HAWAII INVASIVE SPECIES COUNCIL FINAL REPORT FY17

Project Title: Ballast Water and Hull Fouling

Project Period: January 2017 – December 2017 (extended to mid-April 2018)

Content area: Prevention

Applicant: Julie Kuo, Ballast Water and Hull Fouling Coordinator
DLNR, Division of Aquatic Resources in c/o PCSU

Abstract: DLNR is the lead agency responsible for minimizing the arrival and impacts of alien aquatic organisms in Hawaii. We are requesting funds to maintain the existing FTE Ballast Water and Vessel Biofouling Coordinator tasked to amend ballast water (BW) rules (Hawaii Administrative Rules §13-76) to mirror USCG BW regulations while preserving language specific to Hawaii's unique aquatic resources, develop regulatory statutes to prevent aquatic invasive species (AIS) from arriving and spreading via vessel biofouling(VB) and hull husbandry(HH), and establish a baseline AIS monitoring program in coordination with the Division of Aquatic Resources AIS Team and NOAA.

Deliverable 1: A draft vessel biofouling policy that is informed by various reports produced by SERC and DLNR, peer-reviewed articles, and stakeholder input.

- Outcome: (In progress) The draft vessel biofouling (BF) rules is a work in progress with many components requiring stakeholder consultation, especially regarding the topic of vessel in-water hull husbandry (aka in-water biofouling management). Presently, no in-water BF management of vessels is allowed in the State of Hawaii due to DOH Hawaii Administrative Rules (HAR) Ch. 11-54 which regulates the discharge of contaminants affecting water quality from point sources including vessels. Contaminants concerning vessel hull husbandry include heavy metals like copper and zinc which are used in antifouling paint to prevent organisms from settling on hull surfaces. While improper practices can lead to the spread and the release of contaminants from anti-fouling hull paint and organisms, not allowing in-water cleaning can have similar or worse implications since macrofoulers tend to require more abrasive cleaning tools/techniques to remove and the reproductively mature adults may release propagules which poses biosecurity risks to neighboring islands. Therefore, it was important to focus on developing vessel hull husbandry conditions and BMPs as part of drafting biofouling rules since the vessels will need a way to comply with HI state biofouling compliance standards between dry-dockings (which usually occur every 3-5 years).

  During 2017, a significant time was spent meeting with government and industry stakeholders to develop a resolution on the issue of overlapping jurisdictions associated with in-water BF management operations. While this report is on 2017, a peak into 2018 will show that the Hawaii Invasive Species Council (HISC) Resolution on 18-1 regarding

in-water hull husbandry was adopted by the Hawaii Invasive Species Council in addition to the House Concurrent Resolution 130, which was also adopted by the Hawaii State Legislature in 2018. Three major action items arise from the Resolutions including:

1) Develop permitting conditions and BMPs (based on science) to allow vessel hull husbandry that is practicable and minimizes both biosecurity risks and water quality concerns
2) Participate in efficacy testing of biofouling management capture systems with Alliance for Coastal Technologies
3) Propose HI State Biofouling Rules and launch with voluntary compliance starting December 31st 2019.

All items are in development and a draft of the conditions for allowing in-water hull grooming are attached. During this time, the protocol for testing in-water cleaning capture systems is confidential per the decision of Alliance for Coastal Technologies.

Regarding the development of all three items, I'd like to acknowledge the guidance and importance of our government partners in Australia, New Zealand, and California who have provided helpful documents and information required for the successful development of Hawaii's biofouling program. Hawaii's proposed biofouling rules, compliance standards, and policies mirror components of the International Maritime Organization Biofouling Management Guidelines, Western Australia Dept. of Fisheries, New Zealand Ministry for Primary Industries, and California State Lands Commission biofouling regulatory standards. A benefit of regulatory consistency across national and international boundaries is the increased motivation of vessel operators in complying with Hawaii's future biofouling requirements.

Deliverable 2: A summary of stakeholder consultation on the vessel biofouling policy, including the views and concerns presented and DLNR's response.

- Outcome: (Complete) From the perspective of State and Federal agencies within Hawaii that have overlapping jurisdictions on in-water biofouling (BF) management operations, representatives want to be sure water quality standards are met and that minimization of aquatic non-indigenous species introductions are considered when developing biofouling rules and vessel biofouling management policies and BMPs.

  Regarding the perspective from vessel operators, they are currently concerned that there will be a BF compliance standard they are unable to follow because no in-water hull husbandry is allowed in the State. Additionally, by not allowing in-water biofouling management between dry-dockings, they are concerned that their vessel's efficiency and maneuverability will be compromised by macrofouling drag which is a safety concern. Additionally, vessel drag requires more fuel usage and therefore more carbon emission released into the atmosphere. However, the representatives also expressed the overall theme that Hawaii's environment is important and we should all work collaboratively towards minimizing aquatic non-indigenous species introductions into the State and that the policies developed should be practicable and economically feasible for industry to follow.

Regarding the perspective of in-water biofouling management companies, according to some representatives I spoke with, apparently some companies have been cleaning various types of large vessels for decades in Hawaii and are concerned that the ban on in-water hull husbandry operations will put them out of business or they'll have to conduct in-water hull husbandry offshore which poses significant safety concerns according to the USCG. The reps from the companies I spoke with are in support of biofouling rules and would like to provide services that minimize new introductions of aquatic non-native species as well as toxic antifouling paint release and have offered to provide a demo to show how they might perform these operations while preventing or minimizing the release of antifouling paint. They are also open to using in-water cleaning debris capture systems if there is a market that can sustain the operations of these tools in Hawaii. For example, if the Hawaii's adopted biofouling rules and in-water hull husbandry policies require vessels to use debris capture systems for all in-water hull husbandry events, then companies may be more inclined to invest, purchase, or develop a tool for performing these operations.

Deliverable 3: A list of the regular meetings attended and a list of reports and policy documents reviewed

- Outcome: (Complete)
    - Regular meetings attended
        - Hawaii Ocean Safety Team
        - Ocean Resources Management Plan
        - NRAT
        - Coordinating Group on Alien Pest Species
        - Washington Ballast Water Working Group Meeting
    - Reports, technical, and policy-related documents reviewed or assist in drafting
        - Vessel Incidental Discharge Act oppositions letters
        - *Biofouling in the Pacific States and US British Columbia*
        - Washington State 10-year Ballast Water Strategic Plan

Deliverable 4: A final draft of DLNR's amended Ballast Water Rules and an MOU between DLNR and the USCG for performing ballast water compliance verifications.

- Outcome (In progress) See attached for the current proposed BW Rules Amendments. In August 2017, we hosted and contracted a facilitator to facilitate the Alien Aquatic Organism Task Force (AAOTF) Meeting where we acquired informal input from industry and government agency stakeholders on ballast water rule amendments including an amendment that requires vessels to manage their ballast water inter-island if discharging. Following the AAOTF Meeting, the push to amend Hawaii ballast water rules has relied on the coordination of the CGAPS legal fellow Andrew Porter. The following summary is an update on the HI State BW Rule amendments since the AAOTF meeting:

- Andrew researched the 352 page Hawaii Administrative Rules Drafting Manual to streamline the spacing, wording, punctuation, etc. This led to a lot of semi-structural changes though the overall structure and components stayed the same.

- We decided to go with a "repeal and replace", so HRS Ch. 76 will now be HRS Ch. 76.1. which is what we had discussed doing because of many structural and substantive changes being made to the original rules.

- In accordance with the Drafting Manual, Andrew formatted the proposed rules in both the Ramseyer and Standard formats so there are two different copies of the same rules that need to be presented to the Board.

- Andrew plans to set up final meetings with specific industry stakeholders to be sure they have no final comments or objections before we enter the Ch. 91 rulemaking process to streamline adoption of the amended rules.

Deliverable 5: A summary of vessels inspected for biofouling and findings

- Outcome: (Complete)
- The Hōkūle'a Voyaging Society vessels' inspections
    - Prior to their arrival into State waters, guidance on BF BMPs was provided to the five vessels that had voyaged around the world prior to finishing their voyage in Hawaii. Inspections of the double hull canoes were conducted in coordination with the National Park Service in Kalaupapa and DAR AIS Team. The Hōkūle'a, Hikianalea, Fa`afaite and Okeanos Marshall Islands exhibited low levels of biofouling on their hulls. The Mo`okiha o Pi`ilani had the most visible biofouling out of the five vessels and recommendations were made to manage their biofouling safely offshore prior to entering another island. A technical report was drafted for the inspection by the AIS Team (see attached).
- Marisco's dry-dock and heavy-lift vessel carrying dry-dock
    - Guidance on BF and ballast water BMPs over several months had been provided to both vessels arriving into State waters. While an inspection had been planned, due to bad weather the arrival of the dry-dock to Barber's Point was delayed and I was unable to conduct the inspection on the day it arrived.
- Pacific Shipyards dry-dock and heavy-lift vessel carrying dry-dock
    - Guidance on BF and ballast water BMPs over multiple days had been provided to both vessels arriving into State waters. The vessels prepped and followed our guidance and the dry-dock arrived with little to no biosecurity risks as its ballast tanks and hull were completely dry and sitting above water on the heavy-lift vessel. Regarding the heavy-lift vessel inspection in Maui, the verification of ballast water management was conducted by checking documentation, indicating the ballast water was low risk. However, barnacles on the side of the heavy-lift vessel indicated some level of biosecurity risk. Though there are also indicators and documentation provided by the Captain of the heavy-lift ship that suggested the biosecurity risk is minimal as the vessel had been docked in freshwater for a week prior to departing for Hawaii. Additionally, the heavy-lift vessel left State waters shortly after discharging the dry-dock which means it was in State waters for no more than 4 days further minimizing risk. I was also able to confirm with my government partners in New Zealand and California that this vessel posed minimal risk to the State of Hawaii.

Deliverable 6 : A list of meetings where I delivered presentations on the topics related to ballast water and biofouling either as outreach, networking, decision-making, or information sharing purposes

- Outcome (Complete)
    - Pacific Ballast Water Group Meeting and Western Regional Panel Coastal Committee Meeting
    - HISC Brown Bag
    - Ocean Resources Management Plan Meeting
    - ANZPAC Workshop on Biofouling Management for Sustainable Shipping
    - Western Australia Biofouling Regulators Meeting
    - Australia Collaboration Workshop (3 presentations)
    - Hawaii Conservation Conference
    - USCG Zooplankton Enumeration Workshop (Hosted by me and Kupu Intern)
    - Hawaii Ocean Safety Team General Membership Meeting
    - Aquatic Alien Organism Task Force Meeting on Ballast Water Amendments (Hosted by the collaborative efforts of CGAPS, NOAA, DLNR, and HISC)

Deliverable 7: A summary of vessel arrival frequency into Hawaii, location, and number of discharges referenced from the ballast water reporting forms received.

- Outcome: (Complete) Refer to the attached PDF powerpoint (HI BW Reporting Form 2017).

Miscellaneous accomplishments:

- Interviewed, trained, and supervised a Kupu intern (Natalie Dunn) who compiled and analyzed all the ballast water reporting forms we received in 2017. Natalie also conducted an efficacy test of a ballast water rapid compliance assessment tool against the traditional microscope counting method. The results can also be found in attached presentation.
- Participated in a course that taught skills in facilitating meetings, workshops, and developing a strategic plan.
- Developed and continuing to develop a functional wet and dry lab with Dr. Kim Peyton at the Anuenue Fisheries Research Center to conduct experiments and projects related to ballast water and biofouling.
- A BW biosecurity risk assessment was conducted on board two commercial vessels in coordination with the USCG on 8/8/17 and 8/12/17. Both vessels were low in biosecurity risk according to their documentation on board.
- Collaborated with Federal and State government agencies as well as with the UH of Manoa, HIMB, and HPU to share resources (e.g.: equipment and chemical reagents)