

**Coordinating Group on Alien Pest Species
(CGAPS)**

Annual Report
January 1 — December 31, 2018

Submitted to:
Hau'oli Mau Loa Foundation
Hawai'i Department of Agriculture
Hawai'i Invasive Species Council
Hawai'i Department of Land and Natural Resources-Division of Forestry and Wildlife
National Park Service-Pacific West Region
U.S. Fish and Wildlife Service-Pacific Islands Office
University of Hawai'i-Pacific Cooperative Studies Unit

Introduction

Acronym Index

BIISC: Big Island Invasive Species Committee
CGAPS: Coordinating Group on Alien Pest Species
DAR: DLNR Division of Aquatic Resources
DOFAW: DLNR Division of Forestry and Wildlife
DLNR: Department of Land and Natural Resources
HCAF: Hawai'i Conservation Alliance Foundation
RCUH: Research Corporation of the University of Hawai'i
HDOA: Hawai'i Department of Agriculture
HDOA PQ: Hawai'i Department of Agriculture Plant Quarantine
HIBP: Hawai'i Interagency Biosecurity Plan
HMLF: Hau'oli Mau Loa Foundation
KISC: Kaua'i Invasive Species Committee
LFA: Little Fire Ant
MISC: Maui Invasive Species Committee
MoMISC: Maui-Moloka'i Invasive Species Committee
NPS: National Park Service
OISC: O'ahu Invasive Species Committee
PIO: Public Information Officer
ROD: Rapid 'Ōhi'a Death
TNCH: The Nature Conservancy of Hawai'i
UH CTAHR: University of Hawai'i-College of Tropical Agriculture and Human Resources
UH PCSU: University of Hawai'i-Pacific Cooperative Studies Unit
UH: University of Hawai'i
UHF: University of Hawai'i Foundation
USDA APHIS: U.S. Department of Agriculture-Animal and Plant Health Inspection Service
USDA FS: U.S. Department of Agriculture-Forest Service
USFWS: U.S. Fish and Wildlife Service
VIDA: Vessel Incidental Discharge Act

Introduction

The Coordinating Group on Alien Pest Species (CGAPS) is a partnership of agencies and non-governmental organizations working together to close the gaps in Hawaii's biosecurity programs in the areas of prevention, early detection/rapid response, and long-term control of terrestrial and aquatic invasive species.

CGAPS hosts quarterly public meetings which are a venue for participants to network and communicate issues, challenges, and progress. CGAPS also has a Steering Committee that is responsible for strategy and for shepherding their agencies or NGOs' progress toward our shared vision, "To achieve effective protection of Hawaii's unique natural environment, economy, agriculture, and the health and lifestyle of its people."

The CGAPS staff consists of Andrew Porter, CGAPS Legal Fellow working on ballast water and biofouling issues with DAR; Chelsea Arnott, CGAPS Planner; Christy Martin, the program manager and public information officer (shortened to PIO); Ambyr Mokiao-Lee, Statewide ROD Outreach Coordinator; and Anders Lyons, ROD Emergency Response Planner. The second legal fellow position is currently vacant.

For more information on CGAPS, its projects, or to see the 2015-2019 CGAPS Strategic Plan, visit www.cgaps.org.

The CGAPS mission is to coordinate and catalyze action among government and non-government partners to prevent and manage invasive species in Hawai'i, as well as communicate key issues to the public.



Acknowledgement of CGAPS Support

This past year has been one of growth and productivity for CGAPS staff and we always enjoy looking back as we draft this report. It also gives us a chance to thank our colleagues from agencies and non-governmental organizations--because CGAPS is not the staff, it is the voluntary partnership that provides expertise, time, and energy to advance common goals. Mahalo to the 2018 CGAPS Chair Emeritus Joshua Atwood, Chair Angela Kieran-Vast, and Deputy (incoming 2019 Chair) Mark Fox for overall coordination of the partnership and supervision of the PIO. Mahalo to the CGAPS Steering Committee for providing a framework and direction for our projects.

The CGAPS staff and projects are supported through grants, and we are deeply grateful for this support. Mahalo to Hau'oli Mau Loa Foundation, Hawai'i Invasive Species Council, the National Park Service (via HPI CESU agreement #P17AC01216 Mod1), and the U.S. Forest Service (DOFAW pass through) for financial support of CGAPS and its projects this past year. Most funds were administered by the University of Hawai'i at Mānoa or the University of Hawai'i Foundation (for private foundation grants) through the Pacific Cooperative Studies Unit. Funding for the Legal Fellows program is administered by the University of Hawai'i Foundation through the William S. Richardson School of Law. The Hawai'i Conservation Alliance Foundation and the O'ahu Economic Development Board also serve as fiscal sponsors for some of the CGAPS projects, and we are grateful for this help. Mahalo to the Research Corporation of the University of Hawai'i the employer of CGAPS staff.

Mahalo to Denise Antolini and Pamela Taura at the UH William S. Richardson School of Law for partnering with CGAPS on the Legal Fellows program, and a very special mahalo to Kathryn Stanaway for supervising our first legal intern. Thank you to Drs. Mike Melzer and J.B. Friday of the UH College of Tropical Agriculture and Human Resources for leadership on grants related to Rapid 'Ōhi'a Death.

In-kind support is also appreciated and integral to our work. Mahalo to HDOA, DLNR, and TNCH for providing meeting spaces, to DLNR and HDOA for providing office space for the legal fellows, and to the UH Department of Botany for office space for the Planner, PIO, and ROD Statewide Outreach Coordinator.

Finally, thank you to Dr. David Duffy and the staff of the Pacific Cooperative Studies Unit. CGAPS is able to run "lean and mean" because we have the support and help of PCSU. Mahalo nui loa!

CGAPS Steering Committee

Hawai'i Department of
Agriculture
Hawai'i Department of Land and
Natural Resources (Division of
Aquatic Resources and Division
of Forestry and Wildlife)
Hawai'i Invasive Species
Council
Hawai'i Conservation Alliance
Foundation
The Invasive Species
Committees of Hawai'i
The Nature Conservancy of
Hawai'i
U.S. Department of Agriculture
(Animal and Plant Health
Inspection Service and U.S.
Forest Service)
U.S. Department of Defense
-Naval Facilities Engineering
Command Pacific
U.S. Department of Homeland
Security/Customs and Border
Protection
U.S. Fish and Wildlife Service
University of Hawai'i



CGAPS Strategic Plan Progress

CGAPS staff work plans and projects are aligned to advance our collective progress towards the five goals outlined in the 2015-2019 CGAPS Strategic Plan. Each year in this report, we provide details on the progress made on the action items under each goal.

Goal 1: Minimize the inter- and intra-state movement of pests

Action 1: Support development of effective quarantine and inspection

The Hawai'i Interagency Biosecurity Plan (HIBP), completed at the end of 2016, contains year-by-year steps for addressing this and many other priorities listed in the CGAPS Strategic Plan. Now two years into this 10-year plan, many of the non-monetary action items are underway and some are completed. CGAPS will engage strategic communications assistance in 2019 to facilitate movement on this priority.



Chelsea Arnott provided outreach on the HIBP at Ag Day at the Capitol.

Action 2: Find solutions to federal preemption

CGAPS focused on this through four large projects in 2018. CGAPS worked with the staff of Hawaii's congressional delegation to include additional protection for Hawai'i from invasive marine species moving in ballast water; a NAPPRA petition was submitted, and the Myrtaceae petition was revised for submittal in January 2019. The fourth project was working with Josh Atwood of HISC and a number of representatives of the invasive species

community on Governor Ige's Biosecurity Initiative for the Western Governors Association (see <http://westgov.org/initiatives/biosecurity-and-invasive-species-initiative>). This included presentations on three key projects to move forward on, and one was federal-state issues including preemption.

Action 3. Support reinstatement of HDOA Detector Dog program

In 2017, two HDOA dog handlers and their canines began working at Daniel K. Inouye International Airport and at freight forwarding companies, and there are now three handlers and the fourth will go through training with their dog this year. CGAPS will continue to do what it can to increase detector dog teams based on import risk and need, including this final push to work with MISC on an LFA detector dog pilot project.

As part of the ROD Strategic Response, a pilot project brought detector dogs from Florida and showed that the dogs could identify outwardly-healthy looking ROD-infected trees with 90% accuracy.

Action 4: Support the development of an effective hull-fouling and ballast water management program

CGAPS staff continued to support Jules Kuo, the DAR Ballast and Hull-fouling Coordinator through full-time help of Andrew Porter and advising by Christy Martin. Following our meeting with shipping industry representatives and stakeholder groups in August 2017, Andrew drafted and sent proposed draft rules to require treatment or exchange of ballast water between

counties (with exemptions for safety and freshwater ballast). However, the federal Vessel Incidental Discharge Act (VIDA) took a lot of time away from state rulemaking in the spring of 2018, and from September through the end of the year when VIDA was signed into law with the Coast Guard Authorization Act.

One positive result of this was that CGAPS was able to take the draft state ballast language and, with the help of Senator Hirono and Senator Schatz and their staff, amend this language into the federal law. However, the new law will keep states from passing or enforcing more stringent rules on ballast water, biofouling, and the in-water cleaning of vessels. Instead, states can pass parallel rules to enforce, or co-enforce federal standards. States will work with the EPA and US Coast Guard, and CGAPS staff will participate wherever possible.

The next immediate task will be to support the building of the Ballast and Hull-fouling team at DAR to assess risk posed by these two vectors and work with the EPA and USCG to inform national standards and regulations over the next four years. VIDA requires these agencies to work with states and also allows states to set fees. Therefore, CGAPS again organized a meeting with shipping industry representatives and stakeholders at the close of 2018 to discuss these changes and how DAR may move forward in areas where they will not be preempted.

Action 5: Support voluntary and regulatory mechanisms that prevent inter-and intra-state movement of pests

CGAPS staff each worked on different aspects of this action, from ballast water and biofouling work summarized above, to outreach on the Hawai'i Pacific Weed Risk Assessment and Plant Pono, work on Rapid 'Ōhi'a Death messaging, and the work on terrestrial prevention mechanisms. Also, CGAPS' first legal intern completed a brief summarizing how other

states use compliance agreements for intra-state regulation of pests or commodities that can carry pests.

Action 6: Address lists regulating plants

Through HMLF support, CGAPS staff continues to work on the prevention of high-risk invasive plants from being imported into Hawai'i. CGAPS Legal Fellow Kathryn Stanaway worked on draft language for rules that would implement HRS § 150A-6.1 by creating a list of plant species that are restricted from entry into the state because of the harm or potential harm they could cause. Chelsea Arnott, former CTAHR Graduate Assistant and now the CGAPS Planner, worked on engaging stakeholders early in discussions about the Restricted Plant Rules and continued to provide updates throughout the process. CGAPS submitted a petition package that included the draft rules and list of proposed plants to the Board of Agriculture at the end of 2018, requesting the Restricted Plant Rules be added to the January 22nd meeting agenda. More information on this project is provided in the HMLF Prevention Projects section of this report.

At the end of 2018, CGAPS submitted a request to USDA APHIS to list *Oemona hirta*, or lemon tree borer, as Not Authorized Pending Pest Risk Assessment (NAPPRA). This is the first NAPPRA submittal from CGAPS and, if approved, host plants from areas documented to



Chelsea Arnott and Shahin Ansari presented the proposed Restricted Plant Rules and list at a HISC Brownbag.

have lemon tree borer would not be allowed entry into the U.S. without a risk assessment. Listing known pests (or plants as pests themselves) and associated host plants through NAPPRA may prove to be an effective (albeit temporary, until a risk assessment is requested and completed) regulatory tool for preventing future pest introductions from abroad. An additional request to list all plant taxa in the Myrtaceae family under NAPPRA is currently being worked on primarily to prevent the introduction of new and more virulent strains of the fungal pathogen known as myrtle rust, or *Austropuccinia psidii*, but also to protect 'ōhi'a and other native Myrtaceae from any additional pests and diseases.

Goal 2: Expand Hawaii's Biocontrol Program

Action 1: Assist in developing messaging regarding the importance of biocontrol; Action 2: Support the development of expanded capacity for biocontrol in Hawai'i

CGAPS supported this priority internally, by assisting DLNR DOFAW staff in messaging for an RFP for cultural impact assessments and an article for Hawai'i Landscape magazine.

HDOA's 2018 legislative request for funds for planning a new biocontrol facility was successful, and this success provided a foundation for a year of collaborative messaging around the need for greatly enhanced biocontrol capacity in Hawai'i. Planning calls with West Coast U.S. Forest Service staff and Hawai'i partners resulted in the inclusion of this as one of the top three priorities presented to Governor Ige and the Western Governor's Association at the December Biosecurity Workshop in Kona.

Goal 3: Educate the public and decision-makers on importance of prevention*

Action 1: CGAPS will work with a

professional contractor to develop a coordinated strategy

CGAPS received funds for this action item from the HISC and HMLF to support this goal which will begin in 2019 in tandem with CGAPS strategic planning meetings.

Action 2: CGAPS will provide information support to decision-makers regarding prevention-based policies and programs*

CGAPS continued to provide information to decision-makers by engaging legislators, Hawaii's congressional delegates, and their staff. Information is provided in meetings, briefings, and with written and verbal testimony.

Although preventing a species is less costly than controlling its impacts once it is here, prioritizing the **message of prevention over control is counterproductive because many invasive species are here and causing impacts that must be addressed.*

Goal 4: Identify key invasive species threats and coordinate response plans

Action 1: Coordinate and develop strategies to detect, respond to, and control new invasive species

CGAPS continues to view the Hawai'i Interagency Biosecurity Plan as the best mechanism to raise capacity in this area. In addition to supporting the HIBP and coordinating state strategies to be able to address marine invasive species vectored by vessels, CGAPS and HISC staff and partners worked with Department of Interior staff to communicate the need for federal support for early detection and rapid response for non-agricultural pests.

Action 2: Facilitate research on key threats and pathways using risk-based assessments

CGAPS continues to engage researchers and agencies to increase

capacity for assessing risk, and to normalize the use of existing risk assessment tools such as the Hawai'i Pacific Weed Risk Assessment and the Hawai'i Marine Invasive Species Risk Assessment. Also, with 2018 funding from HMLF, the CGAPS Planner engaged Dr. Michael Melzer of UH CTAHR in a project to select six species that pose a high risk to Hawai'i and that are not known to occur in Hawai'i. This project will contract the Centre for Agriculture and Biosciences International (CABI) to research and post full datasheet on these species which CGAPS can then use as support for addressing their pathways (see page 11 for more information).

Action 3: CGAPS will evaluate the effectiveness of control responses

For the past three years, CGAPS has not had the financial or human resource capacity to contract or conduct any formal evaluations of the effectiveness of invasive species rapid responses.

Action 4: Support the redevelopment of capacity for mosquito vector monitoring and response

The overall coordination of monitoring and control of mosquitoes continues thanks to the organization and leadership of Cynthia King, DLNR DOFAW entomologist. Through the Statewide Mosquito Working Group, federal, state, and county staff regularly communicate capacity and needs for monitoring. This multi-agency communication and engagement has resulted in an additional avenue to communicate the DLNR and USFWS priority project to mitigate the harm posed by the expanded range of mosquitoes and the diseases they vector to native birds, an impact of climate change.

Action 5: Continue to help with effective pest reporting mechanisms

CGAPS continues to promote the State Pest Hotline and online reporting through 643pest.com. HDOA and their data

contractor are completing the first phase of a contract to build a new database system that will include and support the expansion of the e-manifest program. The second phase will include a way to log and assist staff in following up with pest hotline reports.

Goal 5: Identify, synthesize, and share information about prevention and control measures

Action: Work with HISC and other partners to identify available data, develop indicators, and share to gain support for current and future work

Thanks largely to HISC and Hawai'i Green Growth (HGG) staff, the indicators on invasive species for the Aloha + Challenge Dashboard reflect progress towards implementing the Interagency Biosecurity Plan (see <https://dashboard.hawaii.gov/en/stat/goals/5xhf-begg/4s33-f5iv/2kh9-u2cc>).

CGAPS also worked with Ward Research to conduct focus groups to get a better sense of how communities view invasive species issues and how they might respond to the use of biotechnology in protecting native birds from mosquitoes and diseases (see project summary, page 10).



CGAPS and partners with Becki Ward of Ward Research.

As mentioned previously, CGAPS and HISC staff and partners worked to advance a number of priorities through the Governor's Biosecurity Initiative for the Western Governor's Association, work which will continue through June of 2019.

CGAPS Operational Goals

The Strategic Plan also identified two Operational Goals: 1) to explore potential changes to the CGAPS organizational structure as part of, or a first step to, securing stable funding for at least one CGAPS staff position; and 2) to grant-fund CGAPS priority projects through additional staff capacity, including a project manager.

CGAPS increased capacity in 2018 with the hiring of Chelsea Arnott as CGAPS Planner. The CGAPS PIO and Planner are organized as a “project” of PCSU, and are employees of RCUH. Since 2015, the impending retirement of PCSU Director Dr. David Duffy has resulted in a lack of clarity and certainty about the future of PCSU, its more than 30 projects, and approximately 400 employees. In the interest of solidifying PCSU, CGAPS staff focused on assisting with transitional planning and implementation, including assessing whether or not PCSU might be better positioned as an Organized Research Unit (ORU) similar to the Institute for Astronomy or School of Ocean and Earth Sciences and Technology (SOEST). The search committee will begin reviewing candidates for the PCSU Director position in January 2019. Once PCSU is on solid ground, CGAPS will revisit these operational goals.

2018 HMLF Projects

In 2011 Hau’oli Mau Loa Foundation selected CGAPS as their partner to help achieve their mission to protect Hawaii’s environment through preventing the arrival and establishment of new invasive species. Each year, the CGAPS Steering Committee prioritizes and submits a short list of projects for funding consideration, and 2018 was the seventh year of collaborative projects. HMLF supports pilot projects or programs that are not typically funded by agencies, that provide or result in the information, strategic capacity, impetus, or synergy to significantly improve the programs and policies for preventing the arrival and establishment of new invasive species in Hawai’i. Summaries are provided as updates on progress for some multi-year projects, and as final reports for others.

CGAPS Legal Fellows (annual)

The CGAPS Legal Fellows is a collaborative project between the UH William S. Richardson School of Law and CGAPS. The goals of this program are to provide early-career experience working in resource management agencies that they can draw from as their career advances, and to provide CGAPS and its partner agencies with legal research and policy assistance.

Andrew Porter has remained on board as the CGAPS Aquatic Legal Fellow and has continued to focus on the issues of ballast water and biofouling within the shipping industry. Andrew works closely with the DAR Ballast Water and Biofouling Coordinator, Jules Kuo, to help bridge the gap between the legal and scientific realms required for effective regulation.

As highlighted in the 2017 annual report, Andrew drafted a resolution calling on the lead agencies (DLNR and the Departments of Transportation Harbors Division and Hawai’i Department of Health Clean Water Branch) to work together to begin addressing biofouling by creating in-water cleaning best management practices as a first step to eventual rules. In January 2018, HISC adopted Resolution 18-1 *Supporting Evaluation and Implementation of Best Management Practices and Technologies for Vessel Biofouling Management and Collaboration by HISC Agencies in the Development of Biofouling Regulations for Hawai’i Harbors*. CGAPS staff then worked with legislators to introduce House Concurrent Resolution 130 *Urging State Agencies to Evaluate, Collaborate, and Implement Best Management*

Practices, Technologies, and Regulations to Address Biofouling in Hawai'i Harbors which also passed. Both resolutions contain similar language and accomplish three major goals of: (1) officially recognizing that the potential introduction of aquatic invasive species (AIS) through the vectors of biofouling and in-water cleaning is a major threat to Hawaii's harbors and marine ecosystems, (2) urging agencies to work together in testing best management practices and new technologies for managing biofouling, and (3) urging state agencies to then implement a measurable and enforceable program to address biofouling in Hawai'i harbors.

As a follow-up to the resolutions, Andrew and Jules conducted multiple meetings with staff from HDOH and HDOT Harbors to begin crafting an inter-agency program for the regulation of biofouling and in-water cleaning in Hawai'i harbors.

Also, in 2018, Andrew finalized the proposed draft revision of Hawai'i state ballast water regulations and they are now ready to enter the Hawai'i Revised Statutes Chapter 91 rulemaking process. The work leading up to this point included revisions to the proposed ballast water regulations based on information received from stakeholders at the August 2017 AAOTF meeting, followed by two rounds of comments where the proposed draft rules were sent to AAOTF members. Andrew then requested the assistance of the Legislative Reference Bureau to review formatting. Pending other projects, Andrew will assist DAR in the rulemaking process for the draft state ballast water rules in spring 2019.

Much of Andrew's time this year was spent focusing on the federal Vessel Incidental Discharge Act (VIDA), federal legislation intended to set national standards for discharges incidental to the normal operation of a vessel, including ballast water and the hull-husbandry effluent (the effluent resulting from in-water cleaning of vessel hulls, including removal of biofouling species). In order to accomplish this, VIDA contains strong preemption language that prevents states from passing regulations for vessel incidental discharge that are more stringent than the federal standards. Throughout 2018, Andrew, Jules, and Christy worked closely with Senators Schatz's and Hirono's staff to provide comments on draft language and the potential issues that may arise if passed. The April version of the bill did not have enough support to be brought to a vote, but in October the bill resurfaced and the team reviewed three versions in as many weeks. CGAPS staff helped craft provisions within VIDA that recognize the unique qualities of Hawai'i as a remote archipelago. Andrew and Christy participated in several multi-state calls regarding the draft language, and worked with Senator Hirono's staff and the Senate Committee on Environment and Public Works legal staff to try to nudge the language towards a version that gives states more leverage.

On the final draft, CGAPS requested the inclusion of language that parallels the draft proposed state ballast water rules which requires (with exemptions) treatment or exchange of ballast water between counties in addition to the treatment or exchange when traveling to the state. Andrew and Christy also met with DLNR Chair, Suzanne Case, and Assistant Attorney General, Colin Lau, to brief them on the issue and gain their support in a short timeframe for this language to be included in VIDA. Andrew drafted letters and memos for internal and external communication, and Senators Schatz and Hirono and their staff helped insert this Hawai'i-specific language. On Nov. 14 the draft VIDA language was amended into the U.S. Coast Guard Authorization Act, quickly passing the Senate and House, and it was signed into law on December 4, 2018. This language preserves Hawaii's ability



Andrew Porter presented a summary of VIDA to shipping industry and stakeholder agency representatives in December, 2018.

to pass state regulations for the inter-island movement of ballast water. The inclusion of this provision in VIDA marks a major victory in protecting Hawai'i from the inter-island spread of AIS and is the culmination of years of work by Andrew and his predecessor legal fellows, Jarrett Keohokalole and Kevin Richardson.

After passage of VIDA, Christy, Andrew, Jules, and Chelsea organized and hosted a meeting of the Alien Aquatic Organism Task Force to discuss the changes that VIDA will bring, and in what ways states will be preempted, and at greater risk from new invasive marine species. Andrew prepared and presented a summary of VIDA's provisions and what they mean for Hawai'i. Importantly, the version of VIDA that was passed into law contains strong provisions for the Environmental Protection Agency (EPA) and the United States Coast Guard (USCG) to consult with the Governors of the states in both developing regulations for vessel incidental discharge and in developing parameters for co-enforcement of VIDA's provisions. As such, the AAOTF may be an appropriate advisory group when opportunities are presented for consultation with the EPA and USCG. Also in this meeting, the AAOTF was briefed on the ongoing opportunity to review and provide comments on the proposed draft state ballast water rules, and that DAR was aiming to approach the Board of Land and Natural Resources to enter rulemaking in the spring of 2019.

One final discussion point at this meeting was the need to build up the DAR ballast and hull-fouling team which is part of the HIBP, but is now a high priority because of VIDA's 4-year implementation timeline and the provision in VIDA allowing for enacting fees to support state teams to assist the US Coast Guard in enforcing VIDA.

The CGAPS HDOA Invasive Species Legal Fellow position was filled by Kathryn Stanaway from February through mid-September 2018 when she transitioned into a new legal fellow position for DLNR DOFAW. While working with CGAPS, Kathryn concentrated on revising the federal petition for regulations to restrict the importation of Myrtaceae, assisted with moving the public hearing request for the state Myrtaceae rule through the Small Business Regulatory Review Board, and developed a proposed draft rule to restrict the importation of harmful plants on a new proposed list of restricted plants.



Kathryn Stanaway, Jonathan Ho, Lance Sakaino, and Christy Martin celebrate the approval of the SBRRB to go to public hearings on the proposed state Myrtaceae rule

For the Myrtaceae rule, Kathryn assisted Lance Sakaino at HDOA PQ in developing a statement for the Small Business Regulatory Review Board (SBRRB). As with all similar requests, the language was sent to the AG prior to sending. Kathryn helped prepare HDOA staff, CGAPS staff and partners for the SBRRB meeting. She also provided CGAPS and HDOA with a memorandum on federal preemption under the Plant Protection Act to help the agency understand how federal preemption works with respect to state plant import regulations and how that may impact the Myrtaceae rule and similar future efforts. Kathryn also began drafting a Not Authorized Pending Pest Risk Analysis (NAPPRA) petition to prohibit the import of Myrtaceae under USDA APHIS regulations. Although the SBRRB meeting was held after Kathryn started at DLNR, she was designated as the DOFAW representative, where the proposed rule was approved to go to public hearings.

To address the lack of rules for listing invasive plants to prevent or restrict their import into Hawai'i, Kathryn drafted a memo highlighting some ways HDOA may regulate plant imports

through restricted plants rules based on the existing state and federal regulatory framework. Kathryn also developed a draft rule petition package for CGAPS to petition for the Restricted Plant Rules that was submitted to the Board of Agriculture in December for the next board meeting.

Kathryn also oversaw the work of Tarita Keohokalole-Look, who is a second-year law student at the University of Hawaii's William S. Richardson School of Law, and a CGAPS legal intern for the fall 2018 semester. Tarita developed a memorandum on compliance agreements and how they work under Hawai'i state law and the laws of two other states.



Former CGAPS Legal Fellow Kathryn Stanaway and CGAPS Legal Intern Tarita Keohokalole-Look worked on prevention issues for HDOA PQ.

Biosecurity Graduate Assistant on Invasive Plants (2017- May 2018)

In January 2018, Chelsea Arnott moved into a full-time graduate assistant position under the advisement of Dr. James Leary (CTAHR) and in consultation with the CGAPS PIO. In addition to the original project goal of working with stakeholder groups on enacting rules that restrict the importation of high-risk invasive plants into the state, Chelsea took on additional duties including organizing quarterly meetings and taking the lead on selected projects.

Chelsea attended the Kaua'i Landscape Industry Council (KLIC) monthly meeting in early 2018, which concluded the initial discussions with plant industry about developing a restricted plant list. Feedback from participants from each meeting, along with the 2017 Plant Industry Survey was incorporated into a final report presented during the Department of Natural Resources and Environmental Management (NREM) seminar series. Chelsea graduated with a Master of Science in May 2018 and shortly after was hired as the CGAPS Planner where she continues working to move the Restricted Plant Rules forward.

Little Fire Ant Detector Dog (2015-2016, extended to December 2018)

HMLF funding for this pilot project was extended through December 2018, but remained unused and a final NCE was received through December 2019. Former MISC manager Teya Penniman is the lead on the RFP and procurement portion of the project and MISC will be the lead on housing the dog and the detection project once the dog is procured. Both have reaffirmed their commitment to the project and to getting the procurement completed in 2019.

Support for Hawai'i Green Growth (annual)

Each year with funding from HMLF, CGAPS contributes to support the operating costs of Hawai'i Green Growth (HGG) and participates in HGG meetings and initiatives. HGG Executive Director Celeste Connors and staff convene a more diverse group of business, agency, and NGO representatives with the core value of mālama 'āina. In addition to its local work on the Aloha+ Challenge (and Gov. Ige's Sustainability Initiative), HGG's work with the Global Island Partnership and the UN resulted in Hawai'i becoming the first UN Local2030 Sustainability Hub. The importance of highlighting local action and commitment by Hawai'i leaders on the Aloha+ Challenge goals shows how the UN Sustainable Development Goals can be scaled to be conceivable and achievable. In turn, external attention on these commitments creates an additional incentive to achieve goals and stay on task beyond individual administrations.

ROD Emergency Special Funding Projects (2016, extended to December 2018)

HMLF's additional support for emergency response work on ROD is deeply appreciated. In 2016, four projects totaling \$225,000 were implemented, and the two highest need projects were completed in 2016, including support for both the microbiology post-doc Wade Heller, and support for entomology post-doc Curtis Ewing. The third project provided support for a pathology technician (Eva Brill) to work with Dr. Lisa Keith, which is a full-time position but with salary support provided by multiple grants. HMLF funds for this project were spent down in 2018.

The fourth project provided funding to support a ROD Statewide Outreach Coordinator. Ambyr Mokiao-Lee started in February 2017, with HMLF funds supporting this work through February 2018. Funds from the US Forest Service were used to support her work through the remainder of 2018. The goal of this position is to help coordinate messaging and public outreach across the state and to supplement efforts of outreach specialists and UH Extension staff on Hawai'i Island. Ambyr worked with the ROD Outreach team to plan, coordinate and conduct a variety of public outreach events on Hawai'i Island, Maui, O'ahu, and Kaua'i. These events reached over 3700 people and included symposia in Hilo and Kona, a statewide outreach workshop held in Hilo for education specialists from various agencies, annual 'Ōhi'a Love Fest in Hilo, school presentations, meetings, seed banking and planting workshops, a conference in California, outreach tables at various events, and media interviews. Ambyr also helped revise outreach materials including PowerPoint presentations, ROD brochures, outreach displays, and social media.



Ambyr Mokiao-Lee talking about ROD at the Kona premiere of Saving 'Ōhi'a

ROD Emergency Rapid Response Fund (2017 to December 2018)

This two-year grant provided funds that could be accessed in the event that ROD was discovered on an island other than Hawai'i island. In May, 2018 the less aggressive of the pathogens was discovered on Kaua'i, and a small amount of funds were used to purchase dedicated sampling equipment for the Kaua'i Invasive Species Committee. A full response was not launched at that time, but instead, the Kaua'i ROD response team launched a more aggressive testing program to follow up on aerial surveys island-wide. During this search and sampling, the more aggressive form of Ceratocystis was found and confirmed in December, 2018. During this time, HMLF agreed to allow the transfer of a portion of these funds to the UH Office of Research Services to support a new ROD Outreach specialist based on Kaua'i. These funds are being matched by DLNR-DOFAW funds to support the new outreach specialist, Kim Rogers, through the 2019 state fiscal year. At the time these funds were awarded, the HMLF Board requested that any unused funds be returned to them when the grant terms, thus all but the equipment and outreach portions will be returned.

Public Awareness and Opinion Surveys (2017, extended to December 2018)

This project is complete. The telephone survey was conducted by Ward Research in 2017 with eleven questions, some as benchmarks and some new, to gauge public awareness and support on invasive species issues. In 2018, CGAPS worked with partners and Ward

Research to draft a series of exploratory questions on the use of new biotechnology tools that could be used to reduce mosquito populations or their ability to transmit diseases to Hawaii's forest birds. Three focus groups were conducted, one of which was comprised of neighbor island residents. The sessions were viewed by CGAPS staff and partners and the results will be used to better understand the types and depth of information and engagement that could lead to support for such programs.

Testing In-Water Cleaning Technologies (2018 - 2019)

This 2-year project proposed contracting specialized help to plan and conduct testing of in-water cleaning technologies and conduct a demonstration project in Hawai'i. As described in the Biofouling section on page 13, Christy and Jules participated in the development of testing protocol and in the taking of samples during the testing and demonstration in Alameda. A workshop is being planned for spring of 2019, but it is not yet clear if we will be able to conduct a demonstration in conjunction with the workshop.

ROD Emergency Response Planner (2018 - 2019)

The ROD Strategic Response Plan laid out the general needs for response in the areas of research, outreach, and funding, and the Incident Command System (ICS) framework was used to create an island-specific framework for facilitating the personnel and logistics of the response on Hawai'i Island. At the time, the ROD Response team urged each island to create their own ICS document so that they could quickly organize and launch a response. To aid in the crafting of the ICS documents, a temporary ROD Emergency Response Planner position was created in January 2018 and filled by Anders Lyons. Anders has been able to engage key agencies, NGOs, and other stakeholders to fill in the ICS forms, talk through the logistics, and potential issues of a response for each island. This project is on target to be completed in March, 2019.

CABI Invasive Species Datasheets (2018, extended through 2019)

CGAPS received funding from HMLF to support a contract with CABI, the Centre for Agriculture and Biosciences International, to research, produce, and post on the CABI Invasive Species Compendium website (www.cabi.org/isc) full datasheets on six priority species. This would serve as a pilot project to assess whether or not CABI datasheets are beneficial in supporting risk assessments and prevention policies to mitigate risks posed by those species. CGAPS enlisted the help of Dr. Michael Melzer, member of the CGAPS steering committee and lead scientist in the UH CTAHR Agrosecurity Laboratory, to compile the initial list of species. It was determined that species should be represented in three different environmental categories; natural areas, aquatics, and agriculture; and include the following criteria: 1) does not currently have a full CABI datasheet, 2) is not present and poses a high-risk to Hawai'i, 3) not currently regulated (for example, a species that poses a high risk to Hawai'i but is not restricted for importation, and other scenarios), and 4) could be used to supplement request/s for import restriction at the state and/or federal level for high-priority pests or pathways.

Dr. Melzer reached out to his colleagues in CTAHR and experts from agencies to start compiling the list of species based on the above criteria. The result was over 100 species from a variety of biota types including nematodes, mites, weeds, algae, fungi, etc. The next step is to prioritize these species based on their risk and the need for some type of regulatory action. CGAPS is aiming to submit the six priority species to CABI by spring 2019.

Capacity Support for CGAPS PIO and Planner (annual)

HMLF provided 100% of the funds supporting the CGAPS Planner salary and operating

costs which supported Chelsea Arnott from May 2018, after receiving her master's and completing work as CGAPS Biosecurity Graduate Assistant. HMLF funds also supported a portion of salary and operating costs for the CGAPS PIO, with additional funds received from the U.S. Forest Service through DOFAW, NPS, HDOA and HISC. Funding from USFWS was not available in 2018.

The PIO position description lists public and policy maker outreach and media-related duties at 50%; staff direction and supervision, partnership coordination, and partner project support services at 25%; grants and reports, planning, and project management at 20%; with 5% other duties as assigned. The Planner position description lists biosecurity project planning and coordination at 40%; outreach planning and coordination at 20%; partner communication at 20%, and 20% correspondence, report writing, and other duties.

Since most of the staff had a year or more in their positions, 2018 was a banner year for moving major projects forward and working behind the scenes to support partners and initiatives. The following are a few of the major projects for the PIO and Planner, and a list of major outreach events for all staff.

Policymaker Outreach

CGAPS staff continued to provide information to agency heads and policymakers, including verbal and written testimony, participating in meetings and calls, and engaging with the staff of Hawaii's congressional delegates. In addition, CGAPS and HISC staff worked to support Governor Ige's Biosecurity Initiative of the Western Governors Association (WGA) and will continue to work with the WGA staff to plan webinars and meetings on the top priorities identified through this initiative.

ROD Documentary

Originally funded through a 2016 HISC grant, CGAPS finished work on the ROD documentary in 2018. CGAPS staff provided review for three cuts of the film and worked with producer Annie Sullivan (dba Club Sullivan TV) to finalize the movie. CGAPS partnered with DLNR staff to solicit broadcast schedules for KFVE, KGMB, KHON, KITV, and KHNL from August through September, for an estimated statewide reach of 750,000. Christy, Chelsea, Ambyr, Corie Yanger (ROD Outreach Specialist on Hawai'i island), and contractor Sam Bennett planned and held premieres of *Saving 'Ōhi'a, Hawaii's Sacred Tree* in Hilo, Waimea and Kona on Hawai'i Island in the summer, and have been scheduling screenings of the documentary on each island with the help of partner agencies. The documentary has been well-received locally, and was accepted as an official selection at the 2019 Wild and Scenic film festival. It will be posted online at www.SavingOhia.org and www.RapidOhiaDeath.org in spring 2019.

At the request of DOI and the National Invasive Species Committee staff, CGAPS and Annie assisted with the scripting and production of a short video for a DOI initiative with ConservationX Labs which provides \$70K as a technology challenge grant to encourage innovative solutions to ROD problems. The Save the 'Ōhi'a Tech Challenge deadline has been extended through spring of 2019 (see www.savetheohia.org).

Spot the Ant, Stop the Ant

HISC funds also supported the 4th annual "Stop the Ant Month" statewide campaign in October. Christy continued as the lead for the LFA Response outreach working group, and helped confirm messages and goals for the group. Outreach specialists from KISC, OISC, MISC, BIISC, and the Hawai'i Ant Lab, HISC staff, and Chelsea worked together to increase awareness about LFA and to get residents to submit ant samples. Christy coordinated the HISC funding request for radio ads, and for some of the outreach materials and test kits for statewide

use. As in past years, each county ran radio ads during the month of October, increased social media posts, participated in community outreach events, and provided LFA test kits and signage for participating libraries statewide.

Metrics from the StopTheAnt.org site show a rise in website visitors during October, which also coincides with a small bump in the submittal of samples from residents during October-December.

CGAPS and OISC also partnered to pitch and schedule a media appearance on Hawai'i News Now's morning program. Radio interviews were also conducted with outreach staff in each county.

At the end of 2018, a Kāne'ohe resident contacted HDOA with a report of stinging ants. HAL and HDOA staff confirmed the presence of LFA on 11 connected properties. It is not clear if outreach played a role in this pest report, but CGAPS, OISC, and HISC staff will be assisting with the outreach and related work in 2019 and beyond.

Addressing Biofouling

Staff continued work to increase state capacity to address biofouling. In addition to work on the HISC and SCR 130, Christy and Jules participated in the Alliance for Coastal Technologies (ACT) / Marine Environmental Research Center (MERC) in-water cleaning and effluent capture technology testing workshop in April 2018 at the Smithsonian Environmental Research Center in Maryland. The workshop was attended by representatives from the U.S. Coast Guard, Naval Research Lab, Smithsonian, Department of Transportation Maritime Administration, and by in-water cleaning company representatives that were interested in having their technologies participate in the testing. That summer, the cleaning trial for one of the companies was conducted in Baltimore, and in October a second trial was done in Alameda which Christy and Jules participated in. The results of this work will be provided in a report that should be published in summer 2019.

The language in VIDA makes vague references to the use of marine pollution control devices to control species and other pollutants, instead of solely relying on the use of BMPs as is the case with current regulatory language. It is our hope that the effluent capture and treatment technology will prove effective at removing the biofouling and chemical effluent from being released into waters. With the passage of VIDA, CGAPS staff have focused a substantial amount of time and effort in communicating risks and possible ways to build state capacity to assess and mitigate risk in the next four years before states are preempted from regulating incidental discharges, including the effluent from in-water cleaning.



Christy Martin participated in testing of in-water vessel hull cleaning and effluent capture technology

Staff & Partnership Coordination

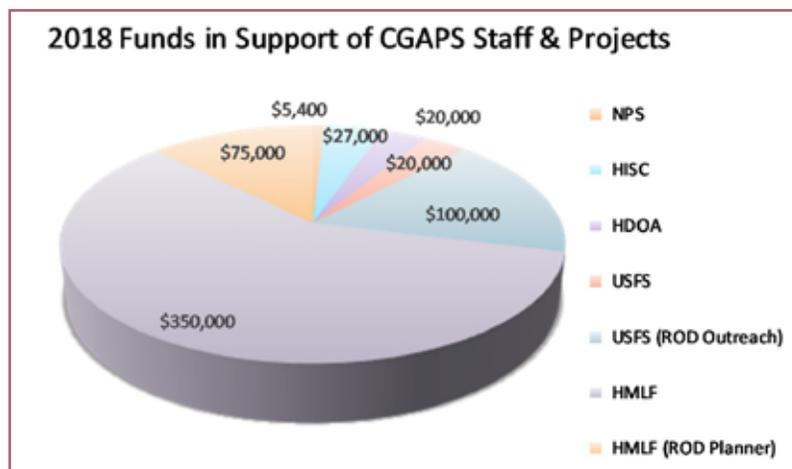
The PIO serves as supervisor or mentor for staff and contractors, and in past years has also coordinated CGAPS meetings and partner communications. In 2018, Chelsea took on the majority of tasks associated with meeting planning, list serve administration, and also reorganized and updated the CGAPS website. Chelsea also created or organized shared spreadsheets and files for team projects such as the tracking for ROD Outreach Team grants and deliverables. Chelsea also started scheduling regular staff meetings with the CGAPS PIO,

Planner, CGAPS Legal Fellows, the ROD Statewide Coordinator, and the new HAWP Outreach and Education Specialist. Staff meetings are designed to update each other on projects, trainings, and help each other troubleshoot any challenges staff may be encountering.

In 2018, CGAPS general meetings focused on the Interagency Biosecurity Plan and re-engaging the Department of Defense partners, many of whom also have biosecurity plans for their base or their operations. With Angela Kieran-Vast as the 2018 CGAPS Chair, a number of new DOD partners attended meetings and provided updates on key projects and biosecurity programs. In 2019, CGAPS plans to continue engaging DOD and other partners, and work on improving remote participation for those that can't physically attend meetings on O'ahu.

Grant Writing

Funding for CGAPS staff and projects totaled \$597,400. CGAPS has tried to move towards a member-support model for funding with some success. One benefit of this model has been that when some sources of funds are not available, other sources can usually buffer the impact. However, CGAPS still relies primarily on HMLF for a significant portion of staff funds. Not shown are the grants that CGAPS staff write or assist with, yet is not the "applying agency". One example of this is a Hawai'i Tourism Authority grant to DOFAW that supported ROD outreach to eco-tour operators, translations of materials for key audiences, and the premieres of Saving 'Ōhi'a, and resulted in additional year-end funding for additional e-media messages.



Partner Support

CGAPS continued to provide support to agencies by participating in the Rapid 'Ōhi'a Death Outreach Working Group and Strategy Working Group, as Chair of the HISC Public Outreach Working Group, LFA Outreach Working Group, and as a steering committee member for DAR's Ballast Water and Hull-fouling program. CGAPS also assisted state and federal agencies by assessing outreach and communication needs for a variety of issues such as mosquito/avian disease control, marine invasive species issues, and the HIBP.

Attendance at the 2017 World Social Marketing Conference resulted in collaborative projects that extended through 2018. CGAPS partnered Liz Foote, Franny Brewer of BIISC and others on planning and hosting a social marketing workshop at the 2018 Hawai'i Conservation Conference (HCC), and a day-long training for outreach specialists by Nancy Lee the following day. Support for Nancy Lee's contract came through the CGAPS support grant from HMLF. Attendance at the HCC workshop exceeded expectations, with more than 100 people participating, and the workshop was filled with the maximum 35 people from across the state and was also streamed live for e-participants.

The CGAPS PIO has been a board member of the Landscape Industry Council of Hawai'i since 2011, and has assisted in planning and coordination of their annual conference each year, and chaired the process in 2017 and 2018.

Media, Outreach, Presentations, Workshops & Events

Staff participated in a number of outreach opportunities in 2018, this is an approximate list of the events where Ambyr Mokiao-Lee (AML), Chelsea Arnott (CA), Andrew Porter (AP) and Christy Martin (CM) provided outreach.

- 1/18 HISC Brownbag presentation (CM): *Fifteen years tracking public awareness and attitudes towards invasive species*. <https://dlnr.hawaii.gov/hisc/slider/brown-bag-15-public-attitudes-awareness-of-invasive-species/>
- 1/18 Presentation (CA): Informing KLIC members about the proposed Restricted Plant List
- 2/6 CGAPS quarterly meeting (all)
- 2/9 Booth (AML): Ag Day event at Pearl City Urban Gardens
- 2/15 Booth (AML, CA, CM): Ag Day at the Capitol outreach booths on ROD and the Hawai'i Interagency Biosecurity Plan
- 2/20-21 Workshop (AML, CA, CM): Hawai'i island training workshop on ROD for conservation outreach staff from each island
- 3/1 Presentation (CM): Biocontrol and biotechnology for UH PEPS bioethics class
- 3/3 Symposium (AML, CM): Kona ROD symposium for the public
- 3/17 Symposium (AML, CM): Hilo ROD symposium for the public
- 3/24 Workshop (AML): 'Ōhi'a planting workshop and ROD outreach on Maui
- 4/4-7 Booth (AML): ROD outreach for Merrie Monarch attendees on Hawai'i island
- 4/5 Booth (CA): ROD outreach at Bishop Square Earth Day
- 4/9 Workshop (AML): 'Ōhi'a seed collection and saving workshop on O'ahu, with ROD information
- 4/13 Presentation (AML): ROD for Le Jardin Academy
- 4/16 Presentation (CM): Invasive species on islands, challenges and solutions for the International Conference on Environmental Future on O'ahu
- 4/21 Workshop (AML): 'Ōhi'a planting workshop and ROD outreach on Kaua'i
- 4/22 Booth (AML): ROD at Earth Day event at Honolulu Zoo
- 5/2 CGAPS quarterly meeting (all)
- 5/5 Booth (AML): ROD outreach at Parade of Farms event
- 5/27 Booth (AML): ROD outreach at Banana Poka Festival on Kaua'i
- 6/5 Presentation (AML): KUPU training on O'ahu
- 6/8 Presentation (AML, CM): ROD information for Kaua'i Conservation Alliance
- 6/23 Booth (AML, CA): Hawai'i State Library conservation expo
- 7/24-26 Booth (AML, CA, CM): ROD information at Hawai'i Conservation Conference
- 7/24 Presentation (CA): Presentation on the Restricted Plant Project with Shahin Ansari at the Hawai'i Conservation Conference
- 7/25 Presentation (AML, CM): ROD documentary, *Saving 'Ōhi'a*, premiere at Hawai'i Conservation Conference
- 7/26 Workshop (CM): With partners, organized the social marketing for conservation workshop at Hawai'i Conservation Conference



More than 30 outreach staff from every island participated in a ROD training session on Hawai'i island.

- 7/27 Workshop (CM): With partners, hosted a full-day training by Nancy Lee on social marketing for conservation
- 8/4 Presentation (AML, CA, CM): With partners, hosted public premiere of *Saving 'Ōhi'a*, followed by Q&A, at the Palace Theater in Hilo
- 8/8 CGAPS quarterly meeting (all)
- 8/17 Presentation (CM): With partners, hosted public premiere of *Saving 'Ōhi'a*, followed by Q&A, at the Kahilu Theater in Waimea
- 8/18 Workshop (AML): 'Ōhi'a planting workshop and ROD outreach on O'ahu
- 8/31 Presentation (AML, CM): With partners, hosted public premiere of *Saving 'Ōhi'a*, followed by Q&A, at the Aloha Theatre in Kona
- 9/4 Presentation (AML, CM): ROD for UH Botany 350
- 9/12 Presentation (AML): KUPU training on O'ahu
- 9/17 Workshop (AML): ROD for Project Learning Tree teacher training on O'ahu
- 9/24 Article (CA): Vessel biofouling in Hawai'i for New Zealand's Biosecurity newsletter. <https://www.thisisus.nz/get-involved/case-studies/vessel-biofouling-in-hawaii/>
- 9/27 Presentation (AML): ROD for Campbell High School
- 9/29 Booth (AML, CA): ROD at Windward Ho'olaulea
- 10/1 Booth (AML, CA, CM): ROD at Global Tourism Summit on O'ahu
- 10/4 Presentation (CA, CM): HISC Brownbag presentation with Shahin Ansari on the proposed restricted plant rules and list. <https://dlnr.hawaii.gov/hisc/slider/preventing-future-invasive-plant-introductions-with-a-state-restricted-plant-list/>
- 10/5 CGAPS quarterly meeting (all)
- 10/9 Presentation (CM): host a discussion with UH Botany graduate students on NAPPRA and federal rulemaking
- 10/10 Presentation (CA, CM): Update on the Restricted Plant Rules with Shahin Ansari at the annual LICH conference.
- 10/10 Booth, Presentation (AML, CA, CM): ROD at LICH Conference on O'ahu
- 10/11 Television interview (CM): Spot the Ant, Stop the Ant month on Hawai'i News Now Morning
- 10/21 Booth (AML, CM): With partners, host information booths and documentary screening at the 'Ōhi'a Love Fest in Hilo
- 10/23 Presentation (AML): ROD for Honowai Elementary School
- 10/24 Presentation (CM): Invasive species and not-for-profits for UH Marine Option Program seminar
- 10/25 Presentation (AML): ROD presentation for Smart Trees meeting
- 10/26 Presentation (AML): ROD for Castle High School
- 10/31 Article (CA): Identifying and restricting the next miconia, published in the fall/winter Hawai'i Landscape magazine
- 10/31 Booth (AML): ROD at Symphony of the Hawaiian Birds
- 11/1 Booth (AML): ROD at Symphony of the Hawaiian Birds
- 11/3 Booth (AML): ROD at Arbor Day event on Kaua'i; first outreach day training for new Kaua'i ROD outreach specialist Kim Rogers
- 11/6 Presentation (AML): ROD at the Continental Dialogue Meeting in California



CGAPS and partners coordinated social marketing workshops led by world expert Nancy Lee.

- 11/14 Presentation (CM): Biofouling and in-water hull cleaning for Western Governors Association Biosecurity Initiative in Montana. <http://www.westgov.org/news/livestream-biosecurity-and-invasive-species-initiative-workshop-in-montana>
- 11/19 Presentation (AML): ROD for Aikahi Elementary
- 11/24 Presentation (AML, KR): ROD for Koke'e Cabin Owners meeting on Kaua'i
- 11/29-30 Presentation (AML): ROD for Campbell High School
- 12/4 Workshop (AML): 'Ōhi'a seed collection workshop on O'ahu, with ROD information
- 12/7 Workshop (AML): 'Ōhi'a seed collection and saving workshop on O'ahu, with ROD information
- 12/10 Presentation (CM): Gaps and opportunities for invasive species prevention for Western Governors Association Biosecurity Initiative in Kona. <http://westgov.org/news/watch-livestream-biosecurity-and-invasive-species-initiative-workshop-in-hawaii>
- 12/11 Presentation (AML, KR): ROD documentary showing on Kaua'i
- 12/12 Presentation (AML, KR): ROD for Kaua'i County Council Meeting
- 12/19 Presentation (AP, CM): VIDA and preemption of state ballast and in-water cleaning. Presentation to shipping industry representatives

2019 HMLF Projects

Item	2019 Projects	Term	Admin	Direct	Overhead	Total
1	Legal Fellowship Support. Partial salary & operating support for two legal fellows + 2 interns	12/31/2020	UHF	\$ 133,950	\$ 7,050	\$ 141,000
2	CGAPS Core Support. Partial salary & operating support for PIO and Planner, project travel support for HPWRA, PCSU project support	12/31/2020	UHF	\$ 133,950	\$ 7,050	\$ 141,000
3	Support for Hawai'i Green Growth. Annual support for multi-sector approach to sustainability, incl. invasive species priorities	12/31/2019	OEDB	\$ 23,364	\$ 1,636	\$ 25,000
4	Contract for strategic planning for CGAPS for 2020-2025	12/31/2020	HCAF	\$ 27,000	\$ 3,000	\$ 30,000
5	Contract for communications plan and services focused on the goals of CGAPS and the HIBP	12/31/2020	HCAF	\$ 11,700	\$ 1,300	\$ 13,000
Total						\$ 350,000

Item	2019 ROD Supplemental Project	Term	Admin	Subtotal	Overhead	Total
1	Materials, supplies, labor for constructing trailhead decon stations for statewide use, partial support for lab tech, targeted communications	12/31/2020	UHF	\$ 95,000	\$ 5,000	\$ 100,000