California’s Marine Invasive Species Program: Overview and Current Activities

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Nonindigenous Species (NIS): Why The Concern?

Fisheries ● Aquaculture ● Ecology ● Human Health ● Municipalities ● Agriculture ● Recreation ● Tourism

**Zebra Mussel**
- Clogs municipalities
- Smothers other organisms
- Infests approx 50% of U.S. waterways (and spreading... reached California in 2008)
- ~$1 billion/year

**Clubbed Tunicate (Styela clava)**
- Fouls /smothers aquaculture (mussels, oysters, scallops, clams)
- Over $40 million/year (Canada)
Shipping “Vectors”
Ballast Water & Vessel Fouling

**Shipping Vectors**
~ 79% Introductions to N. America

**Ballast Water**
- Potentially 21,100,000 organisms per discharge
- Up to 54% of shipping introductions

**Fouling**
- Up to 70% of shipping introductions
California Marine Invasive Species Program (MISP) Authority & Origins

1999 Ballast Water Management Control for Nonindigenous Species Act
- Foreign ballast water management
- Reporting, record keeping, inspections
- Sunset January 1, 2004

2003 Marine Invasive Species Act (Reauthorization & Expansion)
- Coastal ballast water
- Vessel fouling
- Ballast water performance standards
- Extended sunset date: January 1, 2010

2006 Coastal Ecosystems Protection Act
- Deleted sunset date
Marine Invasive Species Program Components

**Partner Agencies & Roles**

- **BOE:** Fee assessment and collection
- **CDFG:** Biological monitoring for NIS in California’s coasts and estuaries
- **State Water Board:** Consultation/Advisory role

**California State Lands Commission**

- Program Administration/Coordination
- Data Management
- Inspections & Enforcement
Data Management

- Data entry (BW + Hull Husbandry)
- ~11K in 2009 (9210 BW + 1722 Hull Husbandry)
  - Form QA/QC
  - Delinquent BW form tracking & notification
Field Operations

- Inspections & Enforcement
- Research access to vessels
- Outreach & Education
Program Administration

- Program implementation
- Internal & external coordination
- Policy & regulations development
- Data analysis
- Identify/Coordinate priority research
2011 Biennial Report to the State Legislature

- Regulatory Overview: State, Federal & International
- MISP Program Activities
- Data Analysis
  - Ballast water discharge
  - Ballast water management compliance
  - Inspections & violations
  - Vessel Fouling
- Funded & collaborative research
- Review of scientific literature
- Recommendations for improvement
Ballast Water Management & Discharge

Management Options
- Retention
- Ballast water exchange
- Discharge to a reception facility (none exist)
- Ballast water treatment (more later)
Ballast Water Management Compliance & Noncompliance

![Graph showing compliance and noncompliance data over years](image-url)
Noncompliant Ballast Water: Where is it coming from?
Noncompliant BW: Where is it Discharged?

**Data & Report Utility**

- Publicly accessible: Inform Legislature, NGOs, shipping community etc.
- Target inspections & outreach - improve compliance
- Supplement biological research
- Inform management decisions
Performance Standards for Ballast Water Discharge

**Limitations of Ballast Water Exchange**

- Safety
- Deviation & delay
- Variable efficacy (70-98%)

**Treatment Technologies**

- Potential for better protection
- Eliminate deviations & delays
- Reduce some safety issues

**Lack of a target, or “Performance Standard”**

= Little technology development

**2003 MISA directed CSLC to identify Performance Standards for Ballast Water Discharge by January 31, 2006**
Vessel Fouling


Recommendations to the Legislature (April 2006)
- Address high risk vessels
- Fill biological & hull husbandry information gaps
- Revisit - develop potential regulations by 1/1/2012

Assembly Bill 740 (2007)
- “Regular” removal of fouling
- Collection of hull husbandry information
- Regulations by 1/1/2010
Questions?

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California’s Marine Invasive Species Program Website:
www.slc.ca.gov
Click “Divisions” Tab
“Marine Facilities Division” link and
“Marine Invasive Species Program” link
General Vessel Arrival Patterns

Arrivals Per 6 Month Interval
Noncompliant BW Discharge by Vessel Type

![Graph showing noncompliant BW discharge by vessel type and year. The x-axis represents the years 2008b, 2009a, 2009b, and 2010a. The y-axis represents the volume of noncompliant BW discharged in MMT. The graph compares different vessel types: Tank, Bulk, Container, Other, General, and Passenger. The chart indicates the volume discharged by comparing the heights of the bars for each vessel type across the years.]
Inspection Statistics

- Bar chart showing the number of inspections conducted each year from 2006 to 2010.
- The y-axis represents the number of inspections, ranging from 0 to 1,400.
- The bars are color-coded: blue for No. Inspections Conducted and red for No. Violations Cited.

- Another bar chart showing the number of administrative and operational violations each year from 2006 to 2010.
- The y-axis represents the number of violations, ranging from 0 to 140.
- The bars are color-coded: red for Administrative Violations and brown for Operational Violations.