

# Managing Biofouling on Vessels Operating in California



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CSLC Marine Invasive Species Program



Prevention First 2012  
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# California's Marine Invasive Species Program



Ballast Water Management



Biofouling Management

# California's Role in Regional NIS Introductions



# California's Role in Regional NIS Introductions

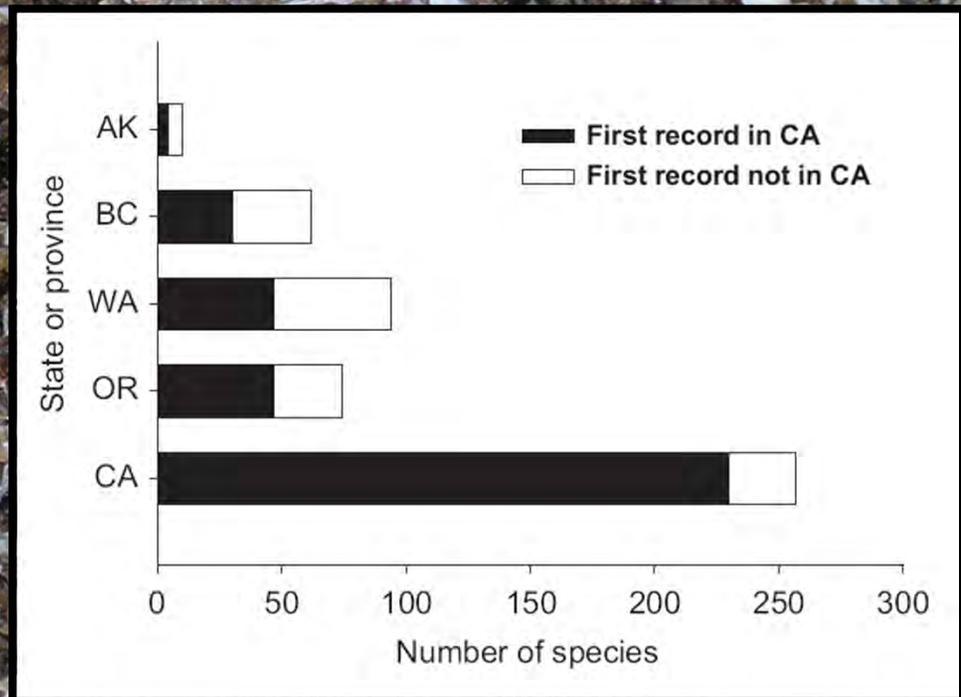
*Diversity and Distributions, (Diversity Distrib.) (2011) 17, 362–373*



## Marine invasion history and vector analysis of California: a hotspot for western North America

Gregory M. Ruiz<sup>1,2\*</sup>, Paul W. Fofonoff<sup>1</sup>, Brian Steves<sup>1,2</sup>, Stephen F. Foss<sup>3</sup> and Sharon N. Shiba<sup>3</sup>

- 81% of CA marine introductions are attributed to shipping activities
- 89% of west coast NIS occur in CA
- 79% of west coast NIS first recorded in CA

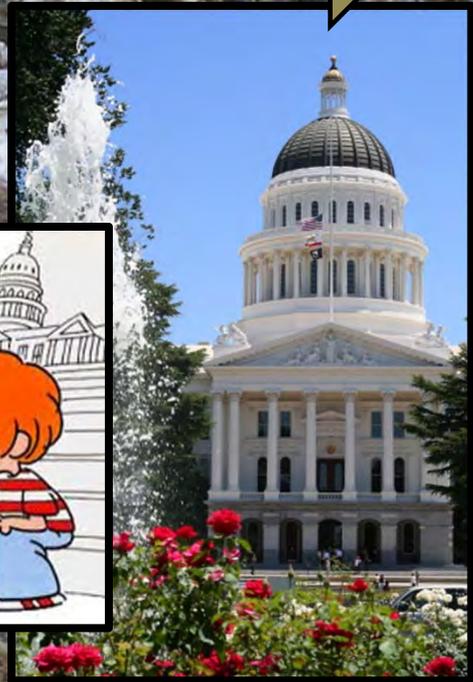
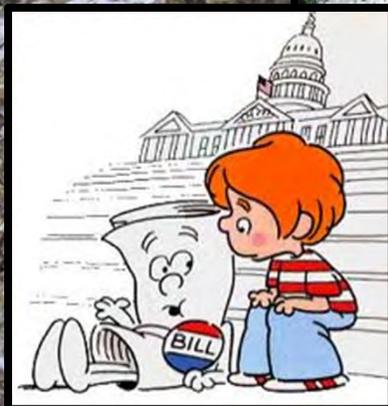


# California Biofouling Timeline

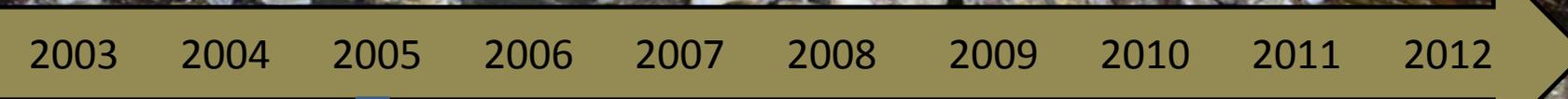


## Marine Invasive Species Act (2003)

– Required CSLC to evaluate “non-ballast water” vessel vectors



# California Biofouling Timeline



MISA



## Fouling Technical Advisory Group

### Information Sharing

### Recommendation Development



Presentations/ Discussion	Discussion: Focus on commercial vessels	Potential management frameworks for CA:	Potential Management Frameworks
Information sharing inclusive of recreational fouling	Fouling risk factors	Research? Regulations? Best Management Practices?	Pros? Cons?
	Commercial vessel maintenance frameworks		Areas of Agreement

# California Biofouling Timeline

2003

2004

2005

2006

2007

2008

2009

2010

2011

2012

MISA

TAG

- 2006 Legislative Report
- Lack of data, especially for U.S. Pacific coast
- Limited information on hull husbandry practices
- Requested authority to fill information gaps

CALIFORNIA STATE LANDS COMMISSION REPORT ON  
**COMMERCIAL VESSEL FOULING IN CALIFORNIA:**  
ANALYSIS, EVALUATION, AND RECOMMENDATIONS TO REDUCE  
NONINDIGENOUS SPECIES RELEASE FROM THE  
NON-BALLAST WATER VECTOR

Produced for the  
California State Legislature

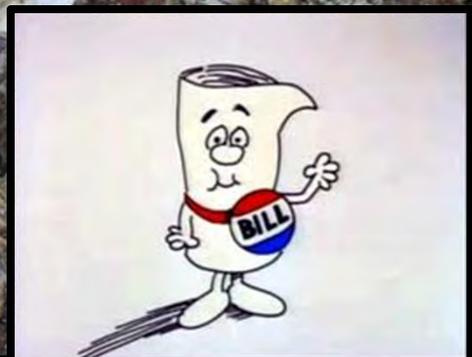
By  
L. Takata, M. Falkner and S. Gilmore  
California State Lands Commission  
Marine Facilities Division  
April 2006

# California Biofouling Timeline



## Assembly Bill 740 (2007)

- Fill information gaps
  - Collect hull husbandry data
  - Fund targeted research
- Develop and adopt regulations by 2012
  - In consultation with TAG



# California Biofouling Timeline

2003    2004    2005    2006    2007    2008    2009    2010    2011    2012

MISA

TAG

Report

## Hull Husbandry Reporting Form

- Developed in consultation with Tech Advisory Group (Dec 2007)
- Distributed to industry Jan 2008
- Mandatory annual submission

Print

**California State Lands Commission  
Marine Invasive Species Program  
Hull Husbandry Reporting Form**  
Public Resources Code – 71205(e) and 71205(f)  
June 6, 2008  
**Part I: Reporting Form**

Vessel Name:	
Official / IMO Number:	
Responsible Officer's Name and Title:	
Date Submitted (Day/Month/Year):	

**Hull Husbandry Information**

1. Since delivery, has this vessel ever been removed from the water for maintenance?  
Yes  No

a. If Yes, enter the date and location of the most recent out-of-water maintenance:

Last date out of water (Day/Month/Year):	
Port or Position:	Country:

b. If No, enter the delivery date and location where the vessel was built:

Delivery date (Day/Month/Year):	
Port or Position:	Country:

2. Were the submerged portions of the vessel coated with an anti-fouling treatment or coating during the **out-of-water** maintenance or shipbuilding process listed above?

Yes, full coat applied <input type="checkbox"/>
Yes, partial coat <input type="checkbox"/> Date last full coat applied (Day/Month/Year):
No coat applied <input type="checkbox"/> Date last full coat applied (Day/Month/Year):

3. For the most recent **full coat** application of anti-fouling treatment, what type of anti-fouling treatment was applied and to which specific **sections** of the submerged portion of the vessel was it applied?

Manufacturer/Company:	
Product Name:	
Applied on (Check all that apply): Hull Sides <input type="checkbox"/> Hull Bottom <input type="checkbox"/> Sea Chests <input type="checkbox"/>	
Sea Chest Gratings <input type="checkbox"/> Propeller <input type="checkbox"/> Rope Guard/Propeller Shaft <input type="checkbox"/>	
Previous Docking Blocks <input type="checkbox"/> Thrusters <input type="checkbox"/> Rudder <input type="checkbox"/> Bilge Keels <input type="checkbox"/>	



# Funded and Collaborative Research

2003

2004

2005

2006

2007

2008

2009

2010

2011

2012

MISA

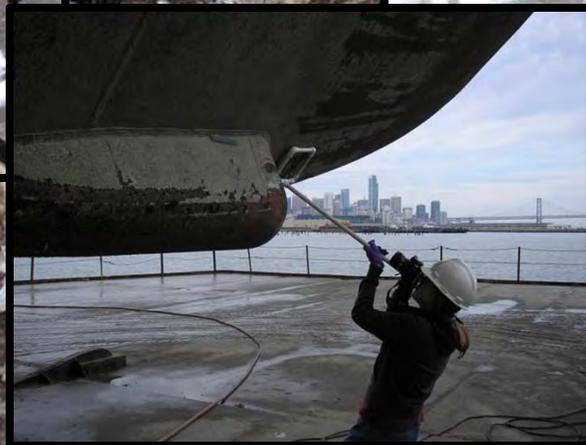
TAG

Report

AB740  
HHRF dev

HHRF data collection/analysis

Aquatic Bioinvasions Research and Policy Institute – Research

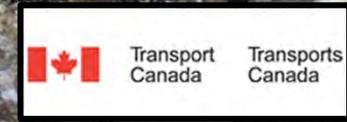
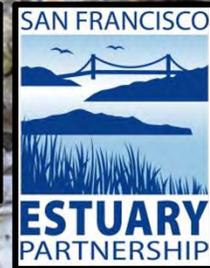
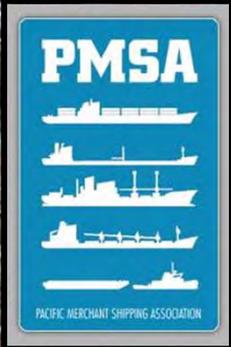


# Biofouling Rulemaking Process

- **Technical Advisory Group (TAG) process initiated August 2010**
  - Intent was to bring industry, technical, scientific, and regulatory experts into the discussion to inform the group on:
    - Current status of biofouling and bioinvasion science
    - Current regulatory requirements/guidelines in place or in development
    - Current capabilities of antifouling technologies
    - Current vessel practices and schedules of routine maintenance

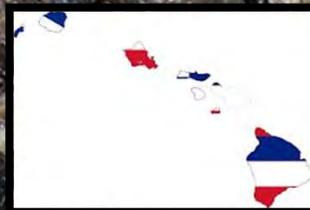


# Technical Advisory Group



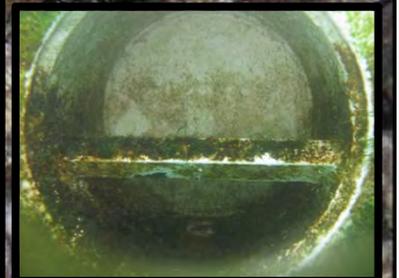
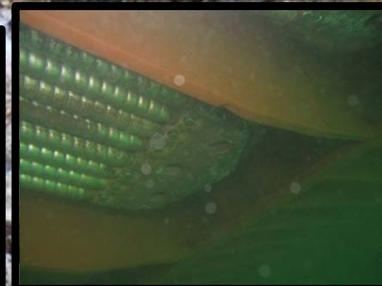
# Overall Intent of Proposed Biofouling Management Regulations

1. Maintain international and inter-jurisdictional consistency, when possible
  - Building upon the IMO biofouling guidelines
  - Continue working and consulting with international and regional partners



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2. Encourage better management of niche areas



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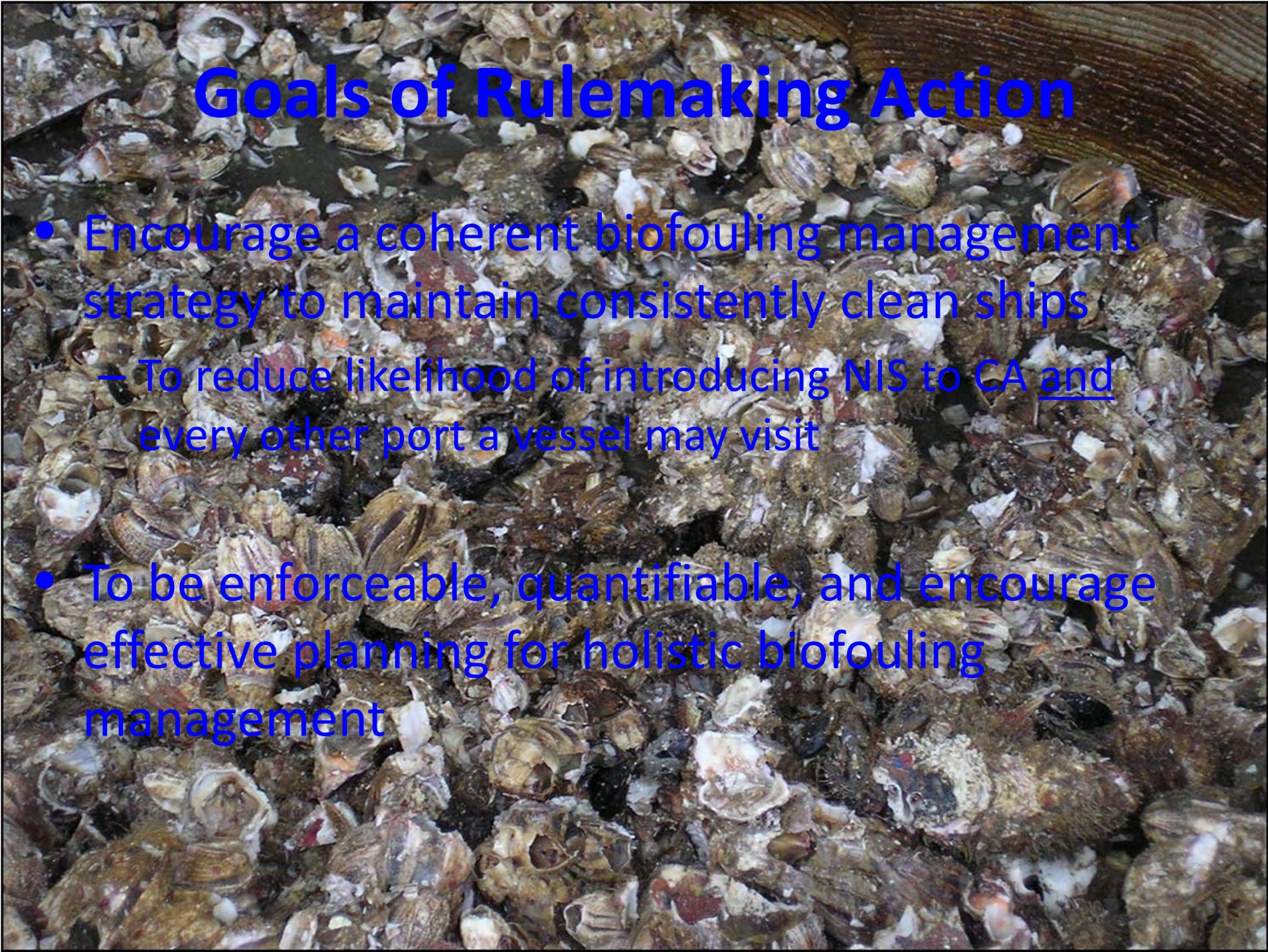
1. Maintain international and inter-jurisdictional consistency, when possible
2. Encourage better management of niche areas
3. Encourage better management of vessels experiencing extended residency periods

Floerl and Coutts (2009)  
Port of Singapore, May 2009. Image: A. Coutts



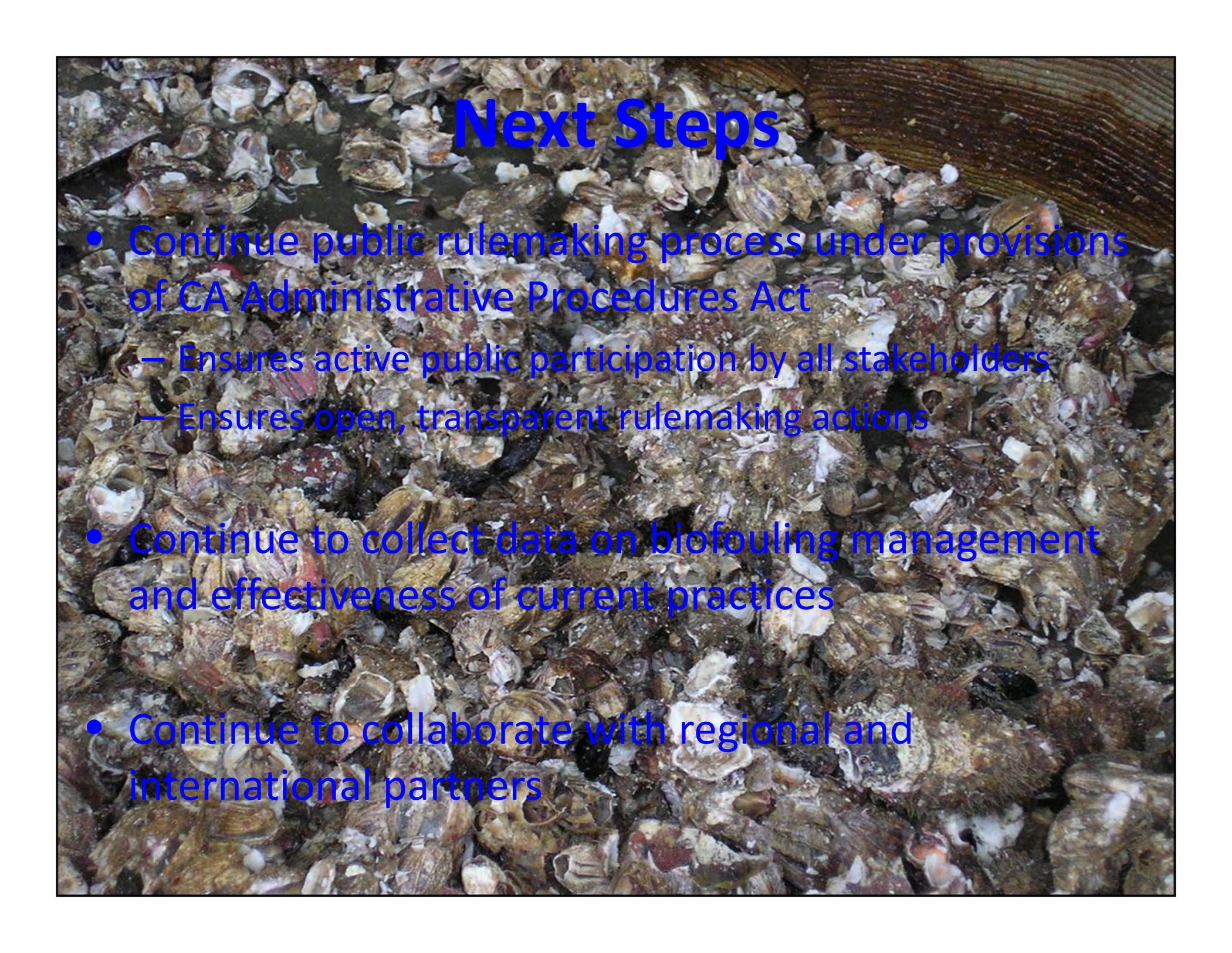
Port of Singapore, September 2011





# Goals of Rulemaking Action

- Encourage a coherent biofouling management strategy to maintain consistently clean ships
  - To reduce likelihood of introducing NIS to CA and every other port a vessel may visit
- To be enforceable, quantifiable, and encourage effective planning for holistic biofouling management



# Next Steps

- Continue public rulemaking process under provisions of CA Administrative Procedures Act
  - Ensures active public participation by all stakeholders
  - Ensures open, transparent rulemaking actions
- Continue to collect data on biofouling management and effectiveness of current practices
- Continue to collaborate with regional and international partners

**Thank You**



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