

Ballast Water Treatment System Use in California

SEPTEMBER 28, 2016

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MARINE INVASIVE SPECIES PROGRAM

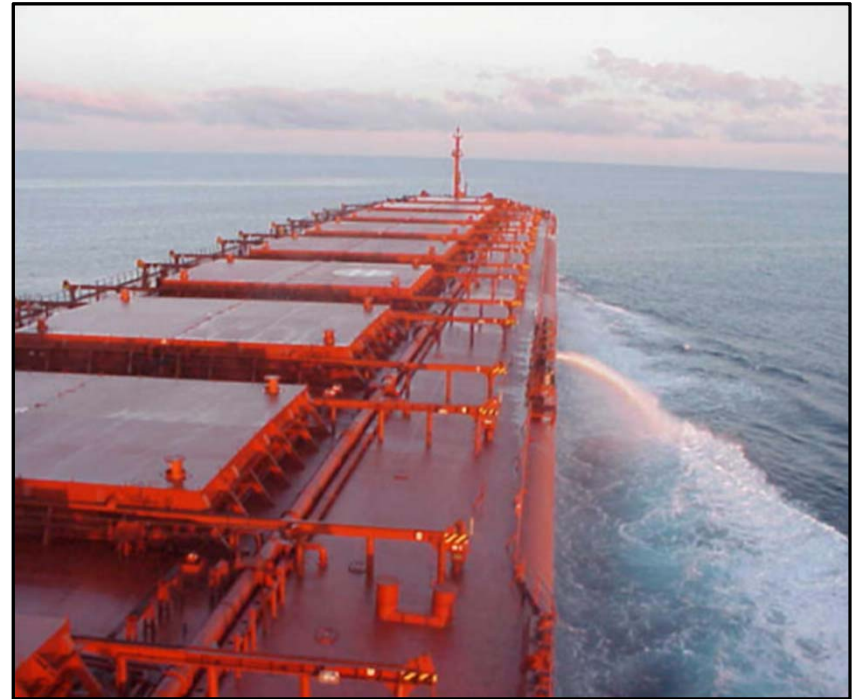
MARINE ENVIRONMENTAL PROTECTION DIVISION

CALIFORNIA STATE LANDS COMMISSION

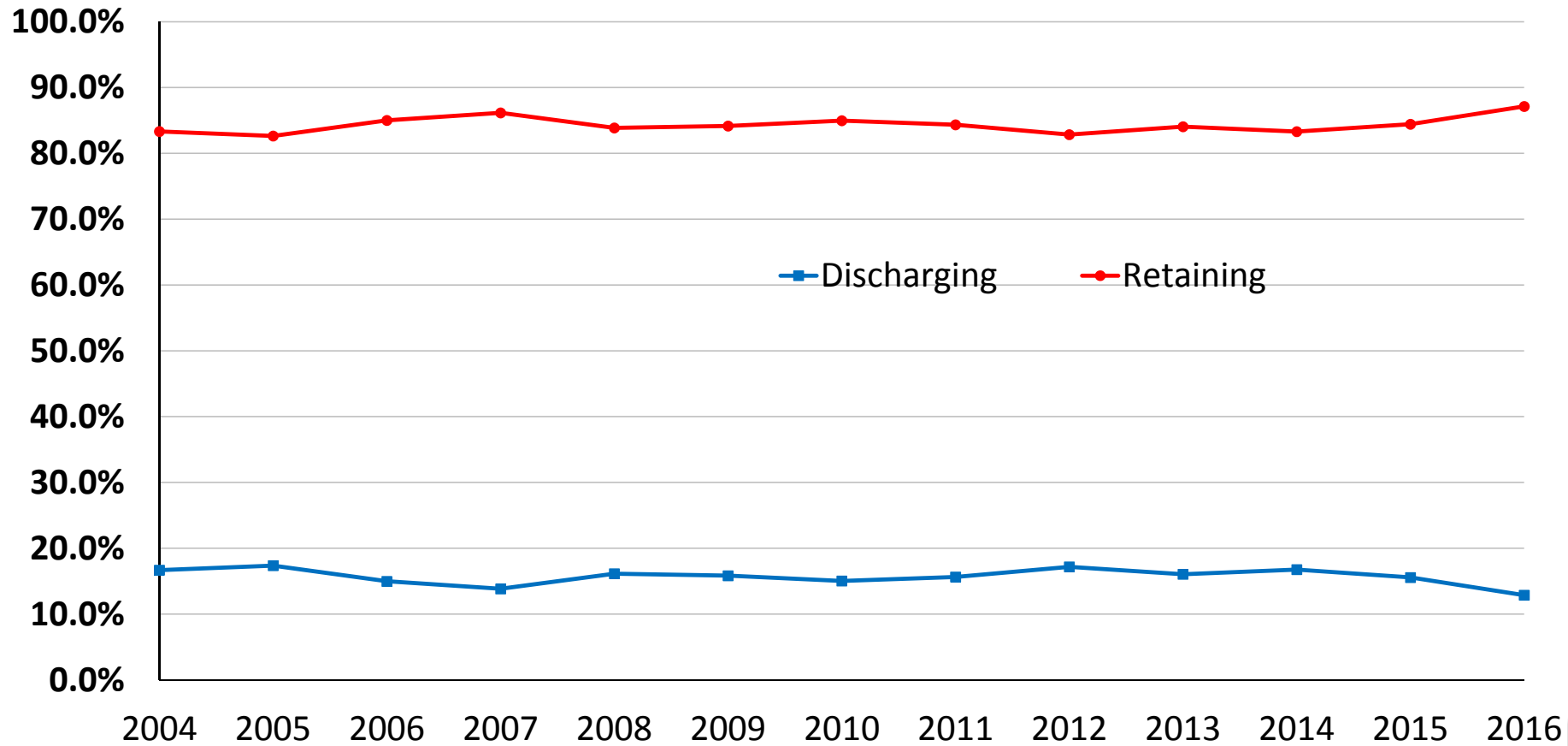


BALLAST WATER MANAGEMENT OPTIONS

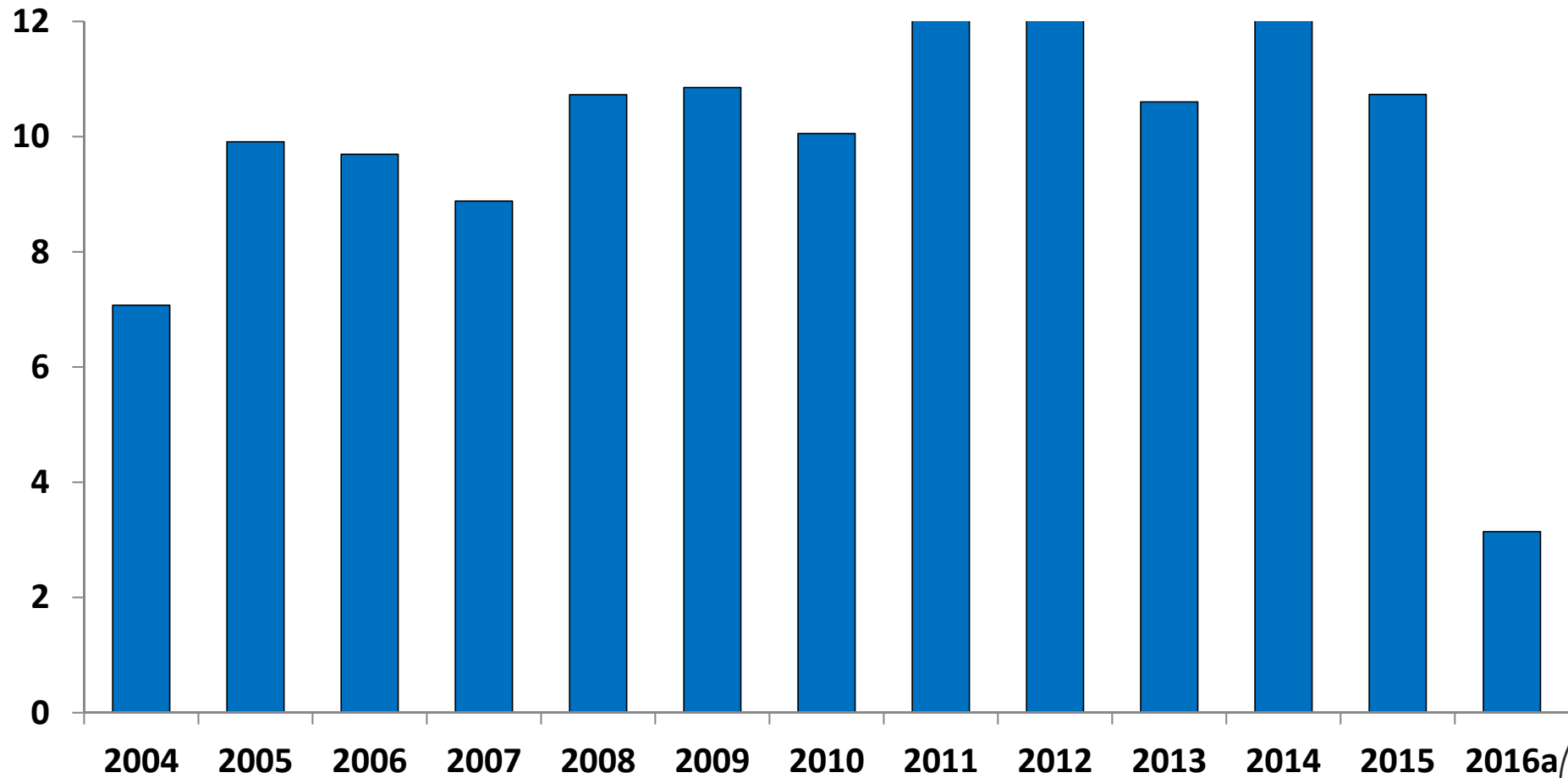
- Retain all ballast on board/no discharge
- Discharge to a shore or barge-based reception facility (none currently exist)
- Ballast water exchange
- Shipboard ballast water treatment system



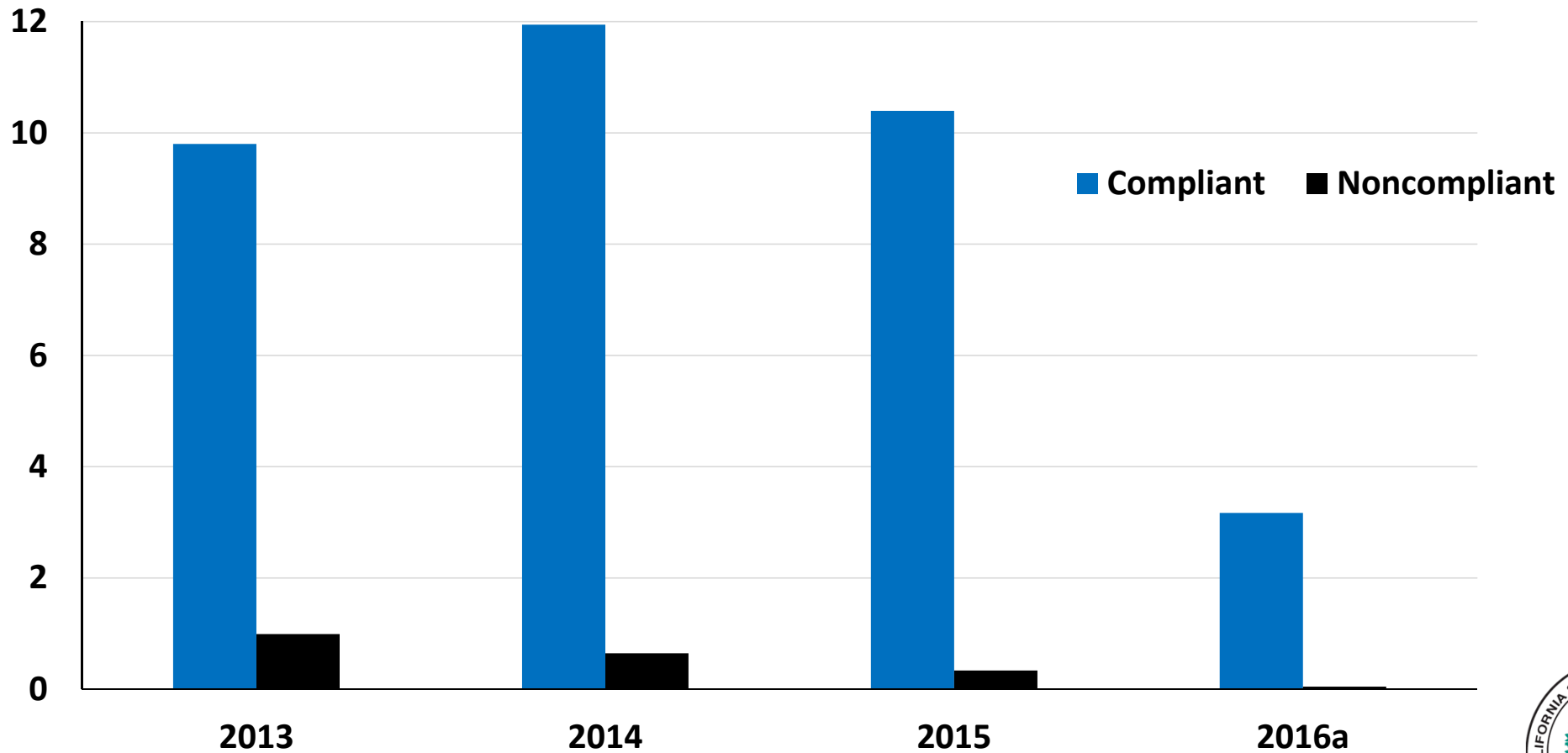
Retaining vs. Discharging



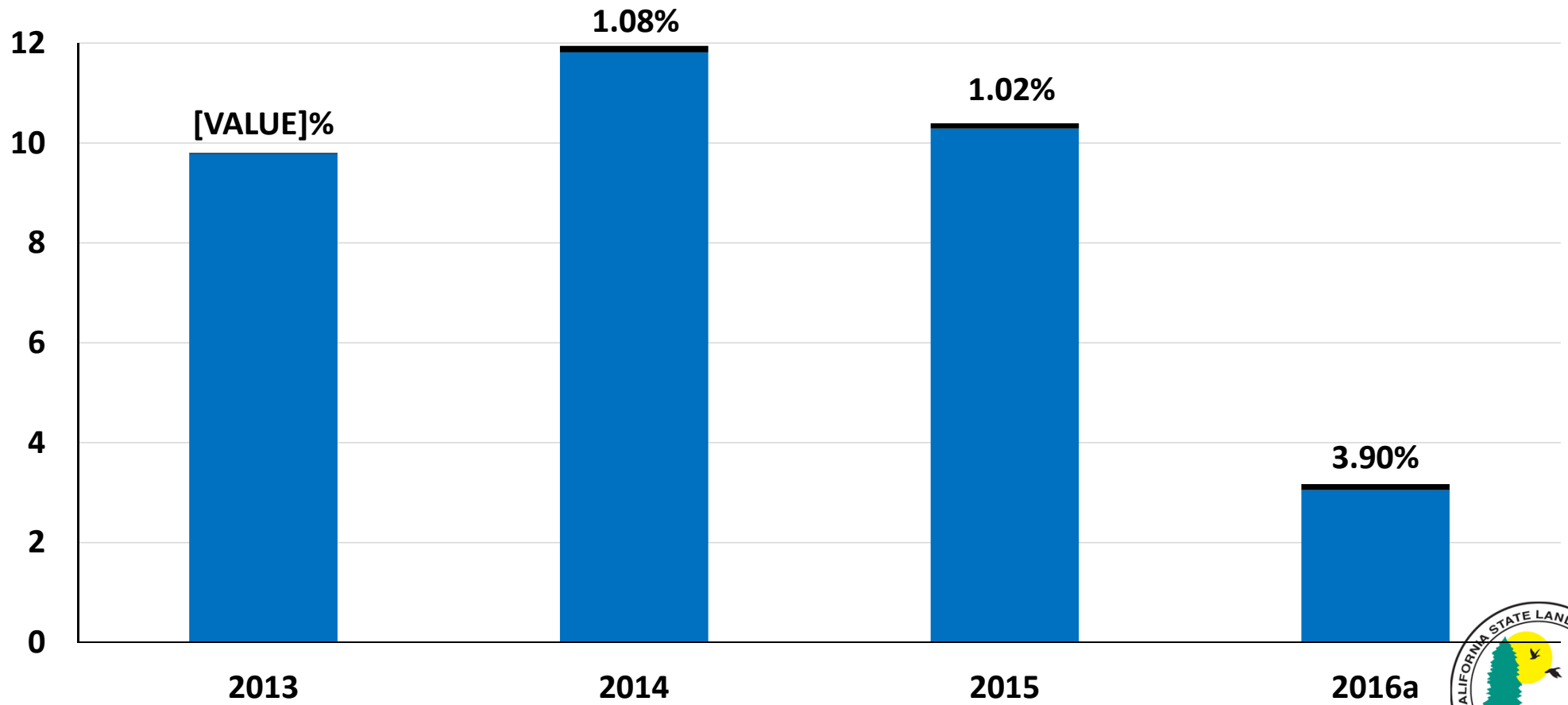
Total Volume of Ballast Water Discharged (MMT)



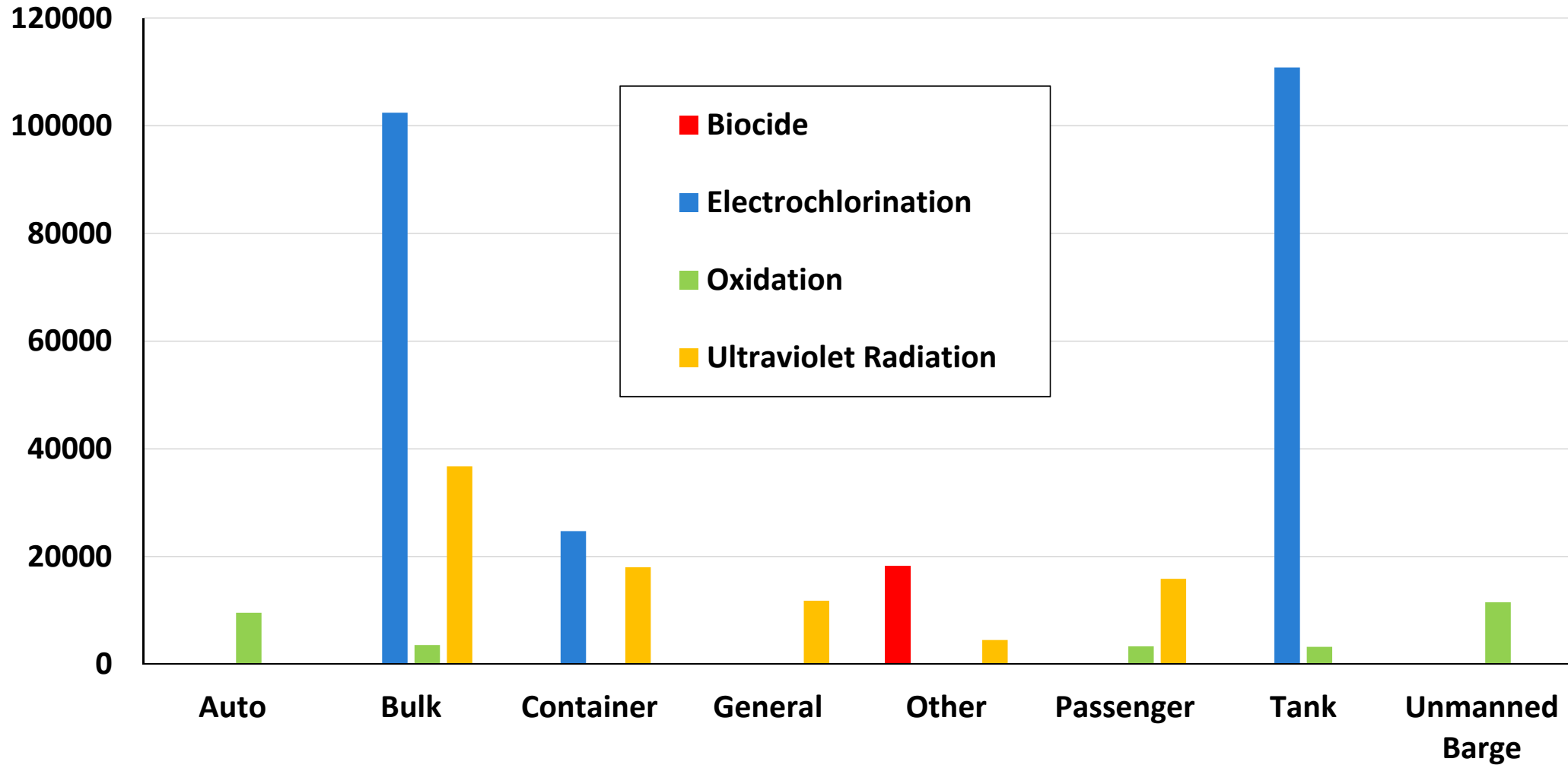
Compliant v. Noncompliant Discharge Volume (MMT)



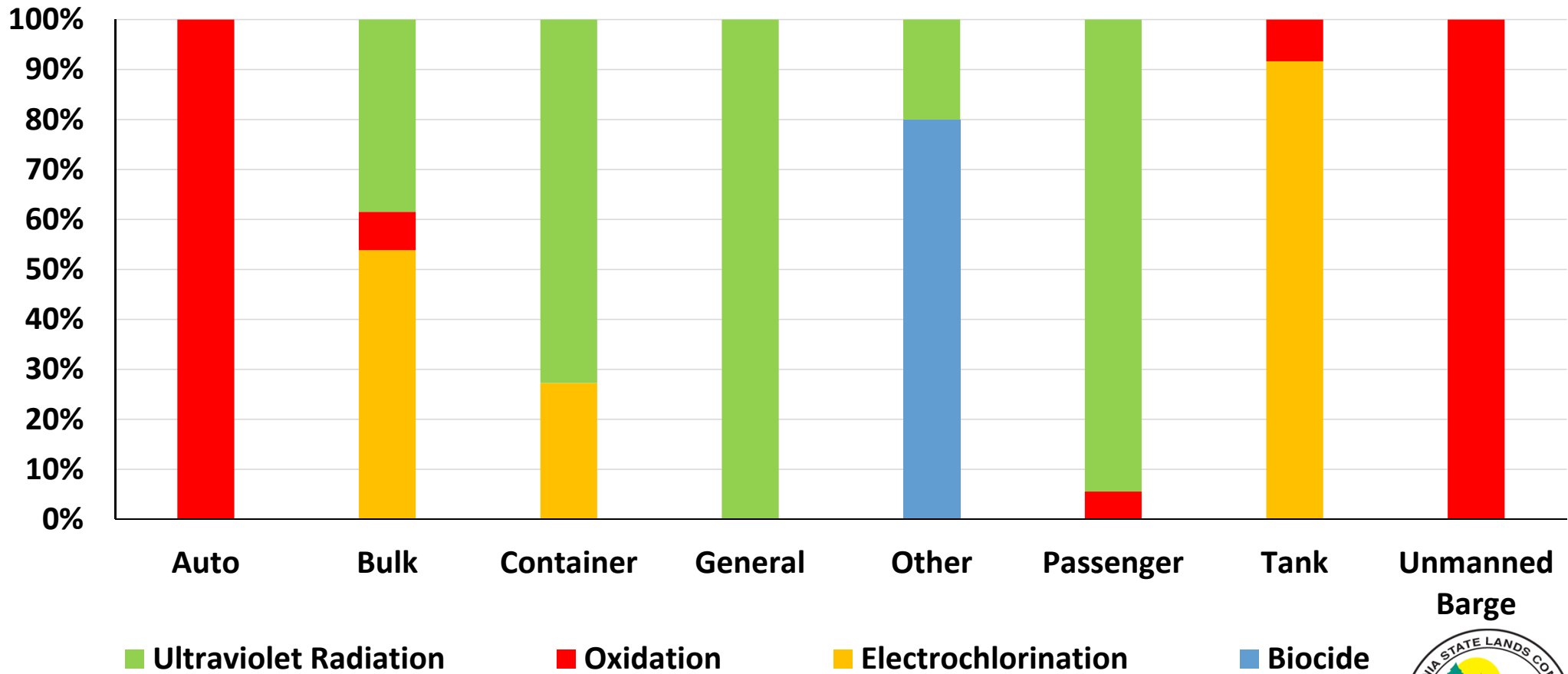
Total Compliant BW Discharged (MMT)



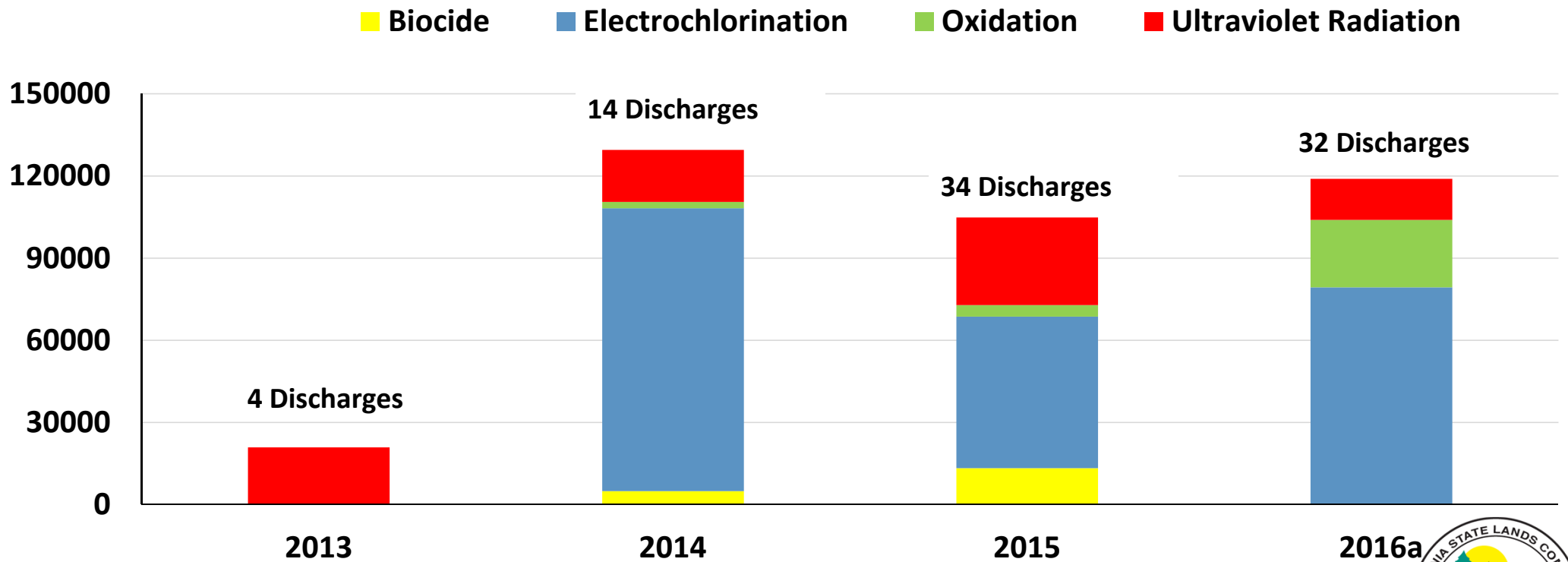
BW Treatment System Volume Discharged (MT)



Treatment System Type by Vessel Type




Volume BW Discharged by Treatment Type (MT)



VESSEL REPORTING

- Vessel Reporting Requirements
- Regulations based on AB 1312



**California State Lands Commission
Marine Invasive Species Program
Ballast Water Treatment Technology Annual Reporting Form
Public Resources Code Section 71205(g)
July 1, 2010**

Vessel Name: _____
 Official / IMO Number: _____
 Responsible Person's Name and Title: _____
 Date Submitted (DD/MM/YYYY): _____

Treatment System Information

1. List the treatment system information.

Manufacturer/Company: _____
 Product Name: _____
 Model Number: _____


1a. Mode(s) of Action (check all that apply)

Filtration Cavitation
 Active Substance/Biocide
 Other please describe: _____

1b. List all substances (i.e., chemicals) used in the treatment system. A separate Data Sheet is kept on board.

Substance

N/A No substances



**California State Lands Commission
Ballast Water Treatment Supplemental Reporting Form
Public Resources Code Section 71205(g)
July 1, 2010**

ALL VESSELS MUST ALSO SUBMIT BALLAST WATER REPORTING FORM

IS THIS AN AMENDED REPORTING FORM? Yes No

Vessel Information

Vessel Name: _____ Voyage Information: _____
 Official/IMO Number: _____ Arrival Port: _____
 Arrival Date (DD/MM/YYYY): _____

Ballast Water Treatment

1. Did the treatment system experience any malfunction that affected the treatment of ballast water to be discharged at this arrival port?

Yes please provide the following information:
 Date of malfunction (DD/MM/YYYY): _____
 Explain the malfunction: _____
 If applicable, how was the situation resolved? _____

No

2. Ballast Water Treatment History. Provide information for all ballast tanks that will be discharged at arrival port. Enter additional tanks on page 2. One tank per line. If none, go to Question #3.

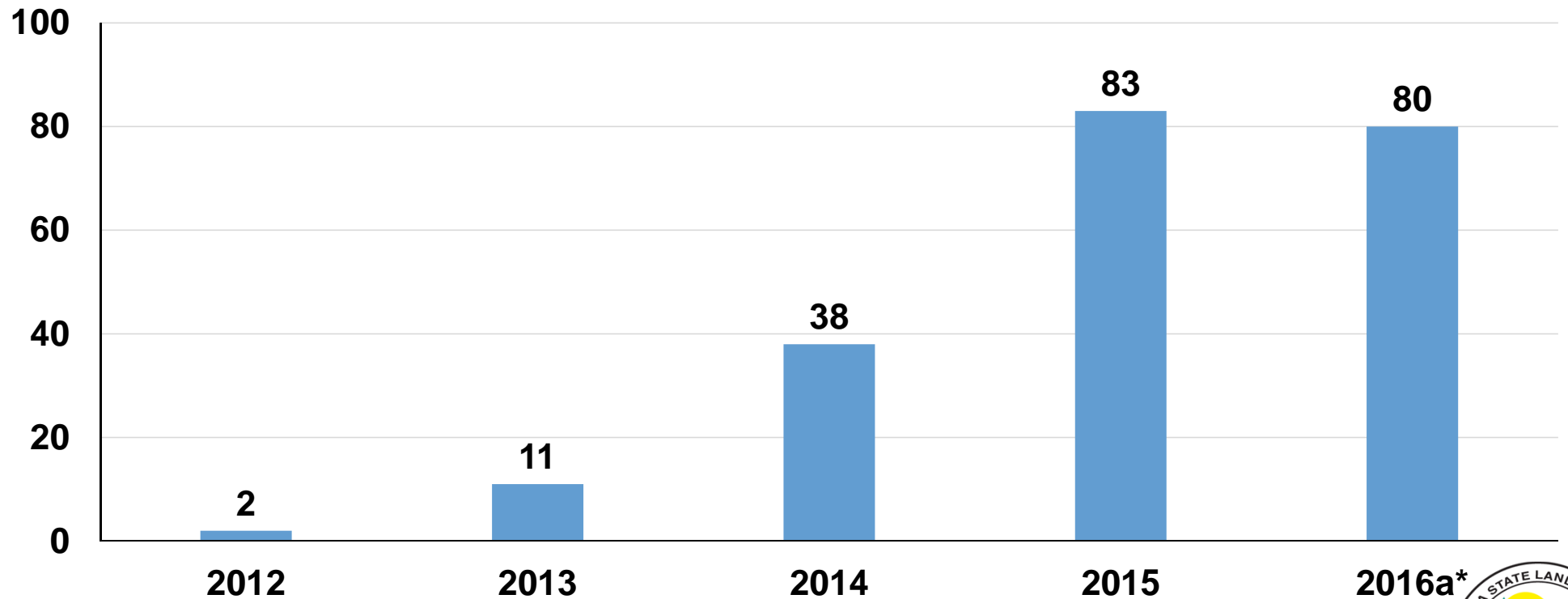
Tank/ Holds	BW Source			BW Discharge			BW Treatment		
	Date (DDMMYY)	Port or Lat/Long	Volume (m3)	Date (DDMMYY)	Port or Lat/Long	Volume (m3)	Date of 1st treatment (DDMMYY)	Date 2nd treatment (if applicable) (DDMMYY)	Volume Ballast Treated (m3)
			m3 -			m3 -			m3 -
			m3 -			m3 -			m3 -
			m3 -			m3 -			m3 -
			m3 -			m3 -			m3 -
			m3 -			m3 -			m3 -

Ballast Water Tank Codes: Forepeak = FP, Midpeak = MP, Double Bottom = DB, Wing = WT, Topside = TS, Cargo Hold = CH, Other = O

3. Responsible Officer's Name and Title: _____



Vessel Reported Ballast Water Treatment Systems



Vessel Reported Ballast Water Treatment Systems

	DID NOT REPORT	REPORTED
EPA	15	275
CA	159	148



FUTURE REQUIREMENTS ON THE HORIZON

Organism Size Class	California's Interim Ballast Water Discharge Performance Standards
Larger than 50 μm (micrometer) in minimum dimension	No detectible living organisms
10-50 μm in minimum dimension	Less than (<) 0.01 living organisms per ml (milliliter)
Less than 10 μm in minimum dimension	Less than 10 ³ (1,000) living bacteria per 100 ml Less than 10 ⁴ (10,000) living viruses per 100 ml
<i>E. coli</i>	Less than 126 cfu (colony forming units) per 100 ml
Intestinal enterococci	Less than 33 cfu per 100 ml
Toxicogenic <i>Vibrio cholerae</i> (human Cholera)	Less than 1 cfu per 100 ml OR Less than 1 cfu per gram of wet weight biological material



BALLAST WATER TREATMENT SYSTEMS



Little to no data on system use

Need authority to access vessels to research:

- 1. Compliance assessment tools and protocols**
- 2. System Performance**



Thank You & Questions

- For more information: <http://www.slc.ca.gov/Programs/MISP.html>
- Jonathan Thompson, Senior Environmental Scientist
jonathan.thompson@slc.ca.gov 916-574-2276



Vessel Type	Ballast Water Treatment Type	# Systems Installed	Volume and Number of Discharges per Year by Vessel Type and Treatment Type							
			<u>2013</u>		<u>2014</u>		<u>2015</u>		<u>2016a</u>	
			MT	<i>n</i>	MT	<i>n</i>	MT	<i>n</i>	MT	<i>n</i>
Auto	Electrochlorination	1								
	Oxidation	17						9546	1	
	Ultraviolet Radiation	5								
Bulk	Biocide	10								
	Electrochlorination	27			73719	3	13923	1	14776	3
	Oxidation	6							3575	1
	Ultraviolet Radiation	22	20547	3	16185	2				
Container	Electrochlorination	29			24716	3				
	Oxidation	1								
	Ultraviolet Radiation	32					18001	8		
General	Electrochlorination	1								
	Oxidation	2								
	Ultraviolet Radiation	18			2378	1	4071	1	5335	3
Other	Biocide	2			4928	2	13312	2		
	Ultraviolet Radiation	1					4485	1		
Passenger	Oxidation	1			2322	1	991	1		
	Ultraviolet Radiation	7	366	1	392	1	5439	14	9667	18
Tank	Electrochlorination	27			4858	1	41408	5	64558	5
	Oxidation	4					3232	1		
Unmanned Barge	Oxidation	1							11500	1