

Sunday, April 2

Pre-Conference Trainings and Workshops

9:30 AM - 11:30 AM | Open to the public

Ala Wai Canal Site Tour and Genki Ball Demonstration

Local2030 Islands Network

Join us for an optional pre-conference site tour of the Ala Wai and a look at how Genki Balls are being utilized to clean and revitalize this sacred watershed.

12:00 PM - 7:00 PM | Open to the public

Local2030 Islands Network Community of Practice Gatherings Day 1

Local2030 Islands Network

Access the full Local2030 agenda [here](#)

Monday, April 3

Pre-Conference Trainings and Workshops

8:00 AM - 12:00 PM | Open to the public

Nature-Based Solutions for Mitigating Hazards

Lydia Morikawa, National Disaster Preparedness Training Center

This half-day (4-hour) management-level course aims to highlight nature-based solutions as important and effective tools for mitigating hazards and climate impacts. The course provides planners, government officials, and hazard mitigation professionals information on the types, applications, and benefits of nature-based solutions as well as the common barriers for their use. Beyond an overview of nature-based solutions, the course focuses on the planning and implementation mechanisms that can be leveraged to employ these solutions in practice. This includes planning mechanisms related to land use, hazard mitigation, stormwater management, transportation, open space, and disaster recovery. The course will also highlight important planning considerations for utilizing nature-based solutions, including planning quality, alignment among plans, and equity in nature-based solutions; as well as the public and private funding mechanisms for implementing them. As a management-level course, this training is intended to provide decision-makers with the information needed to select and promote applicable nature-based solutions as a complement or alternative to structural mitigation measures to make their communities safer.

1:00 PM - 5:00 PM | Open to the public

Planning for Coastal Hazards and Climate Change: A Plan Evaluation Workshop

Rob Porro, National Disaster Preparedness Training Center

The National Disaster Preparedness Training Center (NDPTC) at the University of Hawaii develops and delivers natural hazards and disaster management training courses for emergency managers, planners, and professionals involved in disaster response and recovery. This 3-hour pilot workshop supports NDPTC's *Planning for Coastal Hazards* course, currently in development. The learning objective is to provide an overview of planning principles to guide coastal adaptation planning and to increase understanding of the methods to evaluate the quality of plans that address coastal hazards and climate change. Exercises will provide hands-on experience evaluating coastal management and hazard mitigation plans and reviewing the plan quality evaluation principles and methods. The target audience includes planning practitioners and coastal stakeholders interested in hazards and coastal adaptation planning. This includes hazard mitigation planners, urban planners, climate change specialists, coastal managers, government officials, landowners, and developers, as well as planning researchers and academia.

TIME is TBD | Open to the public

Disability and Accessing Emergency Communication in the Pacific Territories *Tafaimamao Tupuola, American Samoa University Center for Excellence in Developmental Disabilities*

The Pacific Territories are the most remote parts of the U.S. country. The Federal Emergency Management Agency (FEMA) National Advisory Council report on *Modernizing the Nation's Public Alert and Warning System* stated the lack of Wireless Emergency Alert (WEA) access in the Pacific U.S. territories and other underserved communities (2019, pg. 12). In 2018, the Nationwide Emergency Alert System, also known as the Presidential Alerts, was activated for the first time. The Presidential Alert test did not reach any Pacific Territories. For people with disabilities and lacking access to functional needs, accessing emergency information is essential. How can the Pacific islands be a part of the solution to design, execute, and improve equitable emergency communication in our indigenous community?

This training session will bring together Disability Network from American Samoa, the Commonwealth of the Northern Mariana Islands, and Guam to engage and enhance the capacity of accessible communications for all. Participants will share experiences and exchange solutions of pre and post-disaster messages, toolkits, and traditional knowledge.

9:00 AM - 4:00 PM | Open to the public

Sustainable and Regenerative Tourism

Local2030 Islands Network

Tourism is a major contributor to many Island economies and livelihoods. Likewise, for many island communities, natural resources both provide and rely on tourism as the basis for their economic development. Climate change and under-managed tourism impacts threaten both the ecosystems that draw tourists and related public infrastructure. Planning for sustainable tourism through a community oriented, nature-based solutions approach increases resiliency of both elements. This Technical Exchange session provides an opportunity for the Sustainable and Regenerative Tourism Community of Practice (CoP) led by Local2030 Islands Network, Hawai'i Green Growth, GLISPA and NOAA to engage with others in the CoP and across PRiMO. This session will focus on developing capacity to incorporate island-led, community-based solutions into sustainable tourism planning. This includes how to apply coastal adaptation and resource management planning to realize co-benefits of natural areas, such as mangroves, in supporting both tourism opportunities and coastal resilience. Taking a participatory approach, this session will provide practical tools and relevant case studies for island communities to share regenerative and sustainable tourism strategies and plans. Participants will share lessons learned and best practices, explore practical solutions, and develop a draft implementation strategy for their relevant site(s).

9:00 PM - 4:00 PM | Open to the public

Data for Climate Resilience

Local2030 Islands Network

Robust and timely climate data are fundamental to climate change adaptation and resilience strategies, and intersect with the monitoring of all seventeen Sustainable Development Goals

(SDGs). In advance and in support of PRiMO, the in-person Data for Climate Resilience Community of Practice brings together thirty members of the global Local2030 Islands Network Data for Climate Resilience Community of Practice - island government officials who are responsible for data related to the SDGs and climate- select PRiMO participants, and technical experts. The session will address the landscape of data sources and climate services - local, national, regional and international- and their interlinkages. A special focus will be given to regional efforts including NOAA Regional Climate Services and Climate Adaptation Partnerships (CAP/RISA, PI-CASC). The session will center on how islands determine what climate data best measures what matters to their communities. Experts will lead discussions on critical issues such as uncertainty, timeliness, approaches, and intersections with food, water, health, energy, and migration. The session strongly encourages peer learning, and Community of Practice members will share best practices and discuss approaches unique to their islands. The session will also include several demonstrations of climate data visualizations including Hawaii's Aloha+ Challenge Dashboard and Hawai'i's sea level rise mapping tool.

Tuesday, April 4

Conference Day 1

10:15 AM - 11:45 AM

Individual Presentations

Applying the Resilient Children/Resilient Communities Initiative to the Caribbean: Building child-focused resilience in Dominica

Thalia Balkaran, Columbia University

There have been record losses worldwide attributable to disasters. Small Island Developing States are particularly at risk to these events. In 2017, Hurricane Maria decimated the island of Dominica leading to loss of life and 90% of the buildings on the island being damaged. Following this, the island declared a plan to become the first climate-resilient nation by 2030. Disasters do not affect all members of society equally. Vulnerable populations are especially at risk. Children are considered a vulnerable group due to their capacity to be affected by a disaster. The National Center for Disaster Preparedness at Columbia University along with Save the Children created The Resilient Children, Resilient Communities Initiative to build child-focused resilience within communities. The Initiative which has been applied to sites in The United States is being adapted for the context of Dominica. The Initiative focuses on child-serving institutions and uses a Community Preparedness Index to quantify the current inventory of policies and practices related to children. The aim of the Initiative is to implement strategies to improve the ability of the community to meet the needs of children in a disaster. This study places emphasis on The Kalinago Territory, an indigenous reserve located in Dominica.

Older Adults' Social Capital for Natural Disaster Resilience

Kiyomi Kawamoto, Toyo University

This study describes the Social Capital (SC) of older adults for natural disaster resilience from an urbanization perspective. The aging society is a common issue in many urban areas, and older adults have been recognized as a vulnerable group during disaster periods. Assistance between residents is important during natural disasters, and these ties are called SC. Daily social interaction in urban areas is decreasing, so it is expected that the form of mutual assistance during disasters will change. Two metropolitan areas were chosen for this study. Honolulu County, Hawaii, in the U.S., is in the suburbanization stage, and Aichi prefecture, Japan, is in the re-urbanization stage. Six types of SC data were collected by conducting a web-based survey. The total number of valid samples was 1,324. The SC of the older adults was analyzed from a bonding, bridging, and linking perspective. Although the amount of SC decreases due to the process of urbanization, it was shown that the SC of older adults is higher than that of other age groups. The trust of older adults is high, and it was one of the significant

factors for resilience. Finally, the use of SC of older adults in the resilience strategy was discussed.

Climate Change in American Samoa

Sandi Tonumaipea, *Office of Disaster Assistance and Petroleum Management*, **Tali longi**, *Office of Disaster Assistance and Petroleum Management*

American Samoa is the southernmost US Territory which includes seven islands: Tutuila, Tau, Olosega, Ofu, Aunu'u, and Swains Island and Rose Atoll. American Samoa is on the forefront of Climate Change experiencing Volcanic Activity, King Tides, Sea Level Rise, Coastal Inundation, and Coral Bleaching. In preparation for future climate related disaster damages, we actively monitor and assess the risks and vulnerabilities that affect our Territory. We have developed assessment teams that consist of local and Federal partners to document the issues we face and seek solutions to minimize the adverse effects of Climate Change. Our Governor and his Administration has proactively established the Governor's Resilience Office to address the effects of climate change. We have applied to Bipartisan Infrastructure Law Funding Opportunities and received grant awards in this endeavor. We also network with our Local OIA-Field Office to seek funding for these infrastructure projects to improve the safety and resilience of our community. Challenges that we face include the lack of local Cost Matching, the difficulty to compete with US States and Territories, remote and limited access to resources for project scoping, pre-planning, NEPA permitting, Buy American Act, Supply chains, and lack of Local US Army Corp of Engineers on-island.

10:15 AM - 11:45 AM

Talk Story

A Systems Approach to Food Security

Subhashni Raj, *University of Hawai'i at Mānoa*; **Albie Miles**, *University of Hawai'i West Oahu*; **Matt Lau**, *Ma'o Farms*

Environmental disasters attributed to our changing climate are becoming more frequent, severe, and as the last few years have demonstrated, cascading. Adverse impacts of climate related disasters disproportionately affect marginalized communities as social-economical-ecological (SEE) conditions constrain their adaptation options and opportunities. While there is increasing understanding of community level vulnerability and adaptation in the contiguous United States, island communities have had limited attention. As climate variability causes variation in seasonal rainfall and temperature, it directly affects island community food and water pathways, and indirectly their health and well-being. Recent research also highlights that marginalized communities are less likely to be prioritized in response and recovery efforts. Furthermore, the isolation of island communities means local and state governments are first responders to climate impacts and disasters and as such local policies are critical to allow in-time response and recovery. In this talk story session, we identify various ways and means by which communities across Hawaii adapted during COVID-19 and discuss how these adaptations can be codified as official State and County policies.

10:15 AM - 11:45 AM

Panel

Hawai`i Sea Grant's Role in Resilience Planning and Ecosystem Restoration

Amy Wirts, *Hawai`i Sea Grant*; **Tara Owens**, *Hawai`i Sea Grant*; **Ruby Pap**, *Hawai`i Sea Grant*; **Bradley Romine**, *Hawai`i Sea Grant*

Hawai`i Sea Grant Extension Agents engage with state and county government agencies to provide scientific and policy development expertise to resilience and adaptation initiatives. Recently, Sea Grant assisted the State Climate Commission to complete a 5-Year Update to the 2017 Hawai`i Sea Level Rise Vulnerability and Adaptation Report. This updated report provides an overview of state and county actions in response to the recommendations of the 2017 Report, many of which were facilitated and assisted by Sea Grant faculty. The 2022 Update also identifies unmet needs to set as a priority for focus in the next five years. Among the recommendations for focus is the integration of equity and justice considerations to vulnerability assessments and adaptation planning and actions. Sea Grant faculty work to incorporate coastal resilience and community co-development in the updating and writing of community plans throughout the islands. Extension Agents also work with government agencies and community organizations in facilitating nature-based projects across the state to help build resilience to sea level rise and restore the shoreline environment. Multiple dune restoration projects on Maui serve as examples of successful community-led ecosystem restoration. Planned projects on Oahu, Maui and Kauai build on the successes achieved there. This panel will feature Extension Agents working on Oahu, Maui, and Kauai to discuss Sea Grant's role in state and county efforts to engage communities and improve resiliency.

1:00 - 2:30 PM

Indigenous Knowledge and Environment Hui Sponsored Panel

Rising Voices , Changing Coasts: The National Indigenous and Earth Sciences Convergence Hub

Lesley Iaukea, *University of Hawai`i at Mānoa*; **Daniel Wildcat**, *Haskell University*;
Kristina Peterson, *Lowlander Center*; **Kalani Souza**, *Olohana Foundation*

The Rising Voices: Changing Coasts (RVCC) Hub, is a coastal research project that brings together university-trained scientists and Indigenous knowledge-holders to study the interactions between natural, human-built, and social systems in coastal populated environments. Indigenous knowledge-holders from four coastal regions will address the impacts of a changing climate on their coastal communities by focusing on three topics - storms and weather, flooding and erosion, and ecosystems – with interrelated research questions primarily focused on large-scale climate drivers of multi-decadal coastal change. In a convergent science approach, this diverse team will weave together Indigenous knowledge, climate, geospatial modeling capabilities, archeological records, socio-economic analysis, and hazards research

with the goal of co-creating data, analysis, and findings that coastal communities need to form hazard mitigation and adaptation strategies that protect their ways of being.

RVCC is funded by the National Science Foundation's (NSF) Coastlines and People Hubs for Research and Broadening Participation (CoPe) program. Our goals for this hub are to (1) Develop a successful cross-cultural research framework that introduces a paradigm of interdisciplinary collaboration across Indigenous and non-Indigenous groups, intellectually diverse researchers, and knowledge-holders. (2) Improve Earth system modeling and prediction of coastal processes to provide highly-usable and culturally-relevant information. (3) Broaden participation of Indigenous students and researchers in Earth system science by building pathways into the field of Earth system science that provides educational and professional advancement opportunities for undergraduate and graduate students. And, (4) Strengthen infrastructure for future collaborations between academic institutions and Indigenous communities.

1:00 - 2:30 PM

Panel

Transportation Planning As Resilience Making

Karl Kim, *National Disaster Preparedness Training Center*; **Pamela Murray-Tuite**, *Clemson University*; **Anuag Pande**, *Calpoly*; **Jon Nouchi**, *City and County of Honolulu Department of Transportation Services*; **Zhong-Ren Peng**, *University of Florida*

Transportation systems are a valuable asset for the use of transporting goods, services, and people in today's era of globalization. However, the transportation sector is a leading producer of carbon emissions which results in climate change and increasing disaster and weather events. Thus, significant urban transportation investments must be sought out immediately. This panel brings together leading authorities in the area of resilient transportation systems who published the book "Creating Resilient Transportation Systems: Policy, Planning, and Implementation." The panelists will be posed questions regarding not only how to make transportation more resilient but how to make transportation more equitable, accessible, and affordable to provide a fair distribution of transportation resources, benefits, costs, programs, and services for everyone. The panel will also be challenged to discuss the current Justice40 Initiative to confront and address decades of underinvestment in disadvantaged communities.

Innovative Nature-Based Solutions for Adapting to Climate Change

Lauren Long, *NOAA Office for Coastal Management*; **Doug Harper**, *Malama Maunaloa*; **Makale'a Ane**, *The Nature Conservancy*; **Rob Toonen**, *Hawaii Institute of Marine Biology*

Natural resources throughout the Pacific Islands from mauka to makai are critical for preserving culture and providing health, safety, recreation, food sources, and protection from coastal hazards. These natural resources are also vulnerable to the impacts of climate change and innovative solutions are needed to preserve ecosystems to ensure future resilience. With

changing climate conditions, local practitioners are designing and implementing creative solutions to address various coastal issues. This panel of experts will share their innovative work to promote nature-based and indigenous solutions to climate change that benefit people and nature and amplify resilience and ecosystem services; develop new hybrid coral reef technologies that both reduce wave energy to protect coastal infrastructure from sea level rise and withstand marine heatwaves causing coral reef decline; and enhance the resilience of waterways by reducing anthropogenic impacts and restoring streams to their natural flow. You'll hear from The Nature Conservancy on Maui, Malama Maunalua on Oahu, and the Hawaii Institute of Marine Biology on Oahu about their innovative research and strategies to enhance coastal resilience to climate change.

2:30 PM - 4:00 PM

Panel

Kauai's COVID-19 Response: Lessons Learned

Janet Berreman, *Kaua`i District Health Office*; **Lauren Guest**, *Deputy District Health Office*; **Blanca Gil Lopez**, *County of Kaua`i Emergency Management Agency*; **Solomon Kanoho**, *County of Kaua`i Fire Department*

Kaua`i experienced low COVID-19 case and case-fatality rates, while maintaining strong community and leadership cohesion. The panel members will each discuss a successful example from the Kauai response, the factors which contributed to that success, and how others might apply the information to their jurisdictions and/or to other types of disasters. Although the focus is the COVID-19 pandemic response, the lessons learned are broadly applicable. Contributing factors county-wide included strong pre-existing partnerships among county and state agencies, healthcare, and nongovernmental organizations. Practices in the District Health Office that contributed to the county's success include that the office regularly prioritizes agency-wide initiatives; staff have experience using the incident command system; the community health worker team is multicultural, multilingual, and well established; and staff are integral members of the community they serve. Response successes included unified command, coordinated public messaging, early protective measures, effective disease control, addressing secondary impacts of the pandemic, free community testing, mass vaccination, and mobile vaccinations and testing. In a recent survey, Kaua`i's residents rated the pandemic response highly in the areas of (1) policy and regulations, (2) isolation and quarantine, (3) case investigation and contact tracing, (4) testing, (5) vaccinations, and (6) public information. The value of governmental response agencies engaging regularly and authentically with partners and communities cannot be overstated. It has saved lives on Kaua`i.

2:30 PM - 4:00 PM

Talk Story

Identifying and Removing Barriers to Resilience

Kate Judson, *Federal Emergency Management Agency*

FEMA is implementing a new law - the Community Disaster Resilience Zones Act of 2022. This law will designate disadvantaged communities most at-risk to natural hazards as Community Disaster Resilience Zones – CDRZs. Designated zones will be provided technical assistance to identify and apply for resilience funding across a range of federal and private sector partners. FEMA is looking for stakeholder input to inform how it implements this law. This talk session will provide participants an opportunity to identify the specific challenges and needs that U.S. territories face, and to shape the factors FEMA should consider when designating CDRZs.

Planning and Implementing Nature-based Solutions in the Commonwealth of the Northern Mariana Islands - Lessons Learned, Opportunities, and the Path Ahead

Erin Derrington, *Office of Planning and Development of the Commonwealth of the Northern Mariana Islands*

The Commonwealth of the Northern Mariana Islands (CNMI) is promoting “Smart, Safe Growth” (SSG) in development and redevelopment planning. This panel session will highlight lessons learned and opportunities that have been identified through the development of this guidance and its implementation through the recent Super Typhoon Yutu disaster and recovery effort. Practitioners from the CNMI’s Hazard Mitigation Grant Program and the Office of Planning and Development will outline the leading practices that have been identified and incorporated into SSG Guidance and the SSG Assessment Tool, as well as challenges and opportunities that relate to furthering risk reduction priorities in our remote region. Contextual updates will highlight how disaster risk reduction is a cross-cutting theme in sustainable growth planning and how interagency collaboration has led to coordinated ecosystem valuation and management projects that aim to enhance the resilience of our natural environment to support risk reduction objectives. Examples of projects that are being implemented will demonstrate how these efforts are resulting in priority actions being supported by FEMA and other federal partners. Time will be reserved for discussion with the audience regarding needs and opportunities to further implementation of nature-based solutions to further risk reduction and resiliency goals.

4:15 PM - 5:15 PM

Plenary

The Voluntary National and Local Reviews: Islands taking on the Sustainable Development Goals Challenge

Local2023 Islands Network sponsored event with **Governor Josh Green, Mayor Richard Bissen, Mayor Rick Blangiardi, Mayor Derek Kawakami, and Mayor Mitch Roth** as invited speakers

This Panel Session will host Hawai‘i’s Governor, mayors of the state’s four counties, and island representatives from Fiji and Barbados. Panelists will discuss their voluntary local and national reviews (VLR and VNR) regarding their progress and engagement on the Sustainable Development Goals (SDGs). Fiji’s VNR dates to 2019. Barbados will present its VNR in July

2023 at the High-Level Political Forum on Sustainable Development convening under the auspices of the UN's Economic and Social Council. Hawai'i's VLR was completed in 2020 and was the first U.S. state to present a comprehensive VLR joining other sub-national localities from Los Angeles to New York City, Bristol, Helsinki and others around the world that have reported SDG progress using the VLR process. Panelists will discuss their challenges, experience, the VNR/VLR process, and their aspirations as they work toward island led climate action seeking equity and resilience in a changing world.

5:15 PM - 7:00 PM

Reception and Poster Session

A review of ciguatera impacts on fishers in Hawai'i and implications for the Pacific Islands

Eileen Nalley, *Hawai'i Sea Grant*

Ciguatera poisoning (CP) is a seafood-borne illness caused by toxins produced by dinoflagellates in tropical, coastal ecosystems (primarily *Gambierdiscus* spp. in the Pacific). This disease can have devastating, long-lasting impacts on fishers and fishing communities. In Hawai'i and other Pacific Islands, which are geographically remote and, in some cases, have limited access to medical care, these risks are amplified, as many communities are reliant on reef fishes as an essential source of nutritional, financial, and cultural well-being. Despite this vulnerability, most cases of CP in this region go unreported, and CP has remained understudied. In this study, an anonymous online survey (n = 105) was used to gather data on the impacts of CP on fishers in Hawai'i. 21% of respondents reported experiencing CP, and of those, only 23% reported their cases to the state. In addition, a more in-depth interview method (n = 20) was used to understand how the experience of getting CP affected respondents. The results identify CP research gaps that exist in Hawai'i and offer insight into issues for the broader Pacific region, and this work has supported the ongoing development of a Ciguatera Network for the Pacific Islands.

CASPER Methodology and uses for preparedness and disaster response

Lauren Guest, *Hawai'i Department of Health*; **Grayson Kallas**, *Hawaii State Department of Health*

CASPER is a public health emergency needs assessment tool designed by CDC to rapidly obtain information about the health and resource needs of a community. Information obtained is generalizable to the entire sampling frame, providing population-based estimates. This methodology is designed to be inexpensive, quick, and scalable, making it ideal for use in disasters. However, in order to ensure that jurisdictions have a team familiar with the methodology that can rapidly deploy post-disaster, CASPER can also be used as a tool to assess emergency preparedness or even to obtain the community's feedback on prior disaster response efforts. This session will focus on how the Kauai District Health Office has conducted annual CASPERs since 2017 to assess preparedness, flood impacts, early COVID-19 impacts

and needs, as well as the community's perception of our COVID-19 response. These efforts have built a robust disaster needs assessment capability that benefits our jurisdiction in a multitude of ways.

Planning and Implementing Nature-based Solutions in the Commonwealth of the Northern Mariana Islands

Erin Derrington, Office of Planning and Development of the Commonwealth of the Northern Mariana Islands

The Commonwealth of the Northern Mariana Islands (CNMI) is promoting “Smart, Safe Growth” principles in development and redevelopment planning. This includes the development and adoption of guiding principles that leverage existing ecological data to identify environmental risks and support incorporation of risk reduction principles into planning and project scoping efforts. Recently, the CNMI partnered with the National Fish and Wildlife Foundation to include environmental, cultural, and built infrastructure layers to geospatially identify opportunities to reduce risks to natural hazards by investing in coastal resilience. Although the economic benefits of investment in restoration activities at sites that have been identified as having high value to result in improved risk reduction are difficult to quantify, CNMI has also developed ecosystem valuation assessments for wetlands, coral reefs, and shorelines to support analysis and prioritization of sites. This poster will highlight existing tools as well as tools and implementation projects that are underway, including a recently approved BRIC planning proposal assessing shoreline change and management options to leverage nature-based solutions to protect people as well as our built environment.

Redefining the humanitarian landscape in the Pacific by defining resilience through a Pacific lens and showcasing the responses of Pacific communities in disaster

Petra Satele, Massey University

"E sega ni vuka na kaka me biu toka na buina" (A parrot will not fly leaving its tail in its nest) is an indigenous Fijian proverb which asserts that we cannot build forward better in the humanitarian space without adopting cultural context and indigenous worldview. Therefore there is a need for vulnerability and resilience to be reimagined through a cultural and indigenous lens. A reflexive thematic analysis was conducted on disaster-focused community forums which used *talanoa* – a Pacific qualitative methodology. According to the results, Pacific indigenous resilience can be defined as: 1) Learning from past generations to adapt and build forward better, 2) Supporting and serving communities for quick and immediate response and 3) Leading and partnering to activate solutions. Pacific indigenous resilience is action-oriented and activated - it is reflected in Pacific communities as Pacific health leaders and agencies, and faith-based organizations prepare for, respond to, and build forward better after a disaster.

Analyzing Financing Opportunities for Emergency Coral Restoration After Severe Storm Surges

Lara Noren, Hawaii Division of Aquatic Resources

In Hawai'i, coral reefs provide critical coastal hazard risk reduction services, reducing both episodic and chronic wave energy impacts to coastlines. Utilizing these shoreline protection services is a growing interest to natural resource management and hazard mitigation agencies. Unfortunately, coral reefs in Hawai'i are facing both local and global stressors, threatening the overall health and resilience of these culturally, economically, and ecologically important ecosystems. To ensure coral reef ecosystems continue providing coastal protection services, coral reef managers are recommending emergency coral restoration after severe storm surges. Although emergency coral restoration is an important tool in bolstering coral reef resilience, financing these unpredictable projects can be challenging. To address this, the Hawai'i Division of Aquatic Resources (DAR) is investigating multiple avenues to finance emergency reef restoration after storm damage occurs. Both reef insurance and the Federal Emergency Management Agency's (FEMA) hazard mitigation funding have the capacity to address emergency restoration needs while alleviating the financial burdens associated with response. Reef insurance and FEMA funding are of growing interest nationally but need to be analyzed for Hawai'i-specific application. To do this, DAR analyzed the feasibility of implementation for each financing strategy based on specific identified criteria.

Wednesday, April 5

Conference Day 2

9:00 AM - 10:15 AM

Individual Presentations

Community-based Resilience Hub Planning on O'ahu: Community-based, Active Learning and Neighborhood Scale

Miku Lenentine, *Kapi'olani Community College*; **Robert Franco**, *Kapi'olani Community College*

Community Resilience Hubs have emerged as an important model for disaster preparedness and localized resilience planning in recent years. This is especially true in response to COVID-19 and disasters such as Hurricane Maria and more recent storms. The model of a localized hub for emergency support services is not new. Still, the pre-preparedness planning approach to hub operations in emergency and nonemergency scenarios is being newly implemented across the US mainland and Hawai'i. In this presentation, we offer preliminary findings from an Island-wide study examining the initial phases of resilience hub planning for O'ahu. An essential aspect of resilience hub planning is community-support. We share best practices for community engagement that have been successful in early efforts at hub planning on O'ahu, emphasizing the inclusion of vulnerable and front-line climate communities. Further, we highlight the importance of place and empowering local student leaders to participate in hub

planning through active learning. In addition, we discuss recent efforts at facilitating intergenerational engagement, citizen science, and civic engagement.

Building Resilience to Complex Emergencies through Community-Based Disaster Risk Management

Robin Fine, *University of Hawai'i at Mānoa*

Taiwan's thriving democracy, characterized by exceptional civic participation, is the island's cornerstone of resilience. In the area of disaster resilience, Taiwan is applying its societal strengths using community-based disaster risk management (CBDRM). CBDRM, legally enshrined and developed over the past two decades in Taiwan, has empowered communities to reduce their specific vulnerabilities and increase local capacity in disaster response and recovery. Taiwan now faces growing risk of a complex emergency which could result from the People's Republic of China's use of force to gain control of the island. Building on current CBDRM methodology to increase community resilience should be a vital part of planning and preparedness for this contingency. This paper will discuss how CBDRM has developed in Taiwan so far, how it might be applied to complex emergencies, and some of the benefits and challenges of applying CBDRM in such circumstances. In conclusion, more research and pilot projects are needed to expand Taiwan's CBDRM to include complex emergency preparedness.

Towards Coastal Adaptation in US Island Jurisdictions through Planning Evaluation and Integration

Rob Porro, *University of Hawai'i at Mānoa*

This presentation summarizes research that evaluates coastal adaptation planning in U.S. Island jurisdictions – Hawaii, American Samoa, Guam, CNMI, Puerto Rico, and the U.S. Virgin Islands – areas where the climate threat and adaptation challenge are great but that have received little planning research attention. Coastal adaptation planning principles, along with established plan evaluation methods, serve as a lens to assess current planning efforts, identify challenges, and share best practices. The study consists of two main elements. The first element consists of a quantitative plan evaluation of coastal adaptation relevant plans in each island jurisdiction. From the plan landscape across jurisdictions, the study focuses on two plans common across all jurisdictions – the State or Territorial Hazard Mitigation Plan and the CZMA Section 309 Assessment and Enhancement Strategy. This evaluation is complemented by qualitative interviews of adaptation practitioners, such as coastal managers, community planners, and hazard mitigation planners. Combined, these approaches provide key insights into the progress and challenges of adaptation planning in islands, as well as identify best practices and lessons to be shared across islands and coastal communities. This informs a discussion of how existing coastal management, hazard mitigation and disaster recovery assistance can be tailored to meet adaptation needs.

PacIOOS Launches Wave Flooding Tools for West Maui To Support Community Preparedness and Resilience

Melissa Iwamoto, *Pacific Islands Ocean Observing System*; **Tara Owens**, *Hawai'i Sea Grant*, **Assaf Azouri**, *University of Hawai'i at Mānoa*

The Pacific Islands Ocean Observing System (PacIOOS), the University of Hawai'i (UH) Department of Oceanography, and UH Sea Grant developed two localized tools for West Maui providing: 1) advanced forecasts of high wave impacts, and 2) future scenarios of wave flooding with sea level rise. With the Wave Run-up Forecast Tool, users can monitor and prepare for possible upcoming impacts of high wave activity along the shoreline. A community science effort collected over 100 place-based photos to document wave impacts for the vulnerable West Maui region. These photos helped to validate and calibrate a state-of-the-art, two-dimensional hydrodynamic wave model as the basis for a new generation of wave run-up forecasts under locally-relevant high wave conditions. This 6-day advance forecast alerts about potential high wave impacts to inform preparation and response. With the Wave Flooding Tool, users can visualize site specific future scenarios of wave-driven flooding for a range of wave conditions combined with a suite of sea level rise scenarios. The results can be used to inform long-term land use planning. This presentation will demonstrate the utility and usability of these tools that bring together numerous elements of science, technology, and engagement to enhance coastal community resilience.

A New Future: Integrating Sea Level Rise and Coastal Threats into Planning for Beach Parks in Maui County

Catherine Courtney, *Tetra Tech*; **David Yamashita**, *Maui County Department of Parks and Recreation*; **Jennifer Maydan**, *Maui County Department of Parks and Recreation*

Beach parks provide vital services to residents. In addition to recreation opportunities, beach parks support the health and well-being of residents and the preservation of cultural resources and practices. As sea level rises due to climate change and more damaging wave events transform the coastal environment, the viability of many beach parks in Maui County is in jeopardy. Several parks have already experienced damage to park land and facilities and, in some cases, exposed Native Hawaiian burial sites from King Tide events. The County of Maui Department of Parks and Recreation initiated a vulnerability and adaptation study of the county's 65 beach parks to address these ongoing and growing threats. Participants for this presentation will be introduced to the web-based mapping application developed to make the results of this study more accessible to county staff, the public, and other stakeholders. An overview of rapid response plans, triggered by damaging coastal events, will be presented for 12 of the most vulnerable beach parks. Finally, regional adaptation strategies will be introduced focusing on nature-based solutions and using time-based and condition-based triggers to support implementation for several beach parks. The results of this project can be found here: <https://experience.arcgis.com/experience/4823c0001269442091c5af315f04733f/>

CASPER as a Preparedness and Response Tool

Lauren Guest, *Hawai'i Department of Health*; **Grayson Kallas**, *Hawai'i State Department of Health*

CASPER is a public health emergency needs assessment tool designed by CDC to rapidly obtain information about the health and resource needs of a community. Information obtained is generalizable to the entire sampling frame, providing population-based estimates. This methodology is designed to be inexpensive, quick, and scalable, making it ideal for use in

disasters. However, in order to ensure that jurisdictions have a team familiar with the methodology that can rapidly deploy post-disaster, CASPER can also be used as a tool to assess emergency preparedness or even to obtain the community's feedback on prior disaster response efforts. This session will focus on how the Kauai District Health Office has conducted annual CASPERs since 2017 to assess preparedness, flood impacts, early COVID-19 impacts and needs, as well as the community's perception of our COVID-19 response. These efforts have built a robust disaster needs assessment capability that benefits our jurisdiction in a multitude of ways.

Panel

9:00 AM - 10:15 AM

Addressing and Operationalizing SVI to Support Social Justice in Disaster Response and Recovery

Karl Kim, *National Disaster Preparedness Training Center*; **Nicole Boothman-Shepard**, *AECOM*; **Suwan Shen**, *University of Hawai'i at Mānoa*; **Cuong Tran**, *National Disaster Preparedness Training Center*; **Lisa Webster**, *University of Hawai'i at Mānoa*; **Siautu Alefaio**, *Massey University*; **Zhong-Ren Peng**, *University of Florida*

More often than not, the most vulnerable communities face significant disaster recovery challenges. Vulnerable communities are regularly disconnected from their leaders and decision-makers in pre-and-post disaster planning, thus leaving them to recover by themselves ineffectively. Social vulnerability to climate change is increasingly a heavily researched topic, with emerging proposals to measure and manage it. This panel discusses the importance of addressing and operationalizing SVI to push social justice policy and initiatives in disaster response and recovery, especially for vulnerable communities. Examples of Social Vulnerability Indexes (SVIs) include the CDC's SVI, South Carolina's SVI, the FEMA National Risk Index, and others for Pacific Island and coastal communities. SVIs provide a general understanding of a community's vulnerable populations but may be ranked differently based on the SVI being used. Therefore, variables among SVIs should be modified based on the specific area, demographics, and local knowledge to better narrow down communities most vulnerable to disasters.

10:30 AM - 12:00 PM

Panel

Towards an end-to-end and people-centered early warning system in the Pacific

Viliame Vereivalu, *Fiji Meteorological Service*; **Iosefo Cauravouvinaka**, *Fiji Meteorological Service*; **Laura Kong**, *Tsunami Ready*; **Paul Kucera**, *3D-PAWS*

To save lives, early warning systems for natural hazards not only need to have a sound scientific and technical basis but also require a strong focus on the people exposed to risk, and a systems approach that incorporates all of the relevant factors from the natural hazards to social vulnerabilities. The Weather Ready Nations (WRNs), Tsunami Ready, Flash Flood

Guidance System (FFGS), and 3D-Printed Automatic Weather Station (3D-PAWS) initiatives promote an end-to-end system approach to natural hazard as an active collaboration among National Meteorological and Hydrological Services (NMHSs), national to local emergency management agencies, and stakeholders (e.g., public) to provide “people-centered” early warnings for hydrometeorological hazards. These initiatives bring together the four interrelated critical elements of an early warning system (EWS): (1) disaster risk knowledge; (2) detection, monitoring, analysis, and forecasting of the hazards and possible consequences; (3) dissemination and communication; and (4) preparedness at all levels to respond to the warnings received. When coordinated within and across sectors at multiple levels, these four interrelated components allow an end-to-end EWS to work effectively and to include a feedback mechanism for continuous improvement. Challenges encountered in implementing these programs – include bridging the gaps between the four components of effective warnings and building partnerships and knowledge to build community resilience. We propose a session highlighting lessons learned and challenges in implementing end-to-end and people centered EWS from in-country partners.

Wicked Problem: Marine Debris

Karl Kim, *National Disaster Preparedness Training Center*, **Mary Crowley**, *Ocean Voyages*, **Nikolai Maximenko**, *University of Hawai‘i at Mānoa*, **Ken Ostebo**, *Sustainable Ocean Systems*, **James Richardson**, *University of Hawai‘i at Mānoa*

Marine debris is a wicked problem. The global manufacturing and demand for single-use plastics and other material waste continue to be overwhelming and, as a result, cause significant pollution to the world’s oceans. Pollution causes harm to marine life, human health, and countries’ economies. This panel brings together marine debris experts to characterize and discuss marine debris as a social and environmental issue. While there are worldwide efforts to mitigate and reduce plastic pollution, high-income countries still manufacture and generate more waste per capita. In contrast, low-to-middle-income countries pollute primarily because of their mismanaged waste management systems. The improvement of waste management systems across the world is critical to reducing marine debris. The panel will explore the complexity of governance in the global ocean, identifying challenges with regulating ocean waste for various income countries, offering examples of local and international cleanup efforts, and providing solutions to the marine debris problem.

10:30 AM - 12:00 PM

Talk Story

Pacific Diaspora Responses to Compounding Disasters

Petra Satele; *Massey University*; **Siautu Alefaio Tugia**, *Massey University*; **Emeline Afeaki-Mafile’o**, *Affirming Works*

Our session draws on *Talanoa* (Pacific-style “talk story”) to engage a HUBBS (Humans United Beyond Borders Symposium) response to the disaster and humanitarian landscape of Oceania. As the most disaster-prone region globally, the Pacific poses significant strengths and complexities for disaster resilience and humanitarian response. For example, Samoa confronted a measles epidemic in 2019, followed by the ongoing global COVID-19 pandemic in 2020. In

Tonga, the pandemic was compounded by the Hunga-Tonga Hunga-Ha'apai volcano eruption in 2022. Most recently was the severe flooding in Auckland within the pandemic era. The serious disruption to everyday life overwhelms communities and exposes societal inequities. Pacific-diasporic response to disasters through families and churches of those affected are also as effective and enduring as aid agencies and governments. Especially through regular systems of support such as remittance that are already in place. This TalanoaHUBBS showcases the Pacific diaspora in Aotearoa New Zealand, and their response in three areas: health, church (village-community) and communication by design (15 minutes each). "*E sega ni vuka na kaka me biu toka na buina*" (a parrot will not fly leaving its tail in its nest) is a Fijian Indigenous proverb that asserts, we cannot build forward better from disasters without adopting cultural context and indigenous worldview. This session provides an opportunity for all to 'talk-story' thereby sharing collective learnings from one's own culture, lived experience and worldview in relation to disaster response and resilience.

1:30 PM - 3:30 PM

Panel

Sharing Knowledge to Help Close the Equity and Capacity Gap for Coastal Zone Management Programs in Hawaii and other Pacific Island Nations

Jim Buika, *County of Maui Department of Planning*; **Justine Nihipali**, *Hawai'i Office of Planning and Sustainable Development*; **Nancy McPherson**, *Department of Hawaiian Home Lands*

The workshop objective is to first, share and collect knowledge from island participants about how to improve coastal zone management programs and second, to identify equity and capacity resource gaps required in order to preserve coastal-ecosystem resilience and protect threatened development from coastal erosion. The presenters will highlight coastal zone successes and challenges in Hawaii in order to frame the discussion that will be devoted to collecting social data via question prompts, such as:

- What island plans, programs, and initiatives are making a difference in the Pacific region that we need to recognize, institutionalize, and augment?
- How do we further institutionalize traditional ecological knowledge and nature-based solutions when development is threatened? What are the gaps and how do we close these gaps?
- How do we shift to more proactive regional shoreline management? What (paradigm) shifts in planning must be achieved? Who must be involved?
- What skill sets and professional fields do local, place-based practitioners need to master? Where will the next generation of coastal zone managers come from and how will they be trained?
- Over the next 30 years, how can the "Next Generation" of coastal resource managers take form, become more diverse, and become better educated than its predecessors?

Local2030 Islands Network: Local-Global Approaches for Equitable and Resilient Island Futures

Jabal Hassanali, *Global Island Partnership (GLISPA)*; Hon. **Joshua "Josh" Franquez Tenorio**, *Lieutenant Governor of Guam*; **Kate Brown**, *Local2030 Islands Network and*

*Global Island Partnership; **Trigg Talley**, U.S. Department of State; **Chloe Ysiki Yano**, Palau Visitors Authority; **Titus Antoine**, Grenada Ministry of Climate Resilience, the Environment, and Renewable Energy*

The Local2030 Islands Network is an island led network that seeks to support island leadership on locally driven solutions for climate resilience by providing a forum for peer-to-peer exchange driven by technical expertise, knowledge sharing, and committed action. In line with PRiMO's 2023 theme of 'Equity and Resilience in a Changing World', the Local2030's three Communities of Practice on Sustainable and Regenerative Tourism, Data for Climate Resilience, and Renewable and Clean Energy Systems serve as vehicles for these priorities in island contexts and the role that a peer-to-peer forum can play in this effort, especially amidst an increasingly uncertain future.

This panel discussion will be divided into two sections. Our opening panel discussants will provide a broad high level overview of the Local2030 Islands Network and discuss the goals and vision of the Network from their unique vantage points. They will then be joined by two representatives from our ongoing Communities of Practice, and together we will conduct a deep dive on the value add of this unique tool of the Network, and explore their experience to date engaging within the same.

Rapid Integrated Damage Assessment: Leveraging Technology to Support Effective, Equitable Response and Recovery

***Karl Kim**, National Disaster Preparedness Training Center; **Mike Vorce**, Site Tour 360; **Jaeho Choi**, University of Hawai'i at Mānoa; **Kevin White**, University of Hawai'i at Mānoa; **Mike Elliot**, Drone Services Hawai'i, **Eric Yamashita**, National Disaster Preparedness Training Center,*

Machine learning has emerged as a tool to assess damages caused by natural disasters more accurately. Through an equity lens, emergency technicians can incorporate machine learning to improve faster recovery for hard-hit Pacific Island communities. This panel will discuss how several image-capturing technologies (satellite, aerial, drone, and street-level 360 imaging) can be used to facilitate more precise risk assessments and identify areas most vulnerable to natural hazards. Using a combination of image capturing technologies and artificial intelligence, this panel describes how the technologies can be used to assess the damage and predict potential damage, thus providing situational awareness for efficient, coordinated response and recovery to regions that are in dire need of assistance.

3:30 PM - 5:00 PM | Open to the public

Talk Story

Ko'olauloa Community Resilience Hub

***Cody Winchester**, G70; **Dotty Kelly-Paddock**, Hau'ula Community Association; **Iliya Azaroff**, PlusLab*

Ko'olauloa is a remote rural region in Northern O'ahu with limited access and no dedicated emergency shelter to harbor residents during disasters. City and State emergency officials have warned that residents could be on their own when disaster strikes. To respond to this need, the Hau'ula Community Association (HCA) has developed plans for a disaster relief shelter and community center called the Ko'olauloa Community Resilience Hub (KCRH) on approximately 5 acres. The KCRH will provide critical services during and after a disaster, including safe rooms capable of sheltering 2,000 people during disasters. This essential facility will provide pre-disaster and capacity-building services to the community on a year-round basis. In 2019, the HCA was awarded the PRiMO Community Resilience Award. Since then, the design of the KCRH has been substantially advanced in its concept with key input of community leaders and residents. The hub's design takes inspiration from traditional Polynesian resilience practices while remaining consistent with FEMA 361 Standards for Safe Rooms. Presenters discuss the steps taken by HCA to date to develop a resilience hub on a community level and provide strategies for building partnerships across sectors. We share this update with the intent to provide insights and discoveries that can empower other vulnerable, frontline island communities across Hawai'i and throughout the Pacific.

3:30 PM - 5:00 PM | Open to the public

Panel

Blue Beacon - Rooted in Resilience: Community-Based Conservation in Hawaii *Abigail Rodgers, National Marine Sanctuary Foundation*

Community-based conservation in Hawaii is rooted in indigenous knowledge and perspectives. The co-management of resources between the government and Native Hawaiian communities strengthen community resilience and creates long-term stewardship. Through these co-management systems, the government and Native Hawaiian communities can respond faster to disasters and create climate preparedness plans grounded in community partnerships. This session will explore ongoing projects and partnerships to bridge indigenous knowledge with nature-based solutions and discuss what co-management of an area can look like in Hawaii.

3:30 PM - 5:00 PM | Open to the public

Working Session

Blue Carbon: Understanding Needs in the Pacific Region for Blue Carbon Tracking and Management

Lauren Wenzel, NOAA Climate Program Office; Lisa Vaughan, NOAA Climate Program Office; Gabrielle Johnson, NOAA contractor; Steve Crooks, Silvestrum Climate Associates, Richard Mackenzie, U.S. Forest Service

Blue carbon ecosystems, including mangroves and seagrasses, play a critical role in storing and sequestering carbon, as well as providing biodiversity conservation, coastal protection, and other benefits. NOAA and the USFS are leading an International Blue Carbon Initiative that is working with targeted countries to support them in including mangroves and seagrasses in national greenhouse gas inventories and their nationally determined contributions (NDCs), as well as managing these areas for long-term sustainability. This session will be a facilitated roundtable discussion focused on the needs of Pacific Island States for training, tools and other support on blue carbon accounting, mapping, monitoring, conservation, and management as well as how to participate in carbon markets led by NOAA's Climate Program Office and Marine Protected Areas Center, USFS Blue Carbon Climate Fellow Program, and Silvestrum Climate Associates. Results from this session will help inform a project engagement and support strategy for the Pacific region, supporting local and national efforts to build long term climate and coastal resilience.

3:00 PM - 5:00 PM | Open to youth

Youth Resiliency Round Table

Round table conversations between middle and high school students and PRiMO resiliency experts about initiatives to protect Pacific Island communities from natural hazards and pathways to career positions in the Pacific.

5:00 PM - 7:00 PM | Open to the public

Community Night

Browse a photo gallery showcasing youth climate photo contest winners and view youth climate change public service announcements. Hear from Kainoa Azama, the Chair of the Honolulu Youth Commission, about his career journey. Winners of the climate change public service announcements will be announced.

Thursday, April 6

Conference Day 3

9:00 AM - 10:10 AM

Panel

U.S. Government Panel: Pacific Priorities and Opportunities

Hear from a U.S. government panel on priorities and opportunities in the Pacific.

10:20 AM - 11:30 AM

Coastal Resilience Funding and Resources Networking Session

Connect with colleagues, available funding, and resources to work together as a larger PRiMO to operationalize Pacific priorities and opportunities. Representatives discussing funding and resource opportunities will include the National Oceanic and Atmospheric Administration (NOAA) Office for Coastal Management, Department of Interior (DOI) Office of Native Hawaiian Relations, DOI Office of Insular Affairs, NOAA Office of Habitat Conservation, Pacific Integrated Ocean Observing System (PacIOOS), NOAA Office of Marine Debris, National Disaster Training Preparedness Center, NOAA Pacific Islands Regional Office, and the Federal Emergency Management Agency.

11:30 AM - 12:00 PM

Closing Remarks and Closing Protocol