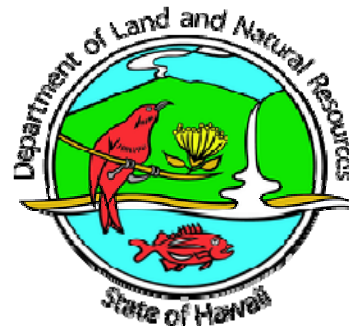




Hawaii Ballast Water and Biofouling Management Update

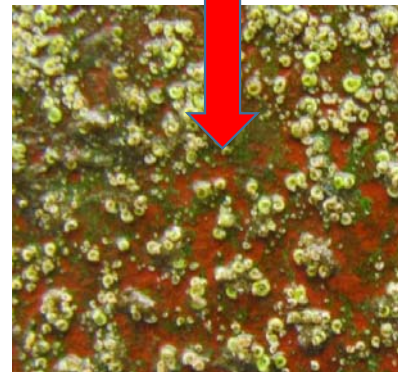
Jules Kuo
Ballast Water & Hull Fouling Coordinator
Hawaii Department of Land and Natural Resources

Pacific Ballast Water Group Meeting, March 30, 2016

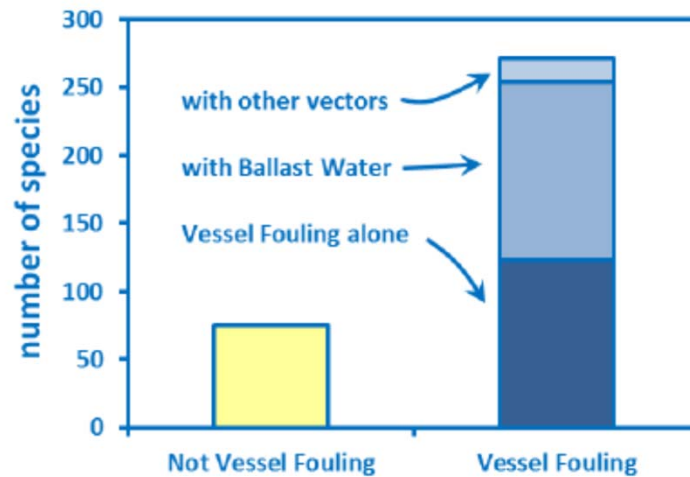


Introduction to Hawaii's AIS issues

Eldredge and Carlton (2015) – 463 introduced and cryptogenic marine alien organisms in Hawaii

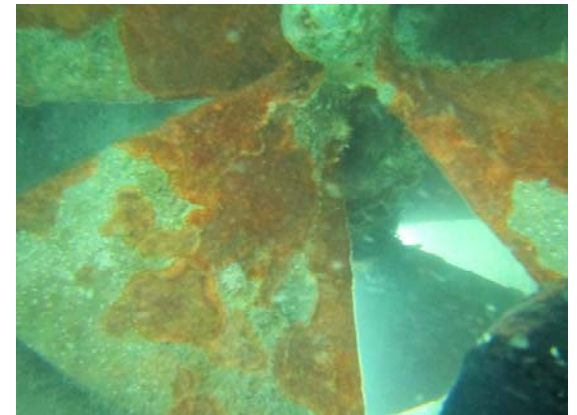


Introduction to Hawaii's AIS issues



Source: Davidson et al., 2014

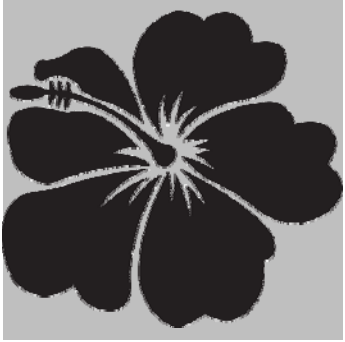
Ballast water and vessel biofouling is responsible for up to 78% of introduced and cryptogenic marine algae and invertebrates



Source: DLNR and Marine Outlook .com

Overview

- Hawaii's ballast water (BW) rules
- Projects that support the removal of BW aquatic invasive species (AIS) threat
- Developing biofouling rules (BF) for Hawaii
- Plans for addressing vessel BF issues





Ballast water (BW) rules protecting Hawaii

- Qualifying vessels
 - All vessel carrying BW from outside EEZ (except for exempt)
- Vessels exempt from BW management practices
 - US Military, Crude oil tankers
 - Vessels discharging at HI uptake port
 - Vessels discharging inter-island within Main Hawaiian Islands (MHI)
 - Vessels not discharging
 - Safety of crew
- Approved BW management practices
 - Open ocean exchange (>200 nm offshore), "functioning treatment system"

Red text represents sections that need amending

BW rules protecting Hawaii (continued)

- Enforcement & compliance assessment
 - In coordination with USCG, state has authority to sample BW/sediment, examine documents, and make inquiries
- BW reporting
 - Old and new forms accepted, no later than 24 hours prior to arrival, changes must be reported prior to departure
- BW management plan & recordkeeping
 - BW management plan in accordance with USCG, **recordkeeping of at least 2 years of reporting forms**
- BW discharge requirements
 - **Mid-ocean exchange or BW treatment kill equivalent to exchange**

Red text represents sections that need amending

2016 & 2017 Protecting Hawaii from ballast water AIS*



1) Amend BW Rules

- Align with updated USCG Regulations
- Alien Aquatic Organism Task Force (AAOTF)
 - USCG, Navy, Matson, Sause Brothers, DOT, DOH, DOA, DOBOR, OISC, In-water-cleaning companies, etc

2) Proactive: compliance assessment

- BW compliance monitoring program
- Numeric counting and/or venture into other methods
- Develop lab for extensive compliance testing

3) Reactive: Contingency plan for unmanaged BW

- Plan B, BW management



*AIS –alien invasive species



2016 & 2017

Protecting Hawaii from biofouling AIS*

1) Develop BF Rules

- Literature and reports
- Alien Aquatic Organism Task Force (AAOTF)
- Align with CSLC (California, USA), Ministry for Primary Industries (NZ), and Department of Agriculture and Water Resources (AU)
- Provide best biofouling management practices specific to Hawaii
- Hull husbandry form

1. Carlton and Eldredge, 2009
2. Carlton and Eldredge, 2015
3. Davidson et al., 2012
4. Davidson et al., 2014
5. Godwin, 2003
6. Leonard, 2009
7. IWC Environmental Risks –Chela et al., in review
8. IWC Technology Review –Chela et al., in progress



*AIS –alien invasive species



2016 & 2017 Protecting Hawaii from biofouling AIS*

2) Proactive: best BF management practices

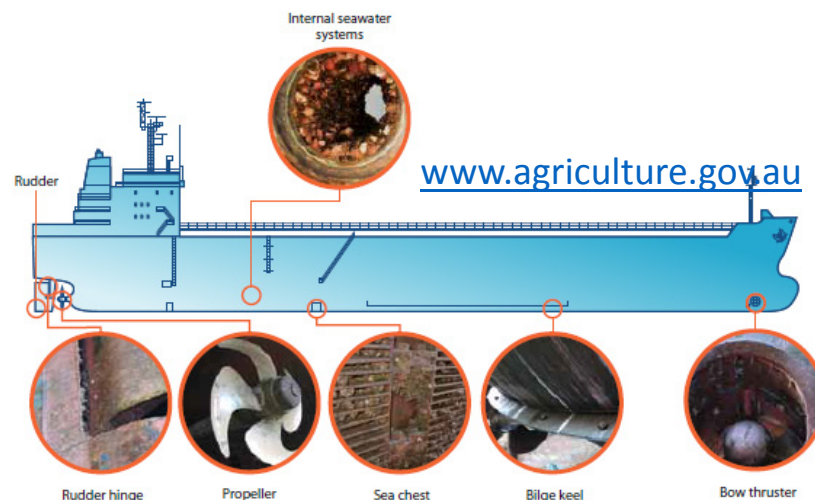
- Pilot study for vessel biofouling inspection

3) Reactive: Develop contingency plan for unmanaged BF

- Ship operators/owners, agents, in-water-cleaning companies
- Aquatic Alien Organism Task Force (AAOTF)
- National and International gov't agencies

4) Monitoring

- Settlement plates for long-term monitoring
- Corroborate data



*AIS –alien invasive species

Source: DLNR

Mahalo!



Invasive algae taking over coral reef



Healthy coral reef

julie.c.kuo@hawaii.gov

DAR, HI-DLNR

(808)348-7025

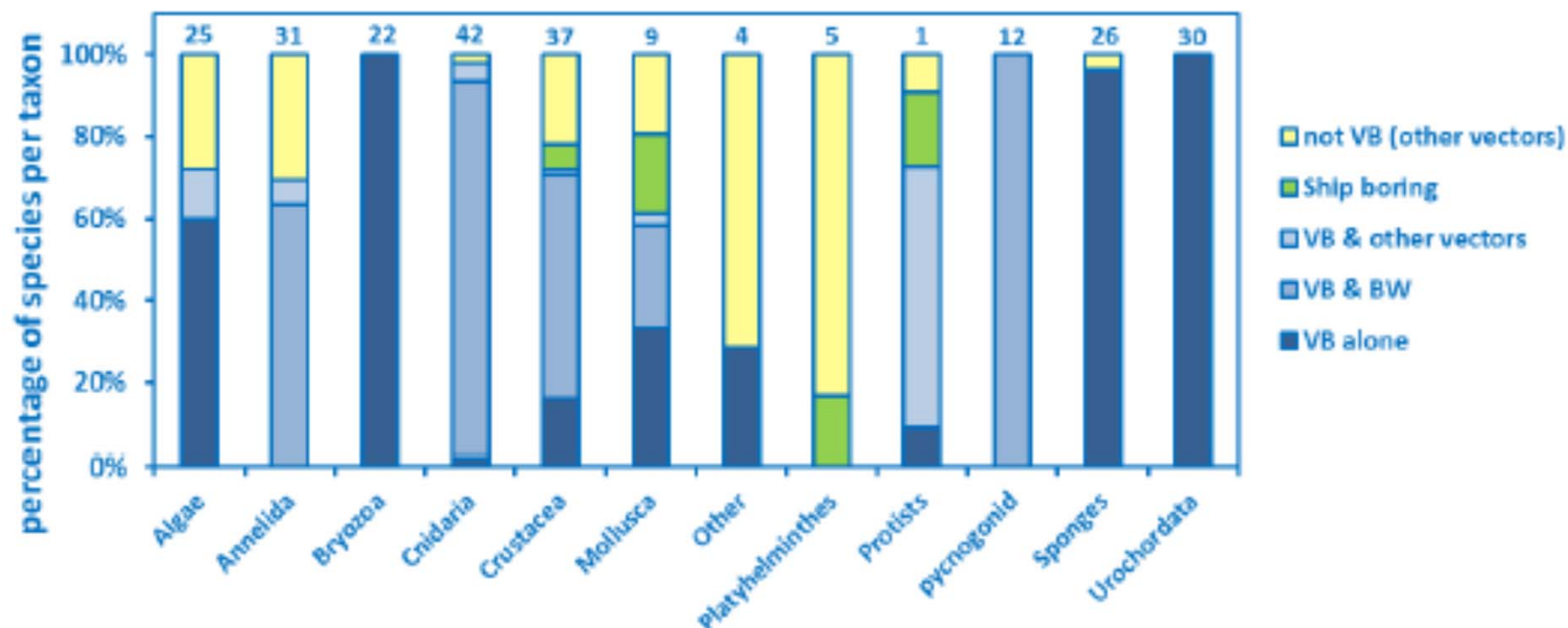


Figure 5. The contribution of vessel biofouling to initial introduction in Hawaii by taxonomic group.

Ballast Water Management Report

BALLAST WATER REPORTING FORM
IS THIS AN AMENDED BALLAST REPORTING FORM? YES ☐ NO ☐

1. VESSEL INFORMATION	2. VOYAGE INFORMATION	3. BALLAST WATER INFORMATION
Vessel Name:	Arrival Port:	<i>Specify Units Below</i>
IMO Number:	Arrival Date (DD/MM/YYYY):	Total Ballast Water Discharged (m³)
Owner:	Agent:	Volume (m³)
Type:	Last Port:	Total Ballast Water Received (m³)
GT:	Country of Last Port:	Volume (m³)
Call Sign:	Next Port:	
Flag:	Country of Next Port:	

4. BALLAST WATER MANAGEMENT Total No. Ballast Water Tanks to be discharged: Of tanks to be discharged, how many: Underwent Exchange: Underwent Alternative Management: Please specify alternative method(s) used, if any: If no ballast treatment conducted, state reason why not: Ballast management plan on board? YES ☐ NO ☐ Management plan implemented? YES ☐ NO ☐IMO ballast water guidelines on board [res. A.868(20)]? YES ☐ NO ☐**5. BALLAST WATER HISTORY: Record all tanks to be deballasted in port state of arrival (enter additional tanks on page 2)**

Tanks/ Holds List multiple sources/tanks separately	BW SOURCE				BW MANAGEMENT PRACTICES						DATE DD/MM/YYYY
	DATE DD/MM/YYYY	PORT or LAT. LONG.	VOLUME (units)	TEMP (units)	DATE DD/MM/YYYY	ENDPOINT LAT. LONG.	VOLUME (units)	% Exch	METHOD (ER/FT/ ALT)	SEA HT. (m)	
			m3	C			m3		ER		
			m3	C			m3		ER		
			m3	C			m3		ER		
			m3	C			m3		ER		
			m3	C			m3		ER		

Ballast Water Tank Codes: Forepeak = FP, Aftpeak = AP, Double Bottom = DB, Wing = WT, Topside = TS, Carg

6. RESPONSIBLE OFFICER'S NAME AND TITLE: **Vessel Information**

Vessel name	<input type="text"/>		
ID number	IMO number	<input type="text"/>	
Country of Registry	Albania	<input type="text"/>	
Owner/operator	<input type="text"/>		
Type	Select vessel type	Gross Tonnage	<input type="text"/>
Ballast water volume units	Select units	<input type="text"/>	
Total ballast water capacity	<input type="text"/>	Number of tanks on ship	<input type="text"/>
Onboard BW Management System	<input type="text"/>		

Voyage Information

Arrival port (port and state)	Select state
Arrival date	<input type="text"/>
Last port (port and country)	Select country
Next port (port and country)	Select country
Total ballast water on board	Select country
Alternative BW management conducted, per instructions from CO	United States

Certificate of accurate informationBy checking this box, I attest to the accuracy of the information provided. Management activities were in accordance with the ballast water management requirements required by CFR 151.2050(g). ☐Responsible Officer's name and title Report type Submitted by Contact information **Ballast Water History**

On the following page(s), provide the ballast water history for each tank to be discharged into the waters of the United States or to a reception facility.

Submit report via e-mail

Submit report on-line