



Hawai'i Division of Aquatic Resources

Hawaii Ballast Water and Biofouling Program

Pacific Ballast Water Group Meeting

April 6, 2021



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Department of Land and Natural Resources
Honolulu, Hawaii



Hawai'i Division of Aquatic Resources

Aquatic Invasive Species (AIS)

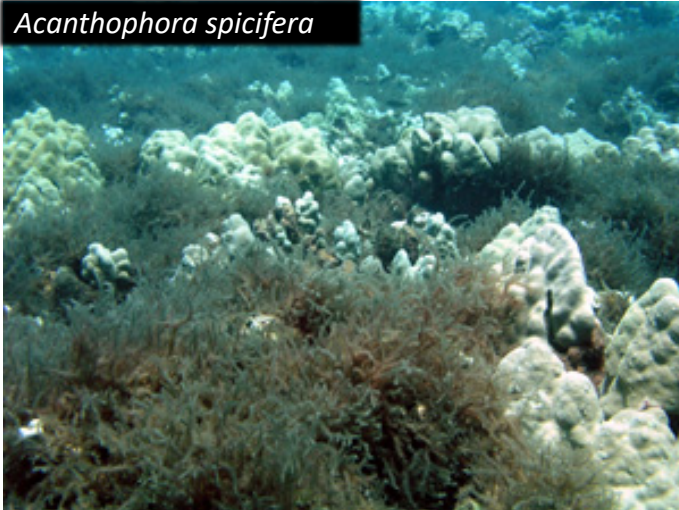
A non-native aquatic species that, if introduced into an ecosystem, may cause harm to Hawai'i's economy, environment, human health, or public safety and welfare.

Introduced Aquatic Species in Hawai'i:

- 463 marine species (inverts, fish, algae)
- 86 freshwater species (inverts, fish, water plants)
- 549 total (underestimate)

78% of introduced marine algae and invertebrates were introduced to Hawaii via BWBF.

Acanthophora spicifera



Sabellastarte spectabilis
& *Mycale armata*



Cassiopea spp.



Pennaria disicha





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Ballast Water and Biofouling Program

Prevention

ention

	B	C	D	E		
	Received	Date of Arrival	Form Info.	"Flagged d"?	VGP?	Risk
Vessel						
MV Mokihana	3/12/20 14:50	3/14/2020	0	-	X	13.4
MV MANOA	3/17/20 14:07	3/15/2020	0	-	X	11.7
Marjorie C	3/14/20 15:27	3/16/2020	0	▶	X	16.7
Marjorie C	3/31/20 12:37	3/30/2020	0	-	X	16.7
Houston	4/2/20 9:35		0	-	X	36.8
Lurline	4/7/20 9:38	4/8/2020	0	-	X	12.7
Blackhawk	5/1/20 9:23	5/1/2020	0	-	X	#REF!
Angel No. 1	4/28/20 19:40	5/2/2020	1	-	X	14.8
MT. HAI SOON 39	5/6/20 6:25	5/9/2020	0	-	X	16.2
M.T HAI SOON 48	5/19/20 6:47	5/23/2020	0	-	X	20.8
M.T PROGRESS 10	6/3/20 11:01	6/6/2020	1	-	X	20.4
Houston	6/9/20 10:34	6/12/2020	0	-	X	12.4
Lurline	6/17/20 6:36	6/17/2020	0	-	X	12.4
MT. HAI SOON 61	6/19/20 9:44	6/23/2020	0	-	X	25.2
Lurline	6/30/20 5:19	7/1/2020	0	-	X	13.4
Cape Hudson	8/3/20 17:26	8/9/2020	0	-	X	10
PROGRESS 10	8/6/20 10:16	8/7/2020	2	-	X	23.4
M.T HAI SOON 48	8/17/20 14:01	8/18/2020	0	-	X	19.8
Houston	8/20/20 22:41	8/24/2020	0	-	X	13.7
DL LILAC	8/21/20 11:29	8/24/2020	0	-	X	34
Houston	9/16/20 5:03	9/15/2020	0	-	X	34.4
GATOR ORION	9/22/20 13:58	9/29/2020	0	-	X	10.2
Houston	7/5/20 15:38	7/6/2020	0	-	X	20
Houston	10/9/20 7:12	10/7/2020	0	-	X	20
Houston	10/11/20 16:30	10/12/2020	0	-	X	20

CTIONS

DischargingVessels

FormsB

Collaboration



Detection



Outreach



Current Regulatory Framework

- USCG – 33 CFR Ch 151 (primarily ballast water regulation)
- EPA – Clean Water Act via Vessel General Permit (VGP)
- Hawaii:
 - HRS § 187A-32 – designates DLNR as lead agency for AIS issues related to BW&BF
 - HAR Ch 13-76 – Ballast Water Regulations

OMB number 1625-0069
Exp. date: 31-July-2023

Ballast Water Management Report

Vessel Information

Vessel name

ID number **IMO number**

Country of Registry **Select country**

Owner/operator

Type **Select vessel type** Gross Tonnage

Ballast water volume units **Select units**

Total ballast water capacity Number of tanks on ship

Onboard BW Management System

Last dry dock date

Voyage Information

Arrival port (port and state) **Select state**

Arrival date

Last port (port and country) **Select country**

Next port (port and country) **Select country**

Total ballast water on board Number of tanks in ballast

Number of tanks discharged

Certificate of accurate information

By checking this box, I attest to the accuracy of the information provided and that ballast water management activities were in accordance with the ballast water management plan required by CFR 151.2050(g). ☐

Responsible Officer's name and title

Report type **Select report type**

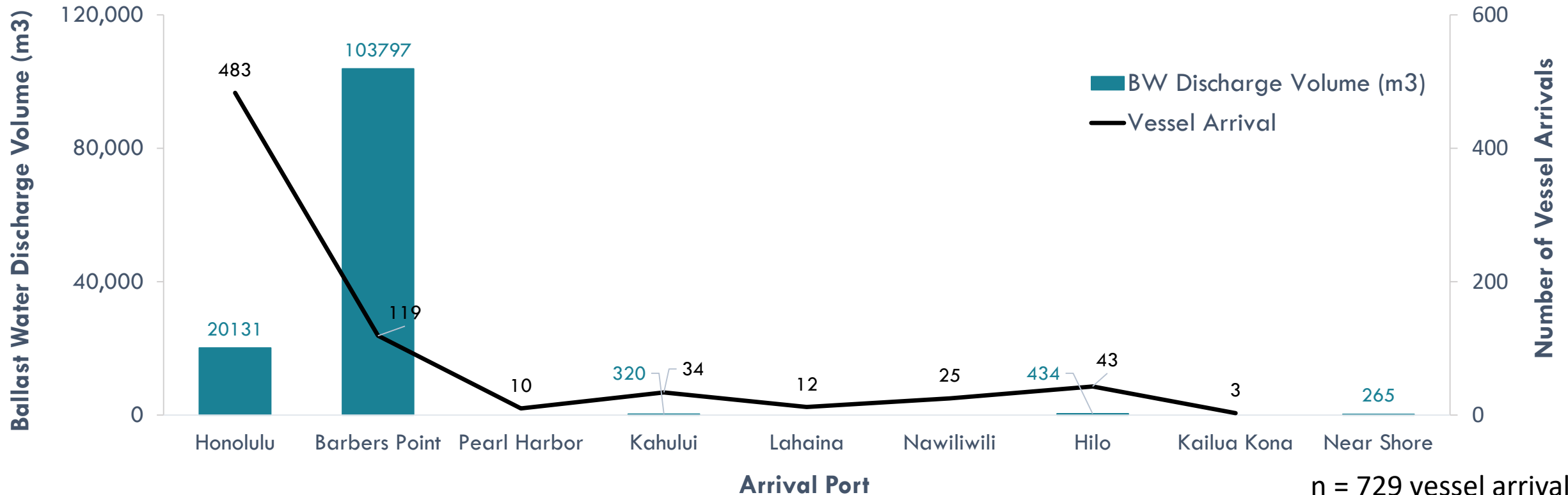
Submitted by Contact information

Ballast Water History

On the following page(s), provide the ballast water history for each tank discharged into the waters of the United States or to a reception facility, en route to or at the arrival port. Vessels entering the Great Lakes or Hudson River (north of George Washington Bridge) from beyond the US EEZ must also provide the history for empty tanks that underwent alternative management.

2020 Vessel Arrival Statistics

Vessel Arrivals and Ballast Water Discharged by Port, 2020

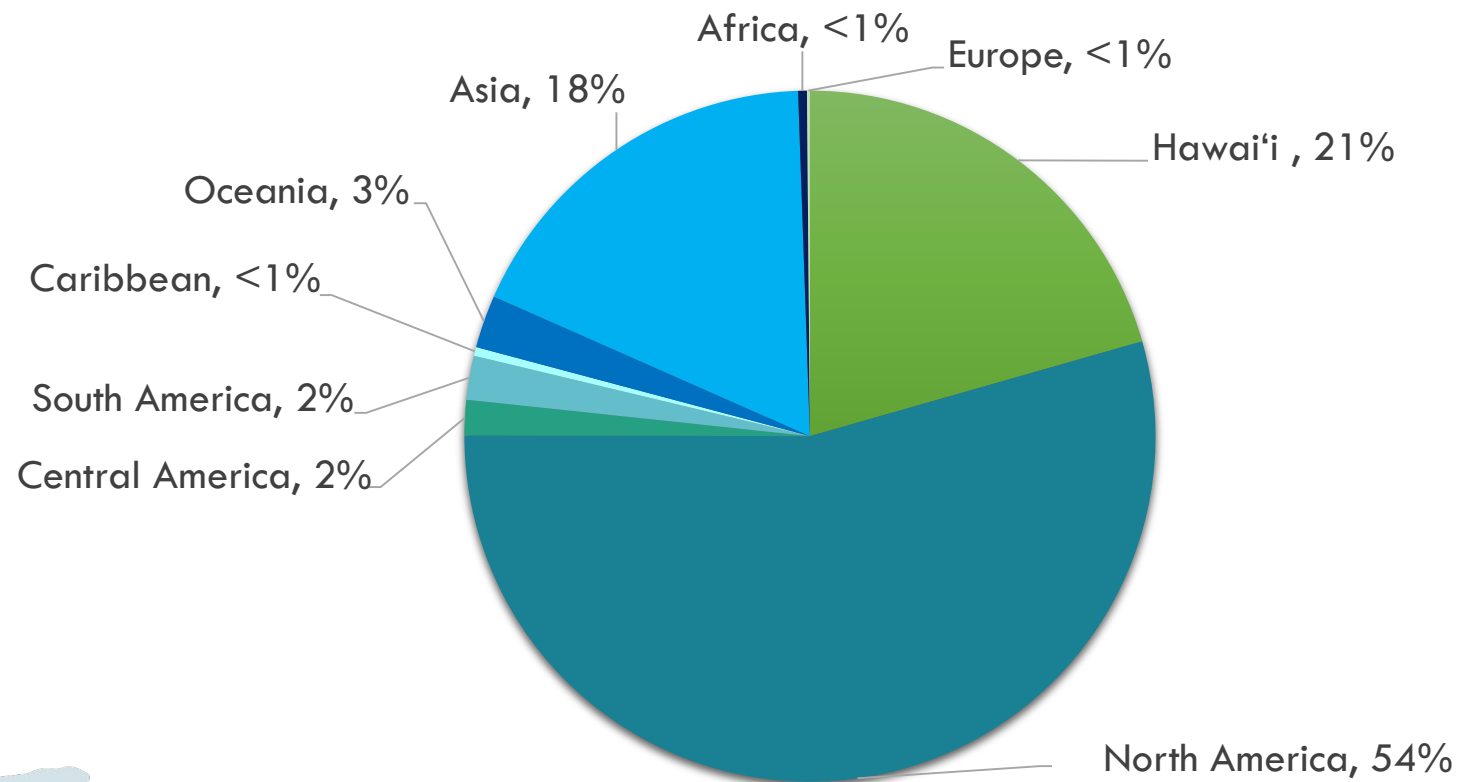


n = 124,946 m³

n = 729 vessel arrivals
(+71 no data)

2020 Vessel Arrival Statistics

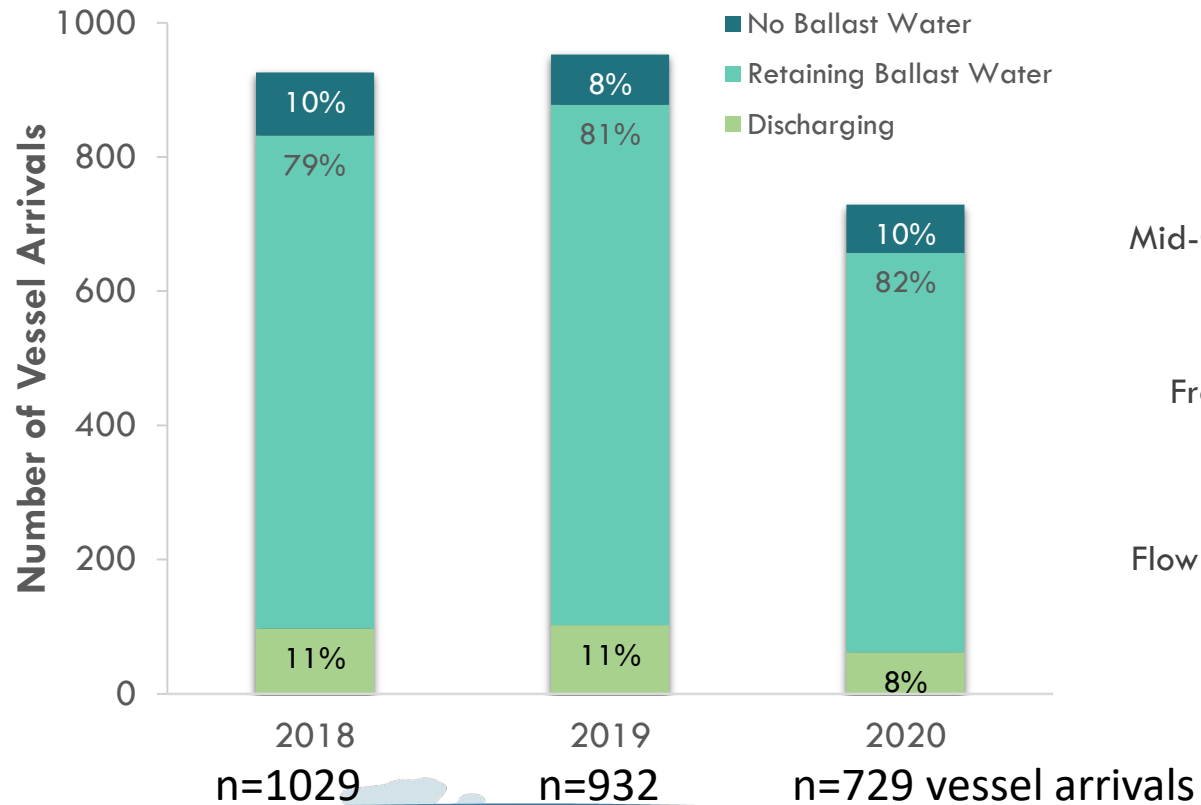
Vessel Arrivals by Last Port, 2020



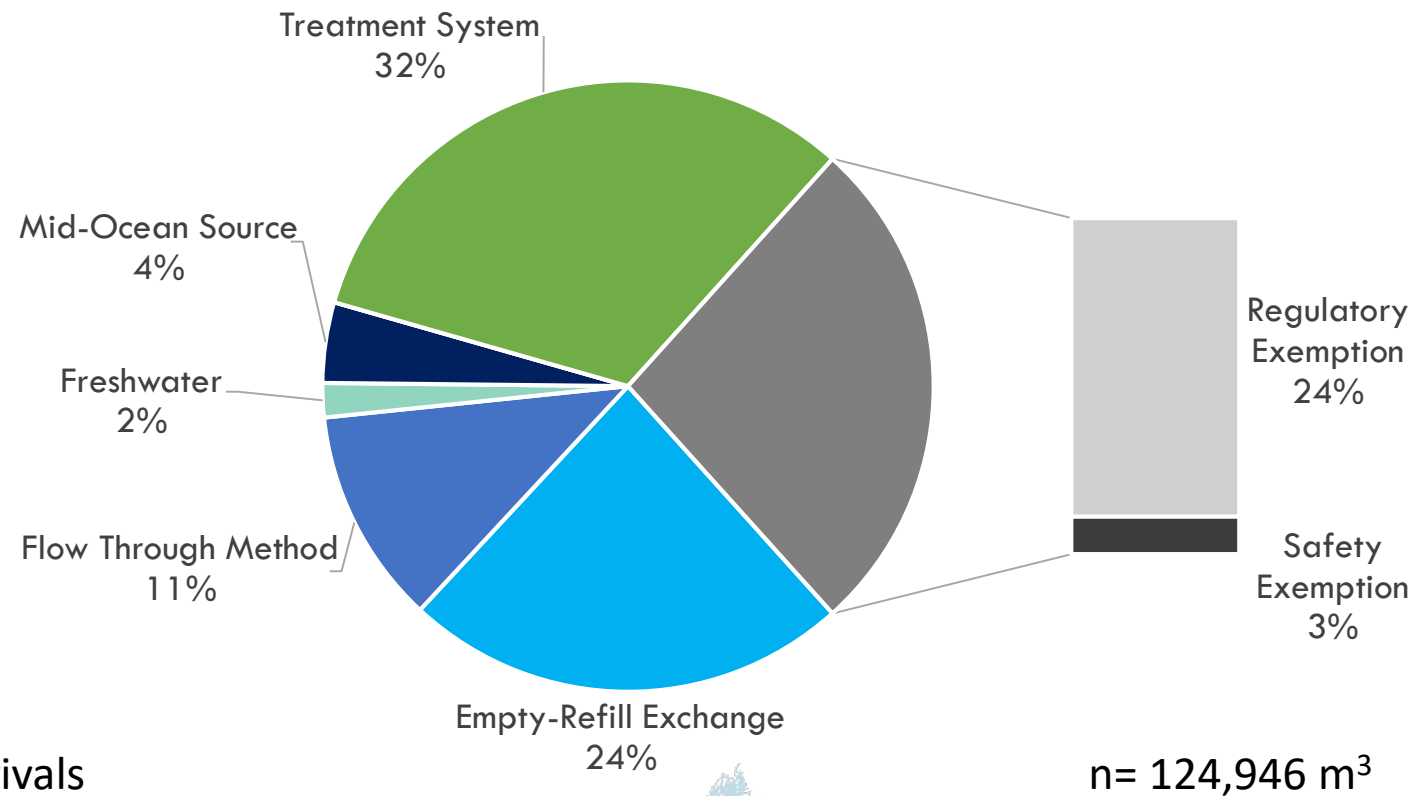
n = 729 vessel arrivals

2020 Vessel Arrival Statistics

Ballast Water Discharged 2018-2020



Ballast Water Management, 2020

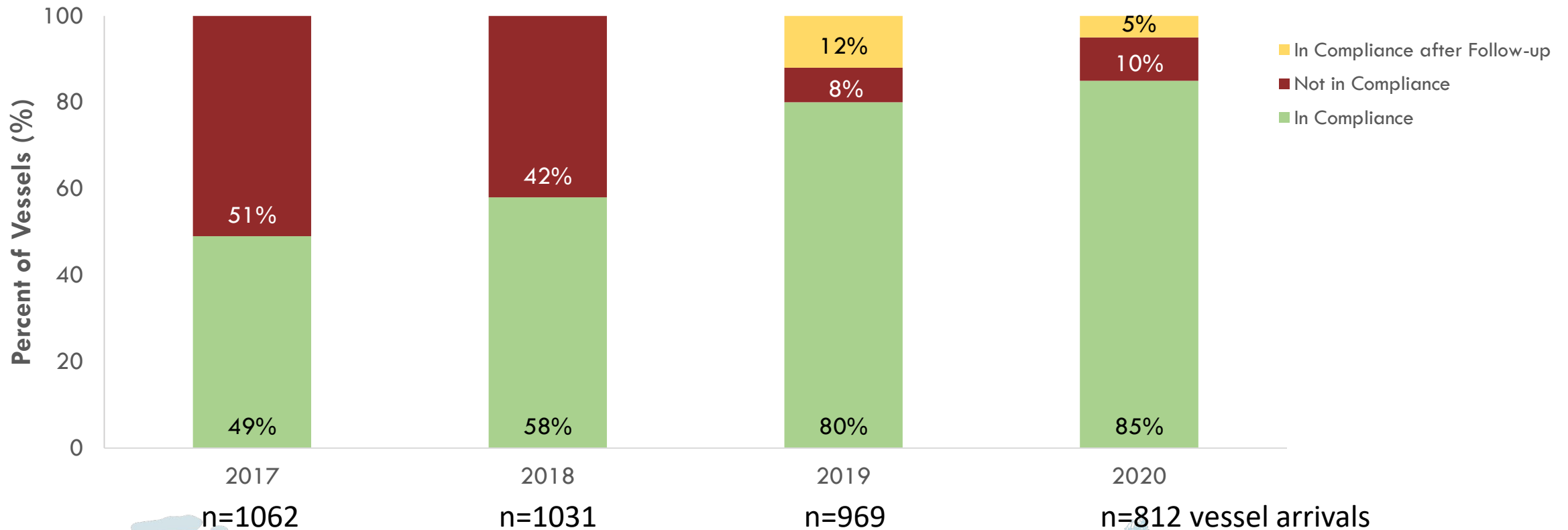




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2020 Vessel Arrival Statistics

Percent of Vessels in Compliance Overtime (2017-2020)





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2020 Vessel Arrival Statistics

General Risk (max 20 Points)	Discharging Ballast
	Reporting Form Compliance
	"Flagged" Vessels

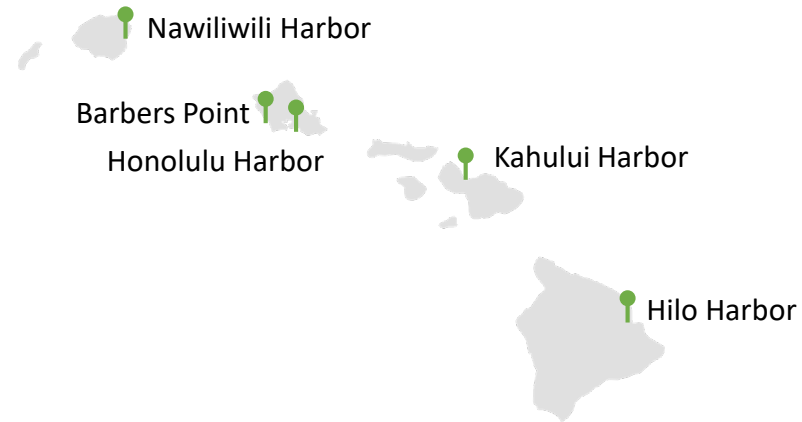
Risk Per Ballast Tank (4 points max per 20 tanks)	Management System
	Tank Volume (Shapoori & Gholami, 2014)
	Tank Storage Time (Shapoori & Gholami, 2014)
	Tank Water Source (Davidson et al., 2014)



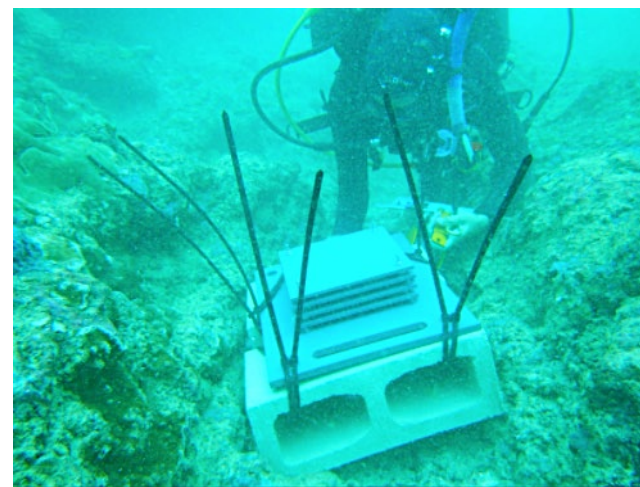
Risk Level	Number of Discharging Vessel Arrivals
Low (0-20%)	45
Moderate (20-25%)	8
Medium (25-30%)	5
High (30%+)	4

Prioritization Tool			
Factor	Included	Limitiations	Vessel Arrivals
Large volume of ballast discharged	Y		4
Similar climate / interisland ballast source	Y		

Harbor Monitoring



- Build species checklists/database
- Build voucher collection and DNA barcode reference library
- Identify new records



Species of Concern

- BWBF watch list
- Importation
- Quick risk screening
- Barcoding gaps

Carcinus maenas



Perna viridis



Hypophthalmichthys nobilis

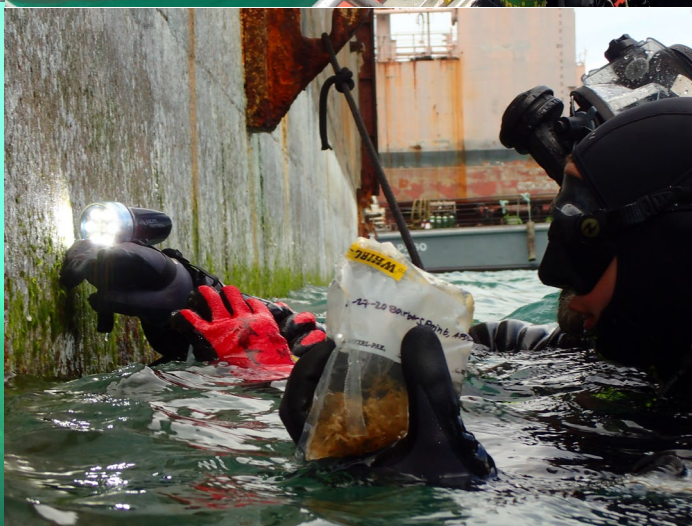


Asterias amurensis



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Rapid Response: High Risk Dry Dock



cgaps
STOP THE SILENT INVASION



BISHOP MUSEUM

- VIDA
- Recreational Vessel Biofouling Management Best Practices and currently compiling the Commercial Fishing Vessel outreach documents with the subgroup of the Western Regional Panel Coastal Committee.
- Revamping AIS website
- Local community events/presentations



HAWAII
Division of Aquatic Resources

Personnel

Personnel	2020				2021			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Aquatic Biologist								
Coordinator / Planner								
Temp full-time intern								
Temp part-time intern								
Temp hire BWBF								
Temp hire AIS								
Temp 2 student hires								



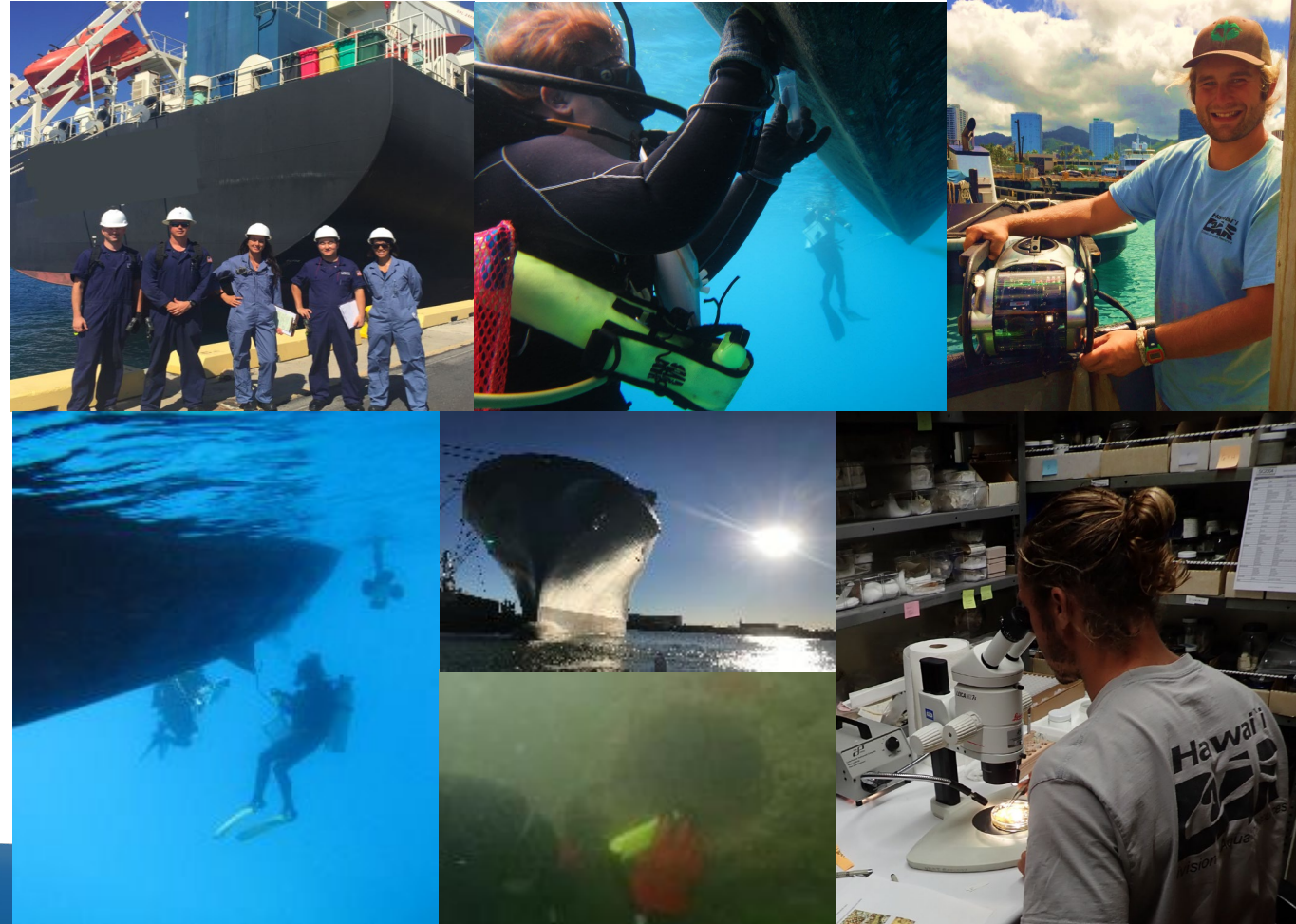
AIS 2021

Challenges:

- COVID
- Challenges with revenue (VIDA)

Priorities:

- Continue to engage in the rule making process
- Assess status of AIS in harbors (points of entry/new detections and gateway to adjacent reefs, neighbor islands, monument)
- Identify and prioritize species of concern and pathways that could pose the highest risk to our environment, economy, or human health





Hawai'i Division of Aquatic Resources

Contact Us



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www.dlnr.hawaii.gov/ais/

