

HAWAI'I BALLAST WATER AND BIOFOULING PROGRAM

Pacific Ballast Water Group Meeting
April 24th, 2024



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Hawai'i Division of Aquatic Resources



Hawai'i BWBF Program Updates



- Still a team of two:
 - Lizzy Monaghan, Program Coordinator
 - Sarah Tom, Planning Associate

- Began supplementing NOAA PMNM hull inspection program

- Initiated harbor eDNA invasive species surveys

- Completed O'ahu recreational harbor hull fouling surveys

- Continuing to participate in VIDA comment opportunities and scoping meetings

- Focusing on outreach



CORAL DISEASE REPORT SIGHTINGS & PREVENT SPREAD

Coral disease is an emerging issue on Hawaiian reefs. Divers! Help identify coral disease and prevent new outbreaks!



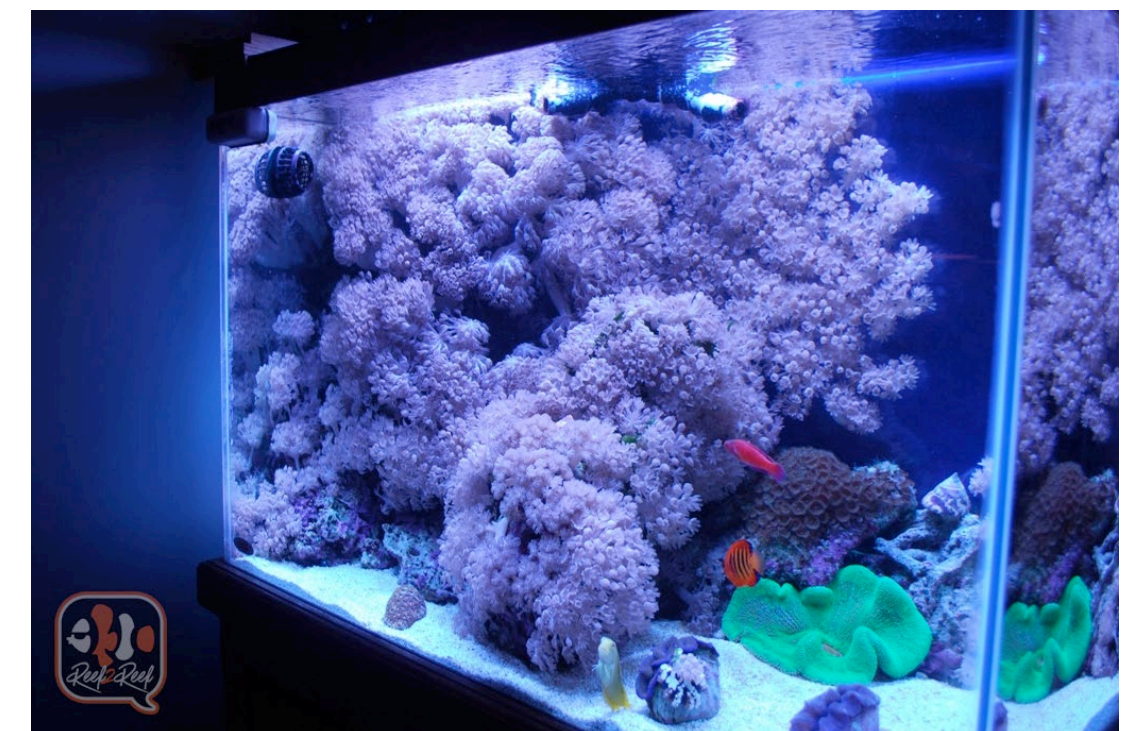
Stony Coral Tissue Loss Disease (SCTLD) Update

- Currently still only reported in the Caribbean
- Mass bleaching throughout Caribbean in Summer/Fall 2023 lead to highly reduced incidence of disease
 - Less disease or hard to spot?
- USCRTF Coral Disease Working Group will be expanding to address other coral disturbances as well – bleaching, storms, invasive species
- Hawai'i is still working on prevention through legislation, outreach, and capacity expansion



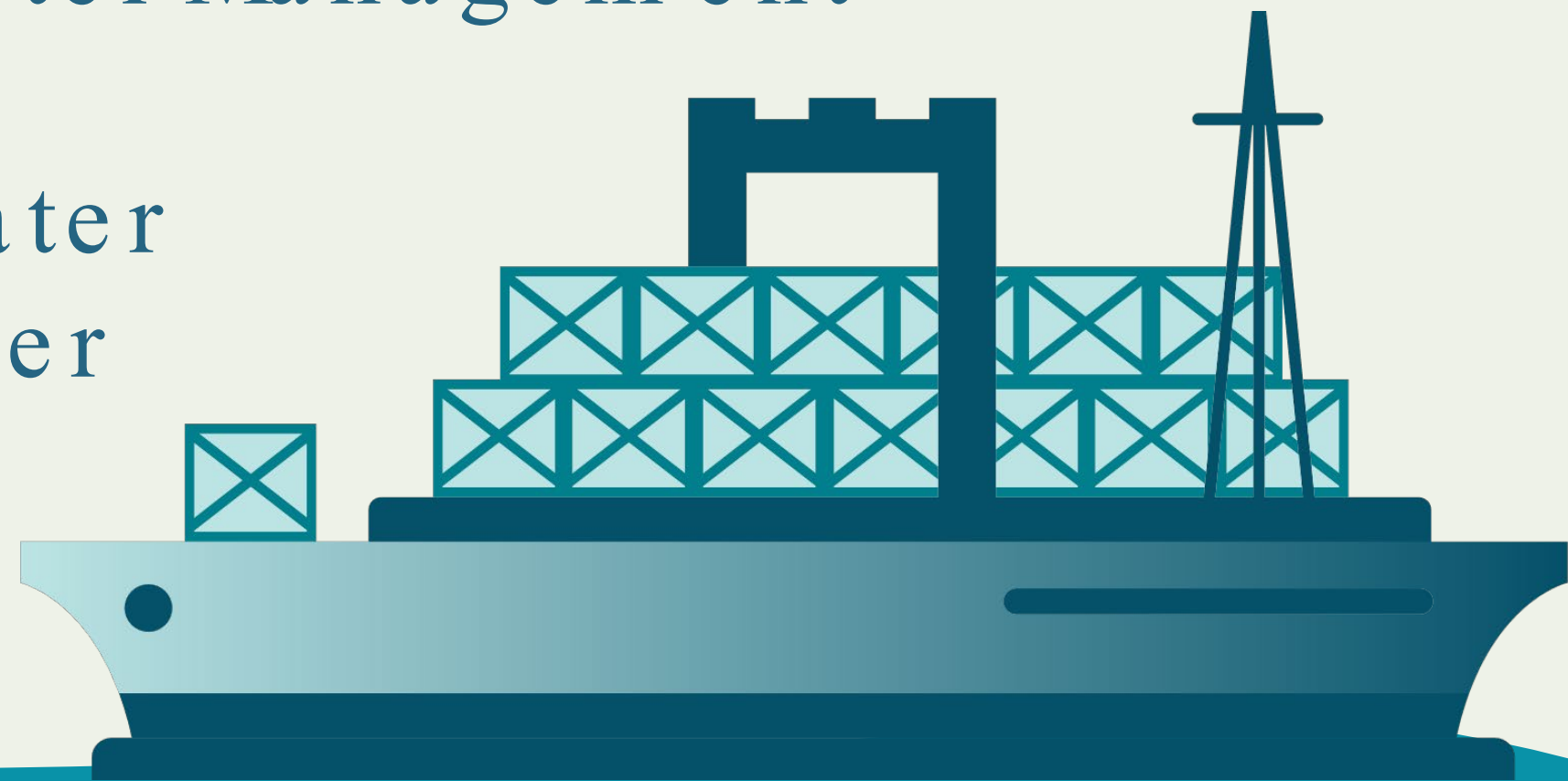
Invasive Octocorals

- “Pulse Coral” or *Unomia stolonifera* has been reported as invasive in Venezuela (early 2000’s), Hawai‘i (2020), Cuba (2022), and Puerto Rico (2023)
- Introduced to Pearl Harbor likely via aquarium dump, though may also spread via hull fouling or intentional cultivation
- Fragments easily and smothers other reef organisms
- US Navy is leading removal efforts of estimated 82 acres of *Unomia* and 2nd invasive octocoral (*Capnella spicata*) with input from inter-agency working group

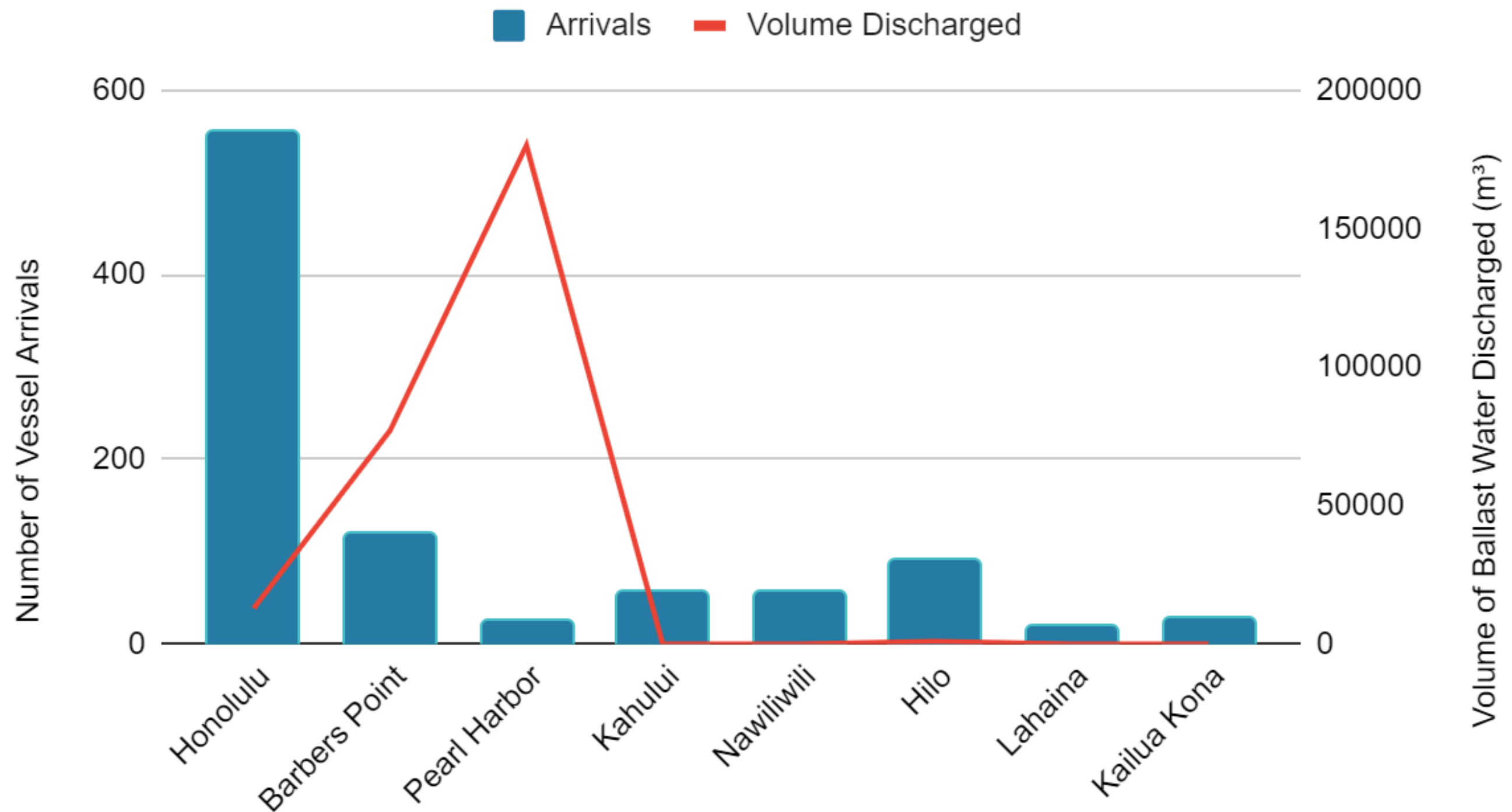


VESSEL ARRIVALS IN 2023

- 1,028 vessels carrying ballast water arrived in Hawaii ports in 2023 determined through BW reporting forms and Marine Traffic
- 947 vessels submitted Ballast Water Management Reports
- 84% of vessels retained ballast water
- 50 vessels discharged ballast water



Vessel Arrivals and Total Volume Discharged at Each Port 2023



n=947 vessel arrivals

2023



Total Arrivals

- 0-30
- 31-60
- 61-120
- 500+



n = 947 vessels

2023



Total Ballast Water Discharged (m³)

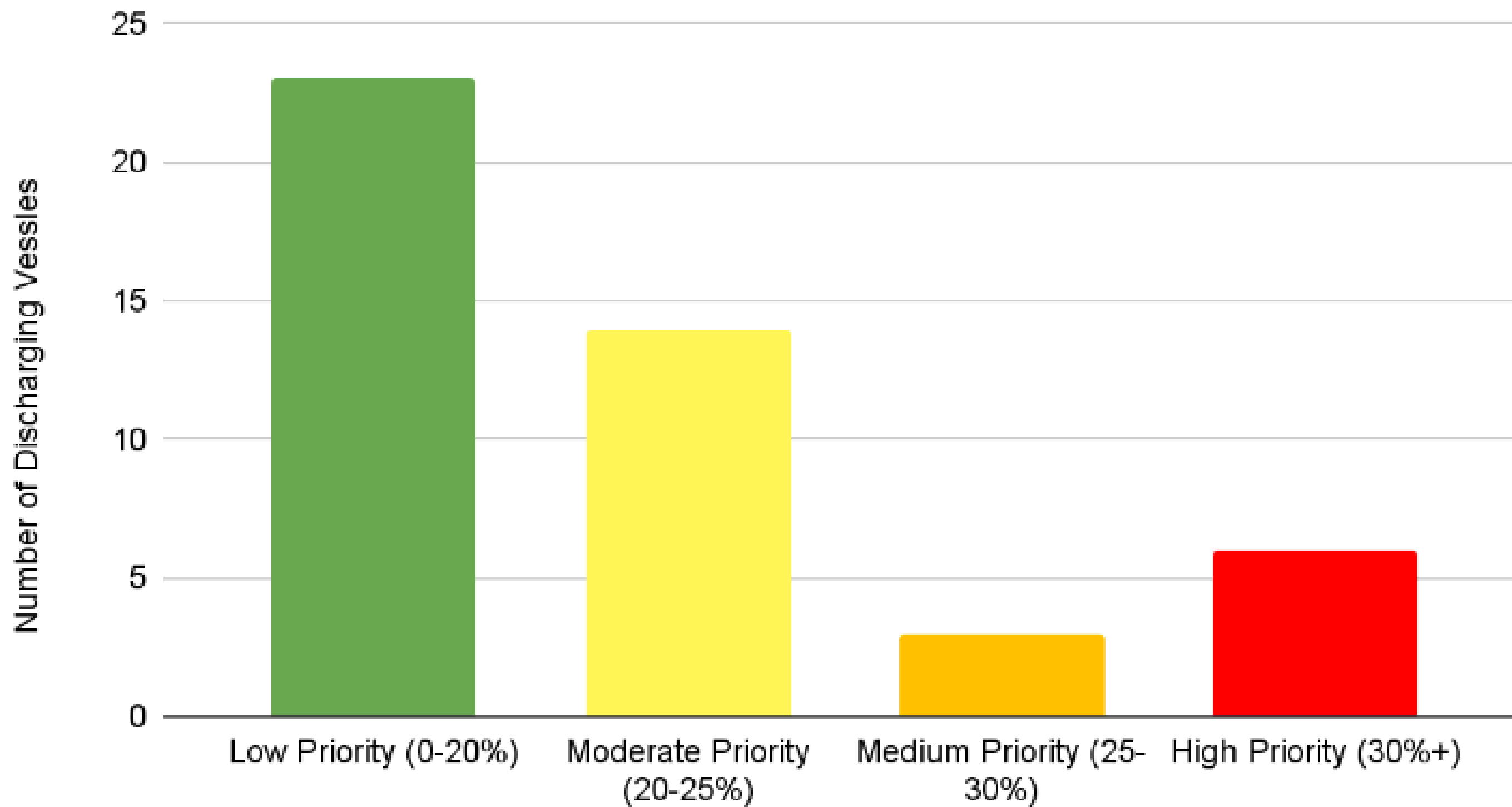
- 0
- 1,000+
- 12,000+
- 75,000+
- 180,000+



n = 46 vessels

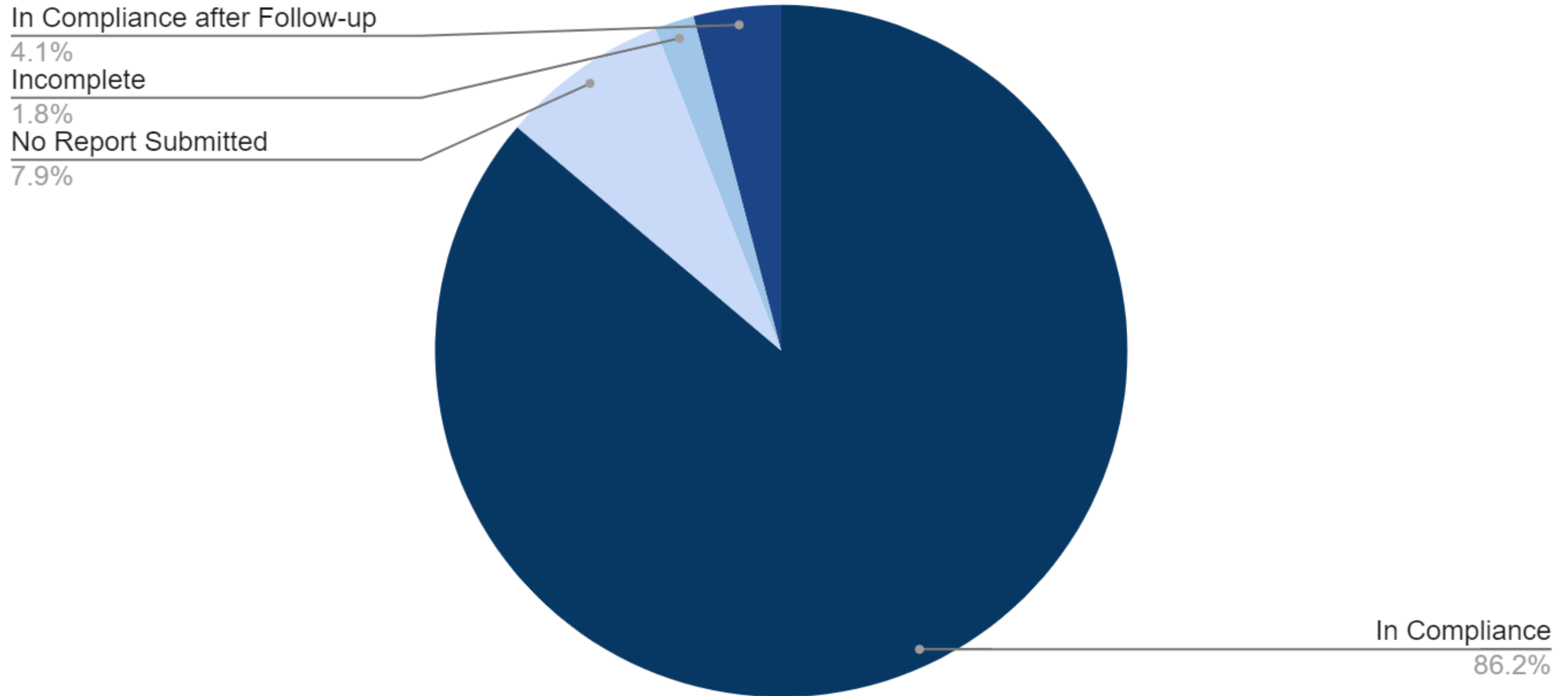


Discharging Priority Data 2023



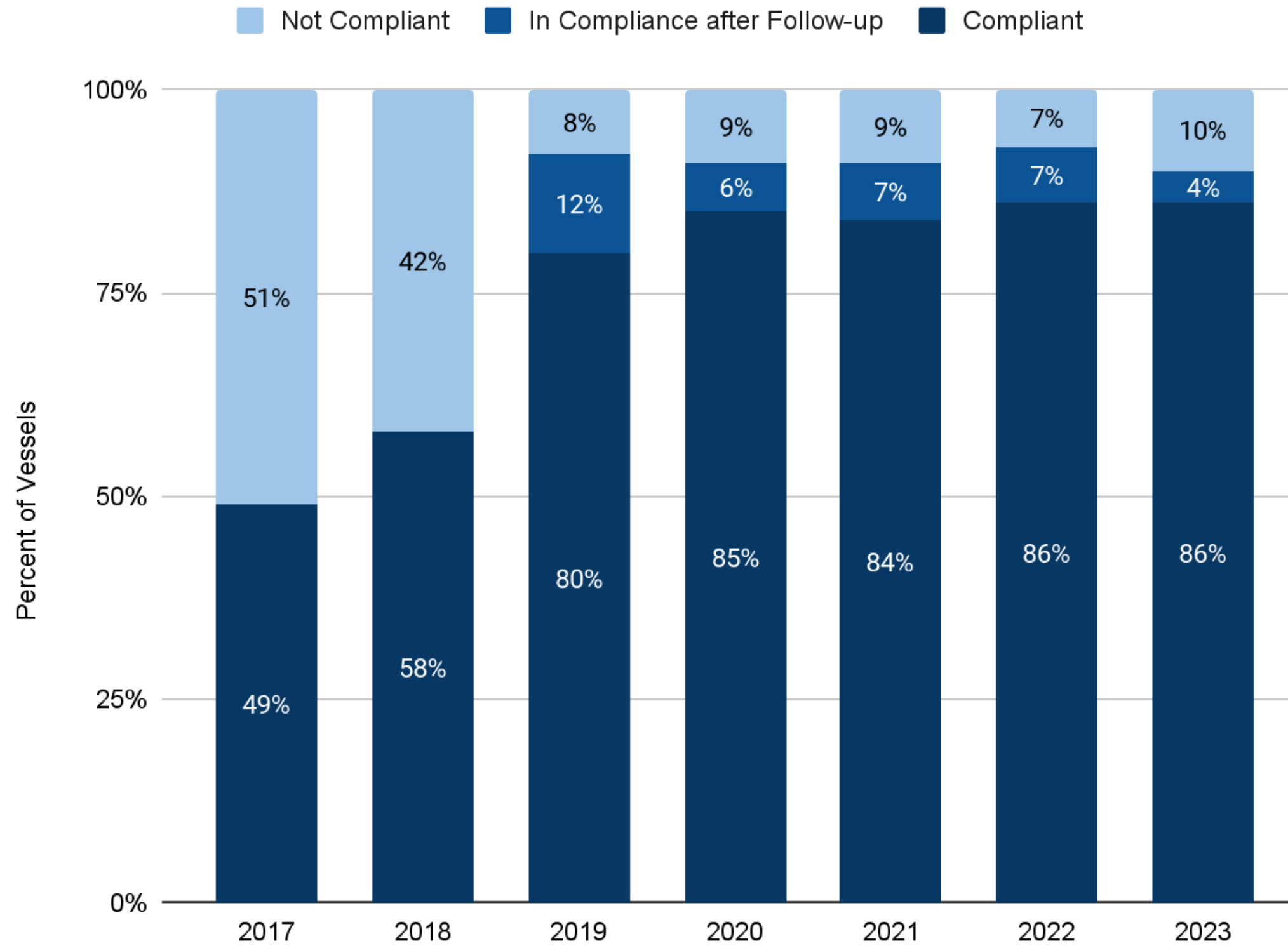
n=46 vessel arrivals

Percent of Vessels in Compliance 2023



n=1,028 vessel arrivals

Percent of Vessels in Compliance over Time (2017-2023)



RECREATIONAL VESSEL HULL FOULING SURVEYS

- ~ Filling information gaps through surveys of recreational boat harbors
- ~ Gathering baseline information before increasing outreach
- ~ Assessing the significance of recreational vessels as a vector for aquatic invasive species in Hawaii

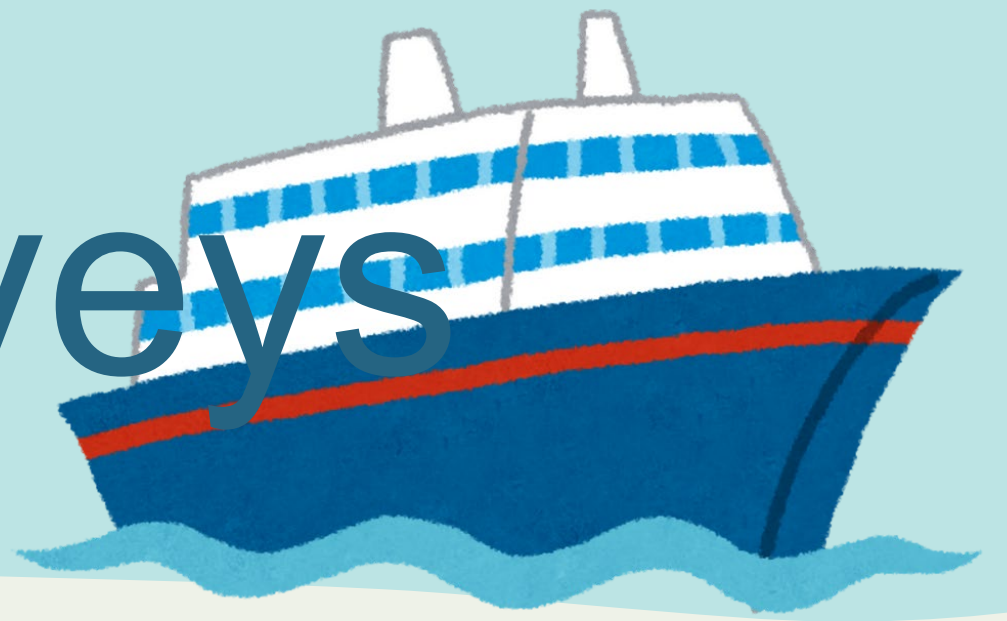


Research Questions

- How do boat owners manage the biofouling on their vessel's hull? How much do they know about this topic?
- How do levels of biofouling management (high, medium, low) effect the amount of biofouling on the vessels hull?
- How effective is each method of biofouling management?
- How do different harbors compare across Hawaii 'i?



Visual FOULING Surveys



- 0- No visible Fouling
- 1- Hull partially or completely covered in slime but no macro fouling
- 2- Light fouling (1 -5%)
- 3- Considerable fouling (6 -25%)
- 4- Extensive fouling (25 -49%)
- 5- Very heavy fouling (50 -100%)

Size-S (Small <10paces), M (Medium 10-20paces), L (Large >20paces)
Type-M (Motor), S (Sail), C (Commercial), O (Other)

