



PACIFIC ISLANDS
CLIMATE ADAPTATION SCIENCE CENTER

ANNUAL REPORT

University Consortium, Year 5

2024

TABLE of CONTENTS

ADMINISTRATIVE DETAILS..... 2

PURPOSE AND OBJECTIVES..... 3

ORGANIZATION AND APPROACH 4

RESULTS 7

OUTREACH..... 10

NEXT STEPS 14

BUDGET 15

APPENDICES 16

 Appendix A: Research Projects16

 Appendix B: Publications23

 Appendix C: Presentations25

ADMINISTRATIVE DETAILS

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PURPOSE AND OBJECTIVES

The PI-CASC University Consortium partners with the administrative staff, faculty, and overall capacity of the University of Hawai‘i Sea Grant College Program (Hawai‘i Sea Grant) to leverage synergistic outcomes in carrying out the CASC mission and vision. In its fifth year of the host agreement, consortium activities have illustrated the benefits of this partnership, particularly through research funding of PI-CASC Graduate Scholars in connection with Sea Grant-funded peer-reviewed and refereed research projects focused on climate adaptation, among other endeavors described within this report.

The consortium, hosted by the University of Hawai‘i at Mānoa (UHM), has continued to apply inter-agency agreements (IAAs) as an important additional funding vehicle. PI-CASC received \$399,000 in 2023 and \$450,000 in 2024. These IAAs facilitate partnerships between federal agencies to move cooperative funding for faculty positions in support of PI-CASC efforts. Most significantly, this year was the contribution to the hiring of a full-time Communication Lead, Anela Akana, in November 2023. These funds were also used to support various federal activities, like the Earth-to-Sky workshop, a three-day climate communication course for educators on O‘ahu and Hawai‘i Island in January 2024. The consortium also continued to provide fiscal and human resources support, including through management of IAAs for funding, for Elliott Parsons, a UHM faculty specialist leading the Pacific Regional Invasive Species and Climate Change (RISCC) management network.

Critical to addressing place-based needs and capacity building for the future, the University of Guam (UOG) has continued and expanded its innovative “flip the script” Climate Adaptation for Resource Management (CARM) program, while the University of Hawai‘i at Hilo (UHH) has broadened their efforts to aid ongoing community adaptation through ever-stronger personal ties to community and local agency networks, including through the Manager Climate Corps (MCC) program. During this reporting cycle, the consortium funded 14 university-based research projects through our host agreement, supporting graduate student stipends and professional development opportunities through our Graduate Scholars, MCC, and CARM programs (see [Appendix A](#)). UHM co-administered funding for 21 additional university-based projects funded through USGS cooperative agreements (project solicitations), with six more graduate students, who participated in our Graduate Scholars cohort. In all, the consortium supported 22 graduate students, and four new undergraduates in the 2024 Summer Undergraduate Research Fellowship (SURF) program.

As a result of PI-CASC support of students, two MCC students, Amberly Pigao and Nikola Rodriguez, and one federally funded Graduate Scholar, Shania Tamagyongfal, completed their master’s degrees, graduating in winter and spring semesters, respectively. Their projects included optimizing forest restoration methods for future drought conditions, exploring the effects of changing reefscales on ciguatera, and reinvigorating community support for sustainable sea transport in the Marshall Islands.

In April 2024, PI-CASC underwent an external 5-year review of the full university consortium, reflecting on the past five years of contributions to the region, successes, innovations, and challenges. The exercise proved beneficial to the team, particularly in the context of preparing for the upcoming recompute process.

ORGANIZATION AND APPROACH

Table 1. Personnel funded by PI-CASC Consortium Cooperative Agreement and their roles

Name	Institution	Title	Role/Responsibilities	FTE
Dr. Bradley Romine	UH Mānoa	University Consortium Deputy Director	Award co-PI, assists the director in consortium coordination	.50
Dr. Romina King	U of Guam	University Lead UOG	Leads and coordinates PI-CASC activities at UOG	.10
Dr. Jon Price	UH Hilo	University Lead UHH	Coordinates PI-CASC UHH activities	.10
Scott Laursen	UH Hilo & UH Mānoa	Climate Adaptation Extension Specialist	Coordinates co-production project development through MCC activities	.50
Anela Akana	UH Mānoa	Consortium Communications Lead	Leads overall consortium communications	.50
John Borja	U of Guam	Guam Communications Coordinator	Leads and facilitates communications for UOG member	.25
Dr. Rachel Lentz	UH Mānoa	Communications Specialist; Undergraduate Research Coordinator	Contributes to communications efforts for consortium and organizes SURF program	.50
Una Ching	UH Mānoa	Administrative Officer	Human Resources and travel coordinator	.10
Fiscal Support	UH Hilo		Fiscal administration of PI-CASC funding	.20

Table 2. Personnel contributing extramurally funded support to PI-CASC efforts

Name	Institution	Title	Role/Responsibilities	FTE
Dr. Darren Lerner	UH Mānoa	Consortium Director	Award PI, administers PI-CASC program, oversees consortium efforts,	0.30
Élyse Larsen	UH Mānoa	Program Manager	Administrative and fiscal support including processing federal research funding	0.15
Dr. Romina King	U of Guam	University Lead UOG	Coordinates PI-CASC UOG efforts; liaises with local/USAPI natural resource managers	0.20
Anela Akana	UH Mānoa	Communications Lead	Leads overall consortium communications	0.50*
Scott Laursen	UH Hilo & UH Mānoa	Climate Adaptation Extension Specialist	Coordinates co-production project development through MCC activities	0.50*
Dr. Hal Richman	UH Mānoa	IT Specialist	IT support for consortium and USGS PI-CASC personnel	0.05
Katy Hintzen	UH Mānoa	Climate Adaptation Liaison	Co-production and community engagement	0.25
Dr. Elizabeth Lenz	UH Mānoa	Graduate Scholar Program Coordinator	Leads DEI efforts, works with Deputy Director to oversee PI-CASC Scholars activities, and assists with communications	0.15
Kelley Tagarino	UH Mānoa	American Samoa Extension Specialist	Climate extension services	0.05
Andrew McInnis	UH Mānoa	RMI Extension Specialist	Climate extension services	0.05
Dr. Alyssa Anderson	UH Mānoa	CAP Fellow	Hawaiian Translation Specialist	0.10

*Funding provided by federal PI-CASC through IAA to Hawai'i Sea Grant and focused on PI-CASC activities

Consortium Operations

PI-CASC is administered by Hawai‘i Sea Grant at UHM within the School of Ocean and Earth Science and Technology (SOEST). This enables substantial leveraging of office and meeting space and personnel time, including from the university consortium director, fiscal officers, and other administrative and extension personnel. This is particularly helpful with the additional capacity needed to meet the requirement that UHM runs fiscal management and administration of all funding awards deriving from the USGS PI-CASC federal solicitation to the University of Hawai‘i system and PI-CASC consortium researchers.

The main personnel change this year was in November 2024, when we hired Anela Akana as the full-time (1.0 FTE) consortium communications lead. The lead’s focus has been to strengthen internal organization and communication and establish broader strategies to improve PI-CASC communication with the communities we serve.

Our growing team continues to meet virtually on a monthly basis, inclusive of general staff meetings (federal and consortium), leadership meetings (federal and consortium leads at UOG and UHM), and communication team meetings. Other gatherings and discussions are planned for specific topics *ad hoc*, such as website management, social media campaigns, and professional development workshop planning. The PI-CASC consortium director and PI-CASC federal regional administrator meet weekly.

RESULTS

PI-CASC University Consortium efforts toward enhancing climate-related cultural partnerships, providing locally necessary actionable science, and supporting future regional climate science capacity often overlap, necessitating a broad, holistic presentation of our activities. Ultimately, the consortium strives to serve its Pacific communities and partners while contributing to the missions of the CASC network and the USGS through the strengths and innovation of the university enterprise.

Research supported cooperatively through the USGS and consortium includes developing online tools for managers and cultural practitioners, improving climate projection techniques, assessing climate impacts on important local species, using cultural knowledge systems to enhance ecological and community resilience, exploring management implications of climate change effects on fluvial, riparian, and coastal ecosystems, monitoring and restoring the health of native forest ecosystems, and more.

PI-CASC has continued facilitating a robust portfolio of research projects (see [Appendix A](#)) focused on actionable science across the Pacific region, most designed and produced through partnerships between researchers, relevant community organizations, and local natural and cultural resource managers. Beyond those in the Hawaiian Islands and Guam, eleven projects were active during the current year in the Federated States of Micronesia (three), the Republic of the Marshall Islands (two), the Republic of Palau (two), and American Samoa (four). Hawai'i Sea Grant extension agents on-site in FSM, RMI, and American Samoa support local networking and partnerships and provide climate extension services aligned with PI-CASC's mission.

Following are several examples of supported research through creative collaboration and leveraging of consortium funds and science programs. Dr. Shimi Rii and her post-doctoral fellow Dr. Kaleolani Hurley conducted a project studying eDNA at He'eia fishpond on O'ahu that benefitted from an ongoing collaboration with the University of New Hampshire (UNH), which enabled a comparison of Hawaiian data with data from different UNH projects. PI-CASC consortium funded Dr. Hurley's post-doctoral stipend, while Hawai'i Sea Grant funded the research project of Dr. Rii.

Dr. Patrick Hart and UHH student Josephine Tupu are developing new monitoring tools and protocols to provide managers with information about changes in Hawaiian endangered bird species and mosquito numbers due to climate change. The project has maintained strong collaborations with the Cornell Lab of Ornithology and Dr. Tom Denton from Google Research.

As another example of the overlap of collaborative partnerships, research, and capacity building is a PI-CASC project at UHH being run by Dr. Tracy Wiegner with Graduate Scholar Ihilani Kamau to produce data summaries of water quality at Kahalu'u Bay, Hawai'i Island. An important element of the project has been developing partnerships with different organizations and government agencies to gain more information on sewage infrastructure in Kailua-Kona. They have also worked with the State of Hawai'i Department of Health to clarify details of cesspool pollution of groundwater throughout Hawai'i.

The university consortium takes the lead in supporting student involvement in research, funding students directly through our host agreement, and including students from USGS-funded projects in professional development opportunities offered by the consortium's Graduate Scholars program. During this reporting period, twenty-two students participated at some stage in the Graduate Scholars program. With Dr. Beth Lenz at the helm, the program has offered a variety of new opportunities this year, including the PI-CASC Graduate Scholars Symposium and a youth mentoring workshop that followed, both part of Hawai'i Climate Week 2024. Also during the year, PI-CASC graduate scholars gave seminar presentations at the Seminar by the Sea series and Nerd Nite Honolulu, presentations with mentors at our monthly Slice of PI-CASC seminars, displays at the Marine and Coastal Scientists as Artists exhibit. They also recently participated in our annual summer Kūlana Noi'i training, for students to explore evolving best practices in community-engaged science.

On Hawai'i Island, graduate scholars are engaged through Scott Laursen's coordination of the MCC, a relational research program centered around engaging diverse knowledge forms and empowering managers as co-leads within knowledge co-production. Through MCC, the students develop and conduct their research in close conjunction with natural and cultural resource managers and community networks, as in the Wiegner and Hart projects described above. Two MCC projects wrapped up this year, with three more expected to finish in fall of 2024. The continuing projects include: modeling sea-level rise effects on coastal wastewater systems; developing tools to monitor bird populations and detect mosquito invasion in sensitive native forests; and establishing a forest restoration approach that identifies optimal combinations of native and non-native plant species to reestablish.

In Guam, two ongoing CARM fellows are expecting to finish their degree programs by the end of the fall 2024 semester: Marybelle Quinata's CARM project focuses on creating a visitor plan for the Guam National Wildlife Refuge, where she currently works; and Patrick Keeler, who is now the coordinator for the Guahan Sentinel Landscape program, will be wrapping up his project on the effects of biochar on soil health. PI-CASC UOG is also preparing to onboard two new CARM fellows in fall 2024. One student works with the USGS Pacific Island Ecosystems Research Center and will pursue a project on the invasive brown tree snake, while the other works with the Guam Department of Agriculture and will pursue a project on using drones for coconut rhinoceros beetle detection on the island.

CARM fellow Farron Taijeron, a conservationist and social media content creator, participated in Planet Forward's StoryFest competition in April 2024 and was named a finalist for his video on how environmental stewardship coincides with public health. Taijeron also was a panelist during the broader Summit event, sharing his insight and experiences as a storyteller out in the field.

PI-CASC UOG is also pursuing a secondary pathway for the CARM program, aiming to offer specific technical courses to natural resource professionals who are not ready to pursue an advanced degree but would like professional development in the form of a college course. PI-CASC UOG plans to start with a pilot cohort of employees from the Guam Department of Agriculture and the Guam Environmental Protection Agency to gauge the interest in, and viability of, this effort. Conversations with those agencies are continuing through the summer.

As an example of a project involving consortium fiscal support for university-based research funded through a USGS cooperative agreement, Dr. John Burns at UHH created 3D models for various study

sites along a gradient from nearshore river discharge on the Hilo coastline, to characterize coral community composition. Digital elevation models (DEMs) extracted from the 3D models were used to characterize habitat topography to examine the complexity and habitat structural characteristics at each site. The project also involved a collaboration with Dr. Clifford Kapon at ASU, who conducts molecular mapping onto 3D habitat maps using advanced mapping tools. These maps spatially overlay coral sample data onto the habitat maps, which should prove valuable to interested parties in Hilo.

Another example of another kind of project that the consortium supports is Pacific RISCC, which serves as a boundary-spanning organization working at the interface between science producers and invasive species practitioners and continues to grow and collaborate with other regions across the nation. A novel cross-RISCC group led to: 3 of 5 publications this year (submitted or in development); a Pacific data needs group, collaborating to create a central repository for invasive species occurrence data; and a Science Advisory Team, which met for the first time in October 2023.

OUTREACH

Published articles

Please see [Appendix B](#) for journal and technical publications from PI-CASC authors this fiscal year.

Presentations and workshops

Personnel, researchers, and students with PI-CASC conducted and/or presented at a number of events throughout the year (see [Appendix C](#)). Highlights of our hosting contributions are as follows.

Hawai'i Climate Week, March 26 - 29, 2024, was co-sponsored by the Hawai'i State Climate Commission and PI-CASC. The conference was packed with speakers, including Governor Josh Green, guest youth speaker Mason Fong, and keynote speaker Dr. Jane Lubchenco, White House Deputy Director for Climate and Environment. During the week, PI-CASC hosted its own event, called "PI-CASC Graduate Scholars Symposium: Emerging Scientists for Climate Adaptation," which featured seven graduate student presentations that distilled insights and processes from their projects. Topics included sea-level rise impacts on wastewater infrastructure and water quality, using the oral histories of Marshallese and Yapese voyaging to support the development of community engagement for sustainable sea transport, and utilizing species distribution modeling to select restoration species in Hawai'i's forests. The 2-hr symposium welcomed over 100 attendees, both in-person and online virtually.

PI-CASC was widely represented in the development of the Fifth National Climate Assessment (NCA 5), released in November 2023. For the Hawai'i and U.S.-Affiliated Pacific Islands chapter, nine authors and nine contributors are or have been funded by PI-CASC, and six PI-CASC staff participated as authors or contributors, including PI-CASC regional administrator Mari-Vaughn Johnson and UOG university lead Romina King, serving as federal coordinating lead and co-author, respectively. To help promote this government-mandated report, PI-CASC UOG coordinated a public engagement workshop as part of the 15th UOG Conference on Island Sustainability in April 2024. The workshop included a facilitated discussion among King, fellow co-authors, PI-CASC researchers Christopher Shuler and Kirsten Oleson, and NCA 5 Chief of Staff Chris Avery. Participants had the opportunity to provide feedback on the report and share suggested topics and resources for the next assessment. King has also been instrumental in sharing the NCA 5 within Micronesia, primarily through presentations at regional conferences and meetings, like the Micronesia Challenge Steering Committee meeting, which is attached to the Micronesia Islands Forum.

As usual, PI-CASC was a co-sponsor for UOG's Conference on Island Sustainability. The center hosted two breakout sessions on science for climate action, with eight presenters sharing climate action plans for Guam and Hawai'i. Among the presenters was PI-CASC assistant regional administrator Heather Kerkerling, who shared PI-CASC opportunities and research projects in the region. At a panel on the last day, King spoke on the intersections between climate change and island sustainability. Other individuals representing PI-CASC at the conference included Pacific RISCC coordinator Elliott Parsons and researchers Ryan Longman, Chris Shuler, and Kirsten Oleson.

In October 2023, PI-CASC climate adaptation liaison, Katy Hintzen, partnered with the Midwest CASC and the Minnesota Climate Adaptation Partnership to host a workshop in Duluth, Minnesota for climate professionals from various sectors to build relationships and create collaborations. The event focused on the opportunities and challenges for organizations serving community climate adaptation needs. There has been an expansion of “boundary spanning organizations” seeking to bridge the gaps between climate scientists, policy makers, and communities pursuing adaptation solutions. These organizations provide critical services in translating information across different worldviews, building relationships of trust, and leveraging resources across sectors, and workshops like this one support these important efforts.

For summer 2024, the Summer Undergraduate Research Fellowship (SURF) program placed four students with research mentors pursuing climate adaptation-related research. Alongside learning new lab, field, and analytical skills, the SURFers also had professional development experiences with Kūlana Noi‘i training and a new workshop, this year, on creative storytelling (collaborating with Planet Forward). SURFers will complete their fellowships with symposium presentations in August 2024. Included in this year’s cohort is a pilot student for a long-imagined PI-AK student exchange program.

Our monthly seminar series, “[A Slice of PI-CASC](#),” continued for another year with nine hybrid (in-person and online) science-to-management presentations on restoring forests, fishponds, and wetlands, empowering communities with information through technology like buoys and data portals, cataloging giant clam populations, and re-energizing sustainable sea transport through traditional practices. With in-person and online audiences, the seminars regularly drew 50 to 100 attendees, and online recordings show another 40 - 140 views each, with a few new views of each video added every month.

Major engagements with partners

PI-CASC personnel regularly engage with community organizations, natural and cultural stewards, county, state, and federal agencies, students, researchers, and land and sea grant extension agents.

PI-CASC UOG has consistently supported and partnered with the UOG Drone Corps program to produce high-quality imagery and datasets to assist researchers and natural resource agencies. In October 2023, PI-CASC supported travel and outreach efforts for missions in the Republic of Palau and partnered with Palau Community College to map priority monitoring sites of coconut rhinoceros beetles, as well as test the capabilities of NASA’s fluid lensing technology at one of Palau’s marine protected areas. Fluid lensing is an advanced remote sensing technology using drone imagery that provides crystal-clear resolution of shallow marine habitats, to monitor coral reefs, marine wildlife, and even debris. The team has also supported drone surveying for the Guam Department of Agriculture’s Soil and Resources Division, primarily mapping watersheds and reforestation sites. In March 2024, southern Guam suffered a severe wildfire event that ravaged portions of reforestation plots, so in response, PI-CASC and UOG Drone Corps produced post-wildfire orthomosaic imagery for the forestry team in their efforts to map the damages.

With another potential coral bleaching event projected for the region towards the end of summer, PI-CASC is also supporting UOG Drone Corps’ ongoing missions to map coral reefs to produce before-and-after aerial images of the bleaching impacts. Missions began in May 2024 and are expected to proceed

through September 2024, depending on the progression of the bleaching event. Fluid lensing missions on Guam’s priority reefs will be conducted simultaneously.

UOG Drone Corps is planning to embark on two travel missions this summer: one to map sea grasses and coral reefs in Saipan and the other to assist UHM PI-CASC-supported researcher Ryan Perroy with training state foresters in the Federated States of Micronesia.

Climate adaptation liaison Katy Hintzen has also been involved in forming a new cross-regional CASC collaboration centered on aspects of delivering climate services. Each CASC approaches climate adaptation services uniquely by applying innovative training, education, and extension efforts, tailored to regional needs. Liaisons from PI-CASC and the South Central CASC partnered to establish a cross-CASC community of practice on training, education, and extension (TrEEx) for CASC network members to collaborate, share, and build resources around these educational efforts. Meeting monthly since August 2023, the TrEEx community of practice has three primary goals in mind: network building for support and collaboration, resource and expertise sharing, and enhancing capacity through professional development.

MCC Coordinator, Scott Laursen engaged with several partners, lending his expertise with MCC. For example, he was invited by the [Field Museum of Natural History, Keller Science Action Center and the Chicago Wilderness Alliance](#) to lead an interactive training on place-based, relational approaches to policy, management, and research, showcasing the MCC as a model. He also co-authored a foundational “Value, Accomplishments, and Needs” document within the [National Extension Climate Initiative](#) (NECI) to be shared nationally across NECI’s rapidly growing networks. In addition, he served on the Planning Committee for the 2024 National Adaptation Forum.

As a member of the City & County of Honolulu Climate Change Commission, university consortium deputy director Dr. Brad Romine co-lead the development of, and presentation on an [Urban Heat Guidance Document](#), providing the latest scientific information and recommendations to elected officials, staff, and community on managing heat stress and shocks with climate change.

Products and tools

PI-CASC delivers actionable science by supporting research that generates knowledge and information to improve the ability of local managers and decision-makers to advance resource stewardship and climate adaptation. We also develop and support partners to develop accessible products and tools from research results, providing resource managers and communities with information to address climate impacts.

A partnership of organizations at the University of Hawai‘i developed the [American Samoa Sea Level Rise Viewer](#) over the course of two years, with the Pacific Islands Ocean Observing System (PacIOOS) preparing the platform for the UH Sea Level Center, employing funding from PI-CASC and local extension facilitation from Hawai‘i Sea Grant. The interactive sea-level rise viewer for American Samoa was released to the public in October 2023, enabling the community to visualize how the shoreline is likely to change from coastal flooding, sea-level rise, hurricane storm surge, and high tides. The visualization tool will be an essential component in future planning to assess the short and long-term impacts of rising seas and to minimize the risks to coastal communities, infrastructure, and the

environment. The PI-CASC consortium provided grant management support for this UHM-based project with PI Dr. Phil Thompson funded through a USGS cooperative agreement, integrated Carla Baizeau into our Graduate Scholars program, featured the tool on our website under Research Products, and supported project outreach through American Samoa-based extension agent Kelley Anderson Tagarino.

The Pacific Drought Knowledge Exchange (PDKE) is an important example of PI-CASC's role in assisting partners in product development and dissemination. A key part of PDKE's mission is delivering important climate information to community partners and decision makers, including contributing to the development of the Hawai'i Climate Data Portal ([HCDP](#)). In April 2024, a manuscript describing the HCDP was published in the *Bulletin of the American Meteorological Society*, marking six years of collaboration between climate and data scientists in Hawai'i. It also builds upon the foundations laid by many others who have contributed to climate monitoring, data processing, and product development over the past 30+ years in Hawai'i. In addition to grant management support for this USGS-funded effort, the consortium highlights and provides links to the PDKE and HCDP on the PI-CASC website under the Communities of Practice and Research Products, and PDKE lead Dr. Ryan Longman was featured in our January 2024 Slice of PI-CASC seminar to raise awareness of the HCDP and its resources.

Websites and social media

PI-CASC's website continues to be a vital resource to the consortium and its audiences, updated regularly with performance improvements, news and events, new projects, resources, and opportunities. Website analytics illustrate an increase in usage over the reporting period to date, up 40% from the same period in the previous year, with a total of more than 15,000 users over 11,000 engaged sessions. Most users are from the U.S., but others hail from other parts of the world. PI-CASC personnel also continued to assist PDKE and Pacific RISCC with their web presence and information dissemination.

A new addition to the website was the creation of a blog called "Happenings." The blog serves as an additional channel of communication to push out updates and opportunities that are so often shared with us by partner and community organizations. Along with the blog is a weekly "Happenings" email which is a round-up of the week's blog entries delivered to readers' inboxes.

Social media followings have also increased as the communications team has pushed out more highlights, notices, and monthly thematic content via Facebook, Instagram, and LinkedIn, including coordinating with the National CASC office on some thematic campaigns. PI-CASC has over 2,400 followers across all platforms and sees an engagement rate of 10% on average. With virtual offerings for hybrid events still proving very popular, we have continued to post zoom recordings on our [PI-CASC YouTube channel](#), which now houses almost 50 recordings of Slice of PI-CASC monthly seminars, webinars, science summit sessions, PI-CASC activity videos, and program information sessions.

NEXT STEPS

In addition to managing dozens of ongoing awards, PI-CASC co-facilitated seven new university-based awards in the past year through USGS PI-CASC's FY23 project solicitation. Associated Graduate Scholars are participating in professional development through workshops and symposia as we initiate this new cohort. We are working with our USGS counterparts to process four new university-based research projects funded through their FY24 solicitation, to be initiated this fall. USGS PI-CASC is currently reviewing statements of interest for an FY25 solicitation for projects to be initiated next calendar year, including university-based research.

PI-CASC at UHM will again leverage and expand research funding and support for graduate students working on climate adaptation science by identifying appropriate research projects funded through Hawai'i Sea Grant's 2024 competitive research cycle to pair them with. As of July 2024, we are in the midst of our SURF program, building on the success of the previous years with new opportunities to engage undergraduate students in climate research and increase their understanding of actionable science and community engagement.

The three new MCC projects begun in fall 2022 will continue to leverage community partnerships to explore the critical issues of mosquito abundance in native forests, sea-level rise impacts on coastal wastewater infrastructure, and improving forest resilience. The MCC program is presently reviewing proposals for projects to be funded in the next reporting period, with three identified as likely prospects.

The PI-CASC consortium will continue its innovative work and partnership with the AK CASC for the next phase of the PI-AK collaboration. While planning for continued research collaboration, the partnership looks to deepen relationship building, community engagement, and Indigenous knowledge sharing. AK CASC is bringing nine researchers to Hawai'i in July to participate in a PI-AK session at the Hawai'i Conservation Conference and peripheral opportunities to interact with community-based resource stewards.

Dr. Brad Romine will continue, along with his administrative role for the consortium, to provide climate extension services in Hawai'i and the Pacific Islands through long-standing cooperation with state and county governments in Hawai'i including his City & County of Honolulu Climate Change Commission appointment and collaboration with the Hawai'i Department of Land and Natural Resources and State Climate Change Mitigation and Adaptation Commission.

UOG's CARM program will increase its engagement with professional fellows, seeking more candidates from across the western Pacific by working with local natural resource agencies. In addition, the program is expanding to allow workers to take college-level courses that do not require enrolling into a graduate program.

BUDGET

Budget Year 5 (BY5) began October 1, 2023. PI-CASC did continue to encounter some obstacles in using funds, but there was a significant improvement in expenditures from the previous year due to easing restrictions across Hawai‘i and the USAPI and increases in research and staff capacity. The early impact of delays in funding and the pandemic has set the stage for the continued need to request an NCE each year until April of the following BY, but simultaneous funding of each BY has helped us to “catch up.” With the projected spending continuing through September 30, 2024, the BY5 remaining balance is currently projected to be ~20%, largely supporting ongoing work at the University of Guam, University of Hawai‘i at Hilo, and supporting scholars and fellows, for which we will request a no-cost extension. We are currently working with USGS OAG to respond to the opportunity for BY6 continuing funding.

Table 3. BY5 budget projection of spending through September 30, 2024

Title: Pacific Islands Climate Adaptation Science Center Year 5
Funding Award No. G19AC00087
Project Period: 10/01/2023 - 09/31/2024
BSR Period: 10/01/2023 - 06/30/2024

Description	Budget	Expenditures	Encumbered	Projected Balance 9/30/2024
Salaries/Wages	228,025	126,463	65,489	36,073
Student Help - Wrk Std	-	-	-	-
Fringe Benefits	67,810	71,247	35,953	(39,391)
Materials & Supplies	9,500	6,225	452	2,823
Services<\$25K	-	-	-	-
Services>\$25K (UOG)	140,000	16,699	123,301	-
Subaccount 6113363 - UHH	236,816	110,656	2,930	123,230
Travel Domestic	30,548	3,788	477	26,283
Travel International	10,492	-	-	10,492
Printing & Publication	9,498	-	-	9,498
Scholar & Fellow (SURF)	19,624	-	28,000	(8,376)
Others	-	-	-	-
Direct	752,313	335,079	256,602	160,632
Indirect @ 41.5%	147,687	86,969	43,700	17,018
Total	900,000	422,047	300,302	177,651

APPENDICES

Appendix A: Research Projects

Table 1: Graduate student research supported by funds from the consortium five-year agreement during the reporting period.

Start/End dates	Title	PI	Graduate Student	University
8/24 – 2/26	Assessing the sensitivity of coral reef accretion and bioerosion to climate change induced ocean acidification and warming in combination with local acidification and eutrophication	Andrea Kealoha	Raffi Isah	UHM*
8/24 – 2/26	Effects of climate-driven increases in sediment delivery on coral reef ecosystem productivity and accretion: Developing predictive models for management priorities across Maui.	Andrea Kealoha	Sean Swift	UHM*
2/22 - 2/24	Enhancing social-ecological resilience and ecosystem services through restoration of coastal agroforestry systems	Leah Bremer	Tressa Hoppe	UHM*
2/22 - 2/24	Integrating social and cultural considerations into planning and community-based monitoring to reach marine conservation goals	Mehana Vaughan	Kapono Gaughen	UHM*
2/22 - 2/24	Genetic assessment of giant clam stocks in American Samoa	Rob Toonen	Paolo Marra-Biggs	UHM*
8/22 - 2/24	Using natural capital accounting to embed climate impacts into routine decision-making	Kirsten Oleson	Louis Chua Bing Chao	UHM*

2020 – 12/24	Equity in natural resource management in the Pacific: A case study from southern Guam	Romina King	Marybelle Quinata	UOG (CARM)
2019 – 12/24	Biochar as a mitigation tool for soil rehabilitation in Guam’s badlands and savannah grasslands	Mohammad Golabi	Patrick Keeler	UOG (CARM)
2019 - 2027	Working with managers to mitigate the impacts of drought and wildfire	Christine Fejeran, Abby Frazier	Farron Taijeron	UOG (CARM)
2022 – 9/24	Development of improved tools to monitor bird abundance and detect climate-change related invasion by mosquitoes into Hakalau Forest NWR	Patrick Hart	Josephine Tupu	UHH (MCC)
2022 – 9/24	How do you know what to plant where? Developing a climate-resilient restoration approach that combines functional, climate, and geographic data	Rebecca Ostertag, Jon Price	Konapiliahi Dancil	UHH (MCC)
2022 – 9/24	Predicting sea-level rise impacts to coastal wastewater infrastructure and water quality for adaptive planning and increased coastal habitat resilience	Tracy Wiegner	Ihilani Kamau	UHH (MCC)
8/20 - 11/23	Optimizing forest restoration techniques to increase endangered species habitat and mitigate future drought: Kanakaleonui Bird Corridor	Jon Price	Amberly Pigao	UHH (MCC)
8/20 - 11/23	How will changing reefs affect the prevalence of ciguatera on Hawaiian reefs?	Tim Grabowski	Nikola Rodriguez	UHH (MCC)

*PI-CASC is funding the Graduate Scholars on these projects, leveraging the research activities funded by Hawai‘i Sea Grant.

Table 2: University-based research funded through USGS cooperative agreements during the reporting period with grant management support from the consortium and incorporating students in consortium graduate student programs where listed.

Start/End dates	Title	PI	Graduate Student	University
12/23-12/25	Predicting and managing the future of Ongeim'l Tketau (Jellyfish Lake), Palau in a changing climate	Romina King		UOG
11/23-11/25	Improving the availability and accessibility of climate data and information for users in Hawai'i, American Samoa, and Guam	Ryan Longman		UHM
9/23 - 9/25	Development of new technologies and techniques to advance wildlife monitoring and improve management of endangered Hawaiian bird species in a changing climate	Patrick Hart		UHH
9/23 - 9/25	Lauhala: Weaving knowledge and practices with a climate resilient and culturally significant plant on Hawai'i Island	Noa Kekuewa Lincoln		UHH
9/23 - 9/26	Impacts of climate change on water quality and fish recruitment in Native Hawaiian fishponds	Cherie Kauahi		UHM
8/23 - 8/25	Assessing the success and vulnerability of Hawaiian rare plant introductions to inform future stabilization efforts	Tamara Ticktin	Julia Douglas	UHM
9/22 - 8/24	Extreme weather driven changes in flow regime and their impacts on amphidromous species in Hawaiian streams	Yinphan Tsang		UHH

8/22 - 8/24	Unlocking resilience drivers to inform Pacific coral reef management	Megan Donahue	Jessica Glazner	UHM
8/22 - 4/24	Using Oral Histories of Marshallese and Yapese Voyaging to Support the Development of Community Engagement for Sustainable Sea Transport	Joe Genz	Shania Tamagyongfal	UHH
8/22 - 12/24	Using Oral Histories of Marshallese and Yapese Voyaging to Support the Development of Community Engagement for Sustainable Sea Transport	Joe Genz	Jerolynn Myazoe,	UHH
8/22 - 7/25	Increasing Agroforestry Inventory and Monitoring Capacity and Climate Change Resilience across the Pacific through High-resolution Imagery and Artificial Intelligence	Ryan Perroy		UHH
6/22 - 5/25	Developing a Pacific Mangrove Monitoring Network (PACMAN) in response to sea-level rise	Richard MacKenzie	Maybeleen Apwong	UHH
9/21 - 8/24	Linking models to outcomes: How do Hawai'i stakeholders use and contribute to land-to-sea ecosystem service analysis	Clay Trauernicht		UHM
9/21 - 8/24	Coral response to land-to-ocean freshwater flux: A ridge-to-reef perspective	John Burns		UHH
9/21 - 8/24	A collaborative approach to enhancing data availability and adaptation capacity: Developing the AS climate and GIS data portal	Chris Schuler		UHM

10/21 - 3/24	Making regional climate model output for Hawai'i more accessible to a diverse user community	Tom Giambelluca		UHM
8/21 - 8/24	Ecological and socio-cultural responses to transplanting coral to enhance reef resilience on O'ahu.	Crawford Drury		UHM
8/21 - 2/24	Effect of extreme tidal events as future sea-level rise scenarios on He'eia fish communities for ahupua'a restoration	Shimi Rii	Kaleonani Hurley (post-doc)	UHM
7/21 - 7/24	Impact of extreme events on native and nonnative fauna on HI stream ecosystem	Yinphan Tsang	Leigh Engel	UHM
6/21 - 6/24	Using cutting-edge NASA technology to assess coral reef bleaching events and measure recovery rates of dominant coral taxa at priority reef areas in Guam and the CNMI	Romina King		UOG
6/21 - 10/23	Sea Level Rise Viewer for American Samoa: A co-developed visualization and planning tool	Phil Thompson	Carla Baizeau	UHM

Table 3: Projects funded through interagency agreements to bring additional federal funds to support PI-CASC USGS and consortium initiatives with grant management support from the consortium and incorporating students in consortium graduate student programs where listed.

Start/End dates	Title	PI/Co-I	Graduate Scholar	IAA Partners
1/23 – 1/24	Building Capacity for Grad Scholars Prog in the PI-CASC (BY2)	Darren Lerner		USGS/NOAA /UHM
3/22 - 2/24	Building capacity for the Pacific Regional Invasive Species Climate Change (RISCC)	Darren Lerner		USGS/NOAA /UHM
11/21 – 10/24	Building capacity for the Pacific Regional Invasive Species Climate Change (RISCC)	Darren Lerner		USFWS/NOAA /UHM
9/23 – 8/25	Advancing the Pacific Regional Invasive Species and Climate Change Network (Parsons)	Darren Lerner		USGS/NOAA /UHM
8/21 – 7/24	Establishing a national climate extension liaison (Hintzen)	Darren Lerner		USGS/NOAA /UHM
11/20 – 8/24	Increasing Climate Extension Services in PI-CASC (Laursen)	Darren Lerner		USGS/NOAA /UHM
8/20 - 7/22	Examining how ridge-to-reef governance in Palau can enhance coastal food security in a changing climate	Darren Lerner, Kirsten Oleson	Michelle Harangody	USGS/NOAA /UHM*
8/20 - 7/22	Connecting ecosystems from mountain to the sea with changing climate	Darren Lerner, Yinphan Tsang	Maxime Gayte, Yu-Fen Huang	USGS/NOAA /UHM*

8/20 - 7/22	Generating a shoreline inventory for Hawai'i Island to increase resilience in the face of rising sea levels	Darren Lerner, Ryan Perroy	Aloha Kaponu	USGS/NOAA /UHM*
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*Funded through IAA: "Building Capacity for Graduate Scholars Program in the Pacific Islands Climate Adaptation Science Center" between USGS and NOAA Sea Grant

Appendix B: Publications

Publication year: 2024

Ainsworth, A. & Drake, D. (2024). Hawaiian treeline ecotones: Implications for plant community conservation under climate change. *Plants* 13(1), 123. doi: 10.3390/plants13010123

Alkins, K.C., Gaido, C.L., Reguero, B.G., & Storlazzi, C.D. (2024). Projected coastal flooding extents and depths for 1-, 20-, and 100-year return interval storms and 0.00, +0.25, +0.50, +1.00, +1.50, +2.00, and +3.00 meter sea-level rise scenarios in the Hawaiian, Mariana, and American Samoan Islands: *U.S. Geological Survey data release*, doi:10.5066/P9RIQ7S7

Barnes, A.T., Becker, J.M., Tagarino, K.A., O'Reilly, W.C., Siegelman, M., Thompson, P.R., & Merrifield, M.A. (2024). Rising sea Levels and the increase of shoreline wave energy at American Samoa. *Sci Rep* 14, 5163. doi: 10.1038/s41598-024-55636-y

Kāne, H.L., Mair, A., Johnson, A.G., Rotzoll, K., Miflin, J., & Oki, D.S. (2024). Estimated groundwater recharge for mid-century and end-of century climate projections, Kaua'i, O'ahu, Moloka'i, Lāna'i, Maui, and the island of Hawai'i. *USGS Scientific Investigations Report 2023-5130*, doi: 10.3133/sir20235130

Longman, R. J., Lucas, M. P., Mclean, J., Cleveland, S. B., Kodama, K., Frazier, A. G., Kamelamela, K., Schriber, A., Dodge, M., II, Jacobs, G., & Giambelluca, T. W. (2024). The Hawai'i Climate Data Portal (HCDP). *Bulletin of the American Meteorological Society*, doi: 10.1175/BAMS-D-23-0188.1

Mair, A., Oki, D.S., Kāne, Johnson, A.G., & Rotzoll, K. (2024). Effects of drought and cloud-water interception on groundwater recharge and wildlife hazard for recent and future climate conditions, Kaua'i, O'ahu, Moloka'i, Lāna'i, Maui, and the island of Hawai'i. *USGS Scientific Investigations Report 2023-5141*, doi: 10.3133/sir20235141

Navine AK, Denton T, Weldy MJ and Hart PJ (2024) All thresholds barred: direct estimation of call density in bioacoustic data. *Front. Bird Sci.* 3, 1380636. doi: 10.3389/fbirs.2024.1380636

Rodriguez, N, 2024. Effects of climate change and fishing pressure on ciguatera prevalence in Hawaiian reef fishes: implications to public health in a changing climate. M.S. thesis, University of Hawai'i at Hilo, Hilo, Hawai'i

Steadmon, M., Takakusagi, M., Wiegner, T. N., Jones, M., Economy, L. M., Panelo, J., Morrison, L. A., Medeiros, M. C. I., & Frank, K. L. (2024). Detection and modeling of *Staphylococcus aureus* and fecal bacteria in Hawaiian coastal waters and sands. *Water Environment Research*, 96(5), e11037. <https://doi.org/10.1002/wer.11037>

Storlazzi, C.D., Reguero, B.G., Gaido, C.L., Alkins, K.C., Lowrie, C., Nederhoff, K.M., Erikson, L.H., O'Neill, A.C., & Beck, M.W. (2024). Forecasting Storm-Induced Coastal Flooding for 21st Century Sea-Level Rise Scenarios in the Hawaiian, Mariana, and American Samoan Islands: *U.S. Geological Survey Data* (Data Report 1184), 24 p., doi: 10.3133/dr1184

Publication Year: 2023

Berio Fortini, L., Kaiser, L.R., Frazier, A.G., Giambelluca, T.W. (2023). Examining current bias and future projection consistency of globally downscaled climate projections commonly used in climate impact studies. *Climate Change* 176, 169. doi: 10.1007/s10584-023-03623-z

Berio Fortini, L., Kaiser, L.R., Perkins, K.S., Xue, L., & Wang, Y. (2023). Estimating the impact of climate and vegetation changes on runoff risk across the Hawaiian landscape. *Conservation* 3, 291-302. doi: 10.3390/conservation3020020

Brewington L., Eichelberger B., Read N., Parsons E., Kerkering H., Martin C., Miles W., Burgett J., Idechong J., (2023). Pacific Island Perspectives on Invasive Species and Climate Change, In: Walsh S.J., Mena C.F., Stewart J.R., and Muñoz Pérez J.P. (Eds.) *Social and Ecological Interactions in the Galapagos Islands, Island Ecosystems: Challenges to Sustainability*. New York: Springer. 59-78. doi: 10.1007/978-3-031-28089-4_5

Drexler, J.Z., Raine, H., Jacobi, J.D., House, S., Lima, P., Haase, W., Dibben-Young, A., & Wolfe, B. (2023). A prioritization protocol for coastal wetland restoration on Moloka‘i, Hawai‘i. *Front. Environ. Sci*, 11, doi: 10.3389/fenvs.2023.1212206

Moritsch, M. and Foley, M. (2023). Where are resilience-based management strategies appropriate for coral reefs? Mapping environmental conditions and trends in coral cover in Guam and American Samoa. *Ciencias Marinas* 49. doi: 10.7773/cm.y2023.3384

Nakoa JWP III, Burns JHR, Steward K, Kapono LM, Kapono CA (2023) Molecular Cartography of a Hawaiian Coral Assemblage. *Diversity*, 15(10), 1061. doi:10.3390/d15101061

Tamagyongfal, S., Myazoe, J., & Genz, J. (2023). Post-settlement voyaging networks of Yap and the Marshall Islands: Examples of ancestral adaptive capacity in response to environmental changes and disasters. *Mains'l Haul: A Journal of Pacific Maritime History* 58(1-4), 48-56, 61-63.

Trauernicht, C., Frazier, A. G., Dendy, J., Bubb, I., Camacho-Fejeran, C., Friday, J. B., King, R., Manglona, J., Ruegorong, F., Singeo, A., Giardina, C. P., & Cordell, S. (2023). How people, rainfall and vegetation shape tropical island fire regimes across Micronesia. *Journal of Biogeography*, Volume 51, Issue 3, pages 422-438. doi: 10.1111/jbi.14763

Appendix C: Presentations

Table 1: Workshops/forums/webinars hosted by PI-CASC and partners

Date	Event	Presenter(s)	Audience(s)
8/8/24	SURF Symposium	Rylee Larson, Maria Pla Prahl, Andres Jojoa, & Jaslyn Miura	PI-CASC, SURF mentors, friends, and family
8/2/24-8/4-24	Summit for Wāhine Kānaka Leaders and Scientists	Crawford Drury	Waimānalo Hawaiian Homestead Association Hālau
7/19/24	Science Communication Workshop on Creative Storytelling	Planet Forward team, Rachel Lentz	SURF students, PI-CASC Graduate Scholars
7/13/24	Pacific RISCC Webinar Invasive Species Threaten the Success of Climate Change Adaptation Efforts	Laura Brewington & Leigh Greenwood	Pacific RISCC network, public
6/29/24	Kūlana Noi‘i workshop	Katy Hintzen	SURF students, PI-CASC Graduate Scholars
6/26/24	Pacific RISCC Webinar When Should We Move Species Outside Their Range as Islands Change? Taking Smart Risks and Making Good Decisions	Jeff Burgett	Pacific RISCC network, public
6/3/24	SURF Orientation	Rachel Lentz & Brad Romine	SURF students and mentors
5/30/24	Malama Loko Ea Engagement and Workshop	Shimi Rii	Public
5/30/24	Pacific RISCC Webinar What are the causes and consequences of past wildfires in Hawai‘i?	David Pompeani	Pacific RISCC network, public
5/7/24	Slice of PI-CASC Using climate adaptation science in Hawai‘i resource management	Emma Yuen & Ryan Okano	Public
4/25/24	Pacific RISCC Webinar Where to for manu? A new approach to conservation introduction site selection	Lucas Fortini & Erica Gallerani	Pacific RISCC network, public
4/2/24	Slice of PI-CASC Characterizing inundation risk and enhancing stakeholder capacity for	Dean Gesch	Public

	coastal inundation assessment in the Marshall Islands		
4/24	Master's Thesis Thaaq ("Networking Relationships like Strings"): Using Oral Histories of Yapese Voyaging for Climate Resilience through Remathau Practices of Community Engagement	Shania Tamagyongfal	UHH, Department of Anthropology's Heritage Management Program
3/28/24	PI-CASC Graduate Scholars Symposium	Carla Baizeau, Konapiliahi Dancil, Jessica Glazner, Ihilani Kamau, Jerolynn Myazoe, Amberly Pigao, & Shania Tamagyongfal	Public
3/27/24	Pacific RISCC Webinar High Elevation Hawaiian Plant Communities, Implications for conservation under climate change	Alison Ainsworth	Pacific RISCC network, public
3/5/24	Slice of PI-CASC Backyard Buoys: Community-led ocean observing across the Pacific	Melissa Iwamoto, Dr. Jordan Watson, & Meagan Hattori	Public
2/21/24	TCBES Seminar Acoustic Ecology and Conservation of Hawaiian Forest Birds	Patrick Hart	PI-CASC Meeting
2/21/24	Pacific RISCC Webinar Invasive Rodent Response on Islands to Increased Hurricane Frequency	Aaron Shiels	Pacific RISCC network, public
2/9/24	American Samoa Climate Data Portal Workshop	Chris Shuler	Public
2/6/24	Slice of PI-CASC Climate-resilient restoration: Concepts and applications to the Pacific	Rebecca Ostertag & Konapiliahi Dancil	Public
1/24/24	Pacific RISCC Webinar Resilient Mangroves, Resilient Coastlines, Resilient People	Richard MacKenzie	Pacific RISCC network, public
1/19/24	TCBES Seminar Acoustic Ecology and Conservation of Hawaiian Forest Birds	Patrick Hart	UH Hilo
1/12/24- 1/14/24	2nd Annual Overnight Workshop	Crawford Drury	Waimānalo Hawaiian Homestead Association Hālau

1/9/24	Slice of PI-CASC Hawai'i Climate Data Portal: Soup to Nuts	Ryan Longman	Public
2023-2024	Meet the Scientists Events at the MEGA Lab Exhibit (Mokupāpapa Discovery Center, every Friday)	John Burns	Public
12/13/23	Pacific RISCC Webinar Modeling Vegetation Communities to Inform Restoration in Hawai'i	Jonathan Price	Pacific RISCC network, public
12/5/23	Slice of PI-CASC Using oral histories of Marshallese and Yapese voyaging to develop sustainable sea transport	Joe Genz, Jerolynn Myazoe, & Shania Tamagyongfal	
11/29/23	TCBES Seminar Working with communities and developing knowledge co-production	Scott Laursen	
11/7/23	Slice of PI-CASC A practitioner-led approach to a climate change needs assessment of Native Hawaiian aquaculture	Rosie Alegado	Public
10/25/23	Pacific RISCC Webinar Seedings: A Window into Climate Change Impacts on Plant Populations	Kasey Barton	Pacific RISCC network, public
10/3/23	Slice of PI-CASC The Shrinking Presence of Giant Clams: Transpacific partnerships to restore an ocean giant	Paolo Marra-Biggs & Rob Toonen	Public
9/5/23	Slice of PI-CASC Prioritizing Coastal Wetland Restoration on Moloka'i, HI	Judith Drexler & Helen Raine	Public

Table 2: Presentations by PI-CASC or funded personnel at other events

Date	Event	Presenter(s)	Title
9/15/24- 9/19/24	154th Annual Meeting of the American Fisheries Society	Nikola Rodriguez, Tim Grabowski, et al.	Effects of climate change and fishing pressure on ciguatera prevalence in Hawaiian reef fishes
9/15/24- 9/19/24	154th Annual Meeting of the American Fisheries Society	Tim Grabowski, Yinphan Tsang, et al.	Flow Ecology of Invasive Suckermouth Catfish in Urbanized Ridge-to-Reef Systems on O‘ahu, Hawai‘i
9/15/24- 9/19/24	154th Annual Meeting of the American Fisheries Society	Leigh Engel, Yinphan Tsang, & Tim Grabowski	Playing into their fins: Increasing temperatures enhance the swimming performance of nonnative species in Hawaiian streams
8/1/24	Hawai‘i Conservation Conference	Julia Douglas, Tamara Ticktin, et al.	Disentangling the drivers of rare plant translocation success
8/1/24	Hawai‘i Conservation Conference	Elliott Parsons	Ho‘omākaukau: Developing Terrestrial Restoration Strategies in a Changing Climate
7/30/24- 8/1/24	Hawai‘i Conservation Conference	Leigh Engel, Yinphan Tsang, & Tim Grabowski	Playing into their fins: Increasing temperatures enhances swimming performance of nonnative species in Hawaiian streams
7/30/24- 8/1/24	Hawai‘i Conservation Conference	Kaleonani Hurley, Yoshimi Rii Claborn, et al.	King Tides, as a Proxy for Sea Level Rise, Impact Fish Communities from Sea to Stream in He‘eia
7/30/24- 8/1/24	Hawai‘i Conservation Conference	Michala Phillips	Ho‘omākaukau: Developing Terrestrial Restoration Strategies in a Changing Climate
7/31/24	Hawai‘i Conservation Conference	Patrick Hart & Kekuhi Keali‘ikanaka‘aole	‘O Ka Lele A Nei ‘Āuna- a new oli for the health of our Hawaiian birds
7/31/24	Hawai‘i Conservation Conference	Patrick Hart, et al.	Towards automated acoustic monitoring of Hawaiian birds
7/31/24	Hawai‘i Conservation Conference	Elliott Parsons	Climate-Related Disasters in the Pacific: Sharing Lessons Learned to Increase Resilience in Hawai‘i
7/30/24	Hawai‘i Conservation Conference	Ihilani Kamau, Tracy Wiegner, Steven Colbert, & Lisa Marrack	Predicting sea level rise impacts to coastal wastewater infrastructure and water quality for adaptive planning and increased coastal habitat resilience

7/24/24	Guam Department of Education Summer Teachers Academy	Romina King	Developing place-based, culturally relevant lesson plans to teach Guam students about climate change and climate adaptation
5/30/24	Micronesia Challenge Steering Committee	Romina King	Key messages from the Fifth National Climate Assessment's chapter on Hawai'i and the U.S. affiliated Pacific Islands
5/23/24	NWS Regional Climate Conference	Romina King	Flight to Recovery: Using innovative drone technology to map the impact of natural disasters
4/18/24	Mānoa Heritage Society monthly meeting	Patrick Hart	Acoustic Ecology and Conservation of Hawaiian Forest Birds
4/16/24	Natural Resources Working Group Hawai'i Sustainability Summit	Elliott Parsons (facilitator)	
4/11/24	UOG 14th Regional Conference on Island Sustainability	Chris Shuler & Aimee Schriber	Empowering Adaptation: Insights from the American Samoa Climate Data Portal
4/11/24	TCBES Symposium: Ho'omaui Sustaining Communities and Ecosystems in our Changing Climate	Ihilani Kamau, Tracy Wiegner, Steven Colbert, & Lisa Marrack	Predicting sea level rise impacts to coastal wastewater infrastructure and water quality for adaptive planning and increased coastal habitat resilience
4/9/24	UOG 14th Regional Conference on Island Sustainability	Romina King	National Climate Assessment 5 Workshop
3/19/24	Guam Climate Pollution Reduction Grant Program	Romina King	Key messages from the Fifth National Climate Assessment's chapter on Hawaii and the U.S. affiliated Pacific Islands
2/29/24	Marianas Island Conservation Conference	Romina King	Key messages from the Fifth National Climate Assessment's chapter on Hawaii and the U.S. affiliated Pacific Islands
2/28/24	UH Mānoa NREM seminar	Patrick Hart	Acoustic Ecology and Conservation of Hawaiian Forest Birds
2/25/24	'Imiloa Planetarium	Patrick Hart	Kanikuamauna
2/18/24- 2/23/24	Ocean Sciences Meeting	Kaleonani Hurley, Yoshimi Rii, et al.	Effect of extreme tidal events as future sea-level rise scenarios on He'eia fish communities in areas of biocultural restoration

2/6/24	West Hawai'i Cesspool Virtual Town Hall	Tracy Wiegner & Steven Colbert	Sewage Pollution in Kailua-Kona
2/24	Pacific Islands Refuges and Monuments (US Fish and Wildlife Service and NOAA National Marine Sanctuaries)	Curt Storlazzi	The Impact of Climate Change and Sea-Level Rise on Future Coastal Flooding to FWS Units in Guam, Saipan, and the Hawaiian and American Samoan Islands
2/24	National Park Service	Curt Storlazzi	The Impact of Climate Change and Sea-Level Rise on Future Coastal Flooding to FWS Units in Guam, Saipan, and the Hawaiian and American Samoan Islands
12/12/23	American Geophysical Union Conference	Romina King	Key messages from the Fifth National Climate Assessment's chapter on Hawai'i and the U.S.-Affiliated Pacific Islands
12/8/23	Pacific Entomological & Botanical Meeting	Elliott Parsons (facilitator)	How can we cultivate disturbance-ready restoration for Hawai'i?
12/5/23	Pacific Islands Forestry Workshop	Romina King	University of Guam Drone Corps: Using Drones for Research and Forestry
11/20/23	National CASC Co-production Evaluation Working Group	Scott Laursen	Empowering community-driven data stewardship pathways
11/5/23	Wildlife Society Annual meeting	Patrick Hart	Acoustic Ecology and Conservation of Hawaiian Forest Birds
10/26/23-10/28/23	SACNAS National Diversity in STEM (NDISTEM) Conference	Jerolynn Myazoe	Advancing Climate Change Adaptation in the Marshall Islands through Oral Histories of Voyaging Interaction Networks
10/26/23-10/28/23	SACNAS National Diversity in STEM (NDISTEM) Conference	Shania Tamagyongfal	Weaving Oral Histories of Yapese Navigation with Remathau Community Engagement in Re-Establishing Voyaging Networks for Sustainable Sea Transport
10/25/23	Cornell Lab of Ornithology	Patrick Hart	Acoustic Ecology and Conservation of Hawaiian Forest Birds
10/21/23	Hawai'i Festival of Birds	Patrick Hart	Kanikuamauna
10/21/23	Hawai'i Festival of Birds	'Ahuimanu	O Ka Lele a Nei 'Auna (opening protocol)

10/23	US Federal Highway Administration	Curt Storlazzi	Consistent National Projections of Future Coastal Flooding due to Climate Change and Sea-level Rise to Evaluate Risk and Guide Prioritization for Adaptation
10/23	Special Presidential Envoy for Climate	Curt Storlazzi	Future Tropical Pacific Island Sustainability
10/23	Chicago Wilderness Alliance Webinar	Scott Laursen	Place-based, relational approaches to science, management, and policy: profound mechanism