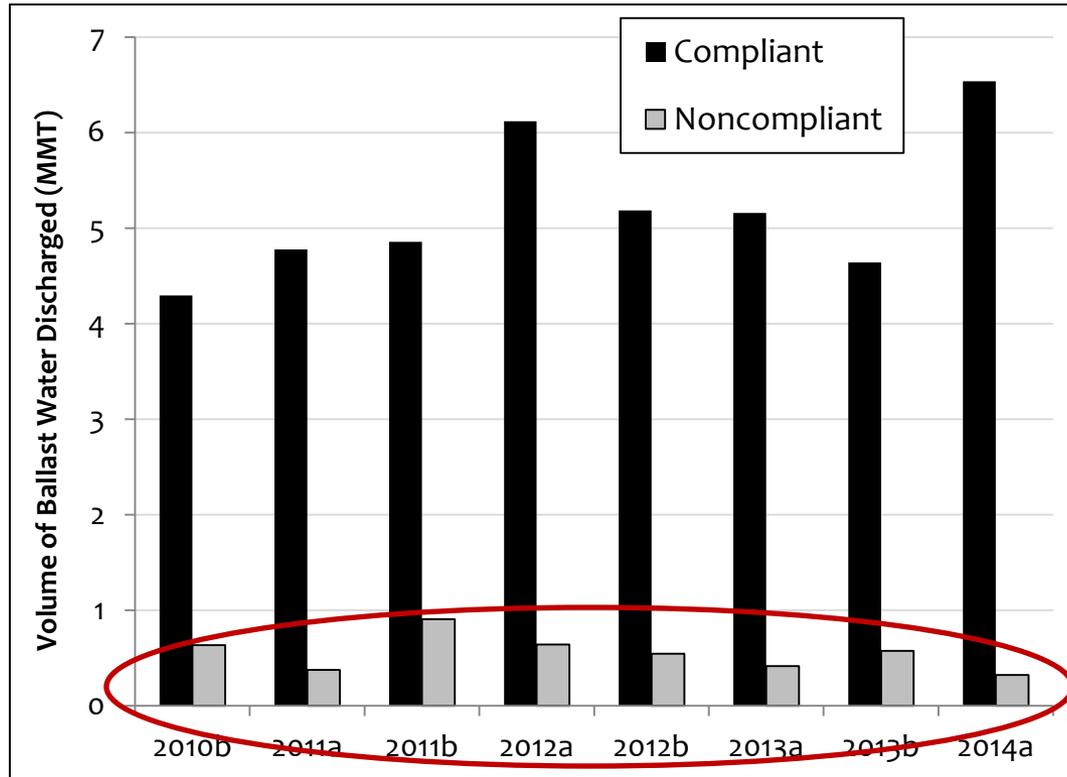


- **Greatest volume of ballast water discharged in 2014a**



Compliance of Discharged Ballast Water

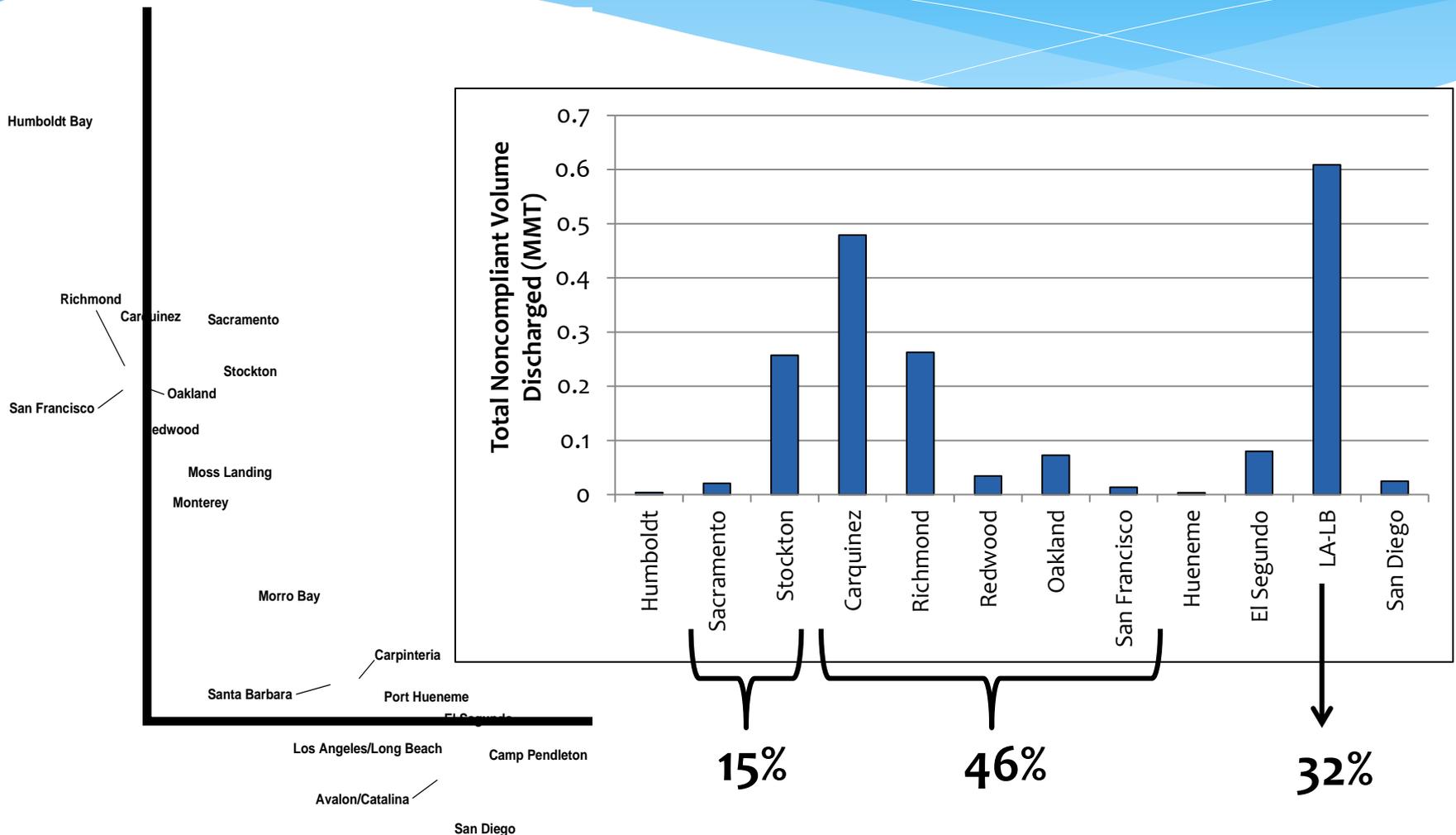
2010-2014



- On average 90% of all discharged ballast water is managed in compliance.
- Pattern has been similar in previous years

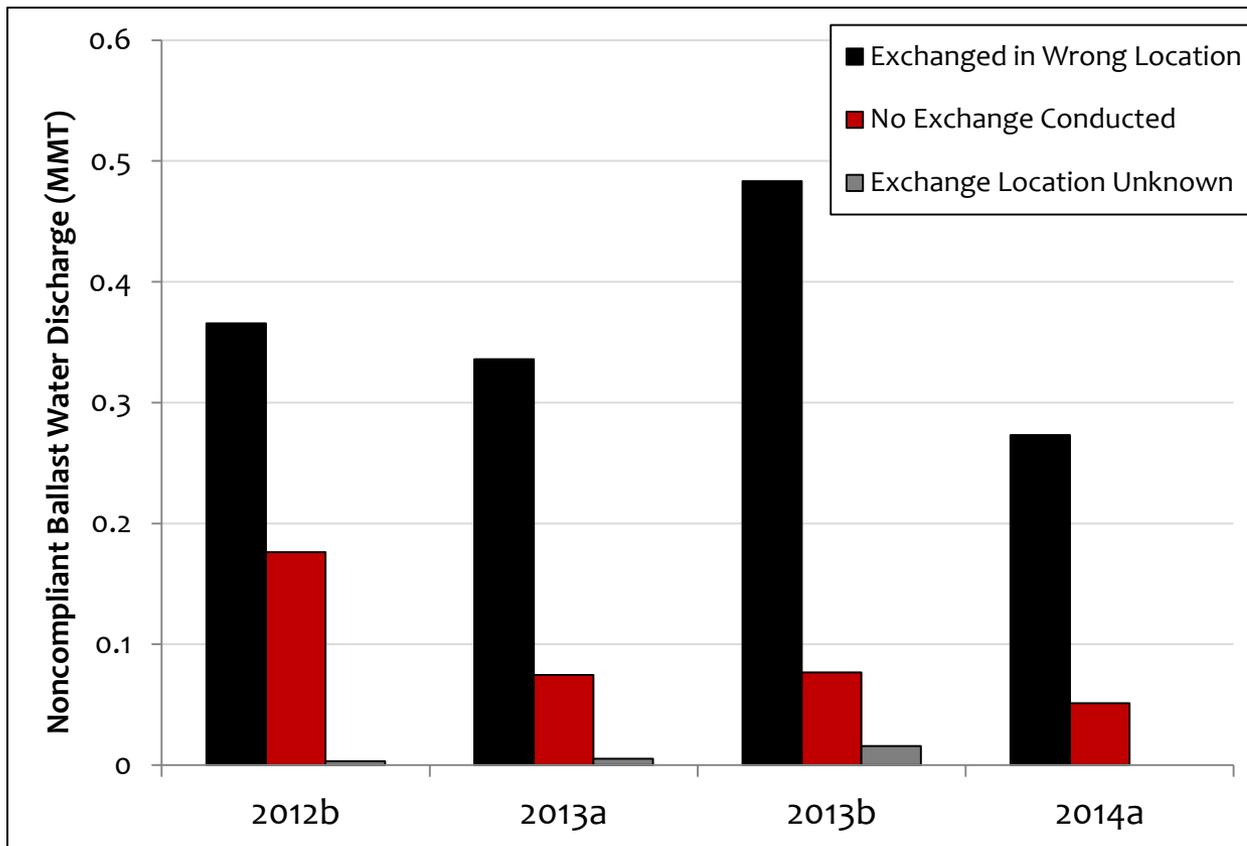
Noncompliant Discharge by Port

2012-2014



Breakdown of Noncompliant Discharges

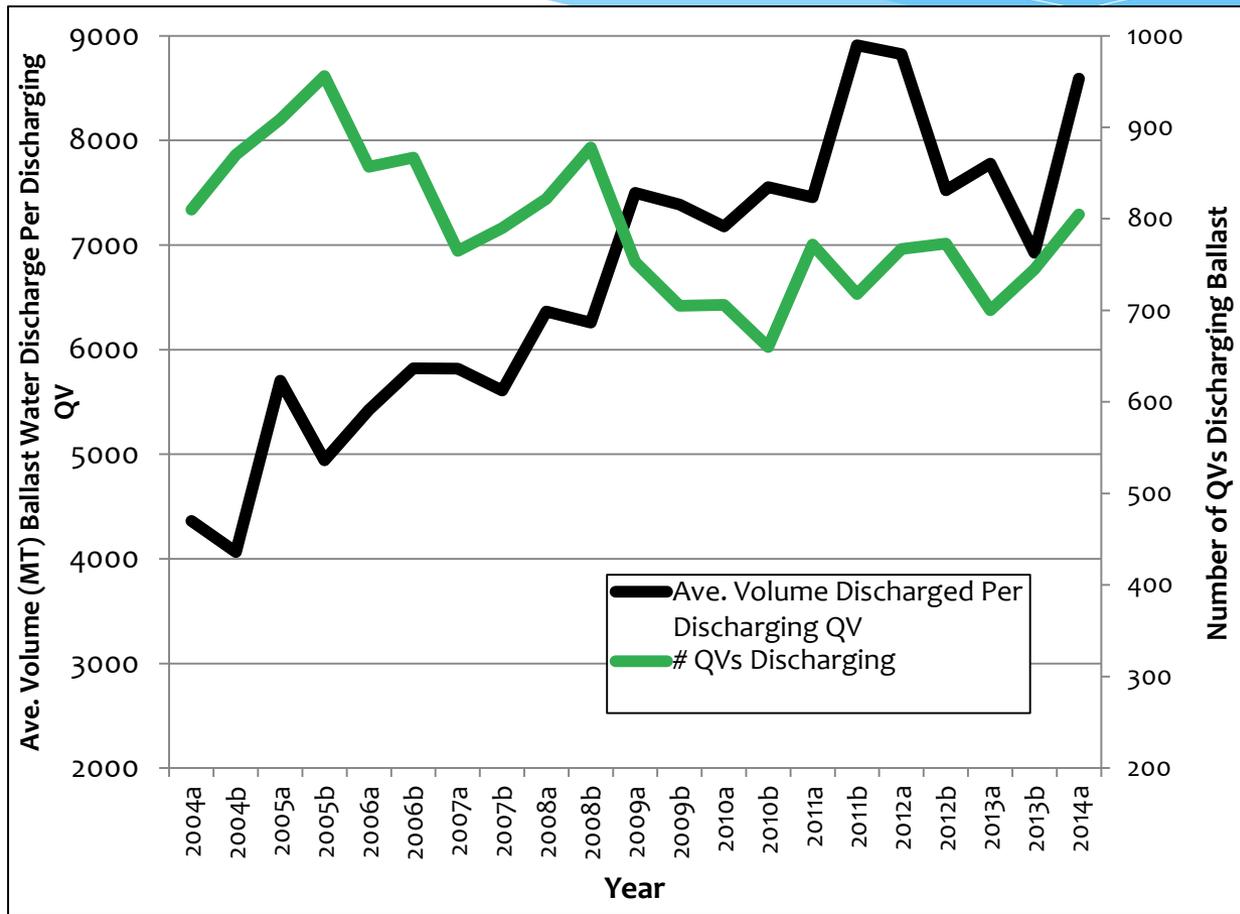
2012-2014



Ballast Water that falls under the “**No Exchange Conducted**” category presents the **most risk of NIS introductions**

Ballast Water Discharges

2004-2014



Summary

- The Ports of LA-LB and Oakland continue to be the most active ports in California in terms of vessel arrivals.
- Most arriving vessels retain their ballast water, those that discharge do so legally.
- Most non-compliant discharges are due to operational error (incorrect location).
- The greater volume of discharged ballast water per vessel (compliant or not) likely creates an increase in risk of NIS introductions.

Thank You!



Raya Nedelcheva

Raya.nedelcheva@slc.ca.gov

