



# 2020 PRiMO CONFERENCE

## BUILDING A RESILIENT PACIFIC

HAWAI'I CONVENTION CENTER  
MARCH 10 - 13, 2020



PRiMO

[WWW.PRIMOHUI.ORG](http://WWW.PRIMOHUI.ORG)

## What Is the Pacific Risk Management 'Ohana (PRiMO)?

The Pacific Islands face many natural and man-made challenges. Only by bringing people and organizations together, and channeling their efforts toward common goals, can communities become more resilient. PRiMO, the Pacific Risk Management 'Ohana, is the platform for this effort. PRiMO's efforts make the Pacific Islands more resilient to the impacts of natural hazards.

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## About the Conference

The PRiMO Annual Conference is a leading venue for emergency, disaster risk reduction, and hazard mitigation professionals to share ideas, strategize, and develop solutions that address the varied challenges facing Pacific Island communities working toward disaster resilience goals. The theme of PRiMO 2020, "Building a Resilient Pacific" is meant to strengthen collective action toward building resilience across the region. We will reflect on our individual and collective ability to recover from and cope with recent impacts. We will explore solutions to better prepare for future events in ways that leverage advances in science and technology and that reflect the culture and values of the Pacific.

The conference program is strategically designed to facilitate partnerships that transcend geographic boundaries and disciplines, providing unique opportunities for collaboration among attendees. Participants from diverse backgrounds are expected to attend, including representatives from state and federal agencies, non-profit organizations, academic institutions, and businesses. Conference programming is divided into four tracks: Precovery: Pre-disaster Recovery Planning and Preparedness, Resilient Communities: Housing, Infrastructure, Planning, and Mitigation, Next Generation Technology: Satellites, Modeling, and Decision Support Tools, and Community Perspectives: Place-based and Traditional Knowledge.

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## Mahalo Nui Loa to Our Conference Organizing Committee

Raymond Tanabe, Russell Uyeno, Eric Yamashita, Michael Bruno, Colby Stanton, Daniel Karlson, Adam Stein, Jean Tanimoto, Tina Lee, Melissa Mau, Roseanna Lee, Lori Leong, and Caitlyn McCrary

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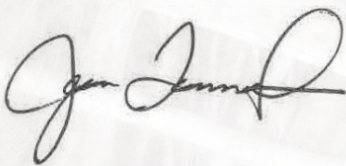
## A NOTE FROM THE CHAIR

Aloha and welcome to the 2020 Pacific Risk Management 'Ohana (PRiMO) Conference! It is our pleasure to welcome participants and honored guests from around the Pacific and beyond. As we come together again, we acknowledge the many challenges and opportunities living and working in our Pacific communities present. As we come together for the 17th PRiMO Conference, we gather once more to work together to build a resilient Pacific. I look forward to learning from old friends and new, as they share their experiences and 'ike around issues related to resilient communities, next generation technologies, and community perspective. With every year, we see unprecedented cases of natural disasters with global impacts. How can we prepare our communities, both locally, and globally to not only survive, but thrive through these events?

We are excited to have several distinguished leaders here with us who's priorities align with the vision and mission of PRiMO: to have thriving Pacific Island communities and to promote security and prosperity for future generations. We are honored to have the Honorable Fiame Naomi Mata'afa, Deputy Prime Minister of Samoa, the Honorable David Panuelo, President of the Federated States of Micronesia, and the Honorable Henry Puna, Prime Minister of the Cook Islands with us this year. They will share their experiences and we will hear firsthand from these leaders the realities they face on the ground and the actions they are taking to build more sustainable and resilient communities. We also look forward to hearing from many of our partners with an exciting line up of sessions including topics like pre-disaster recovery planning, learning from and incorporating indigenous and place based knowledge, natural infrastructure, and looking ahead to what the biggest opportunities on the horizon may be. We will also honor partners and leaders in our communities that are an example of the commitment to service and building a better future that we find every day among our PRiMO family members.

PRiMO is an event for planners, community leaders, researchers, and other inspired persons to connect and network for the good of the greater Pacific. Here we invite you to think big, bold, and beyond your geographic realm in order to bring safety and security back to our communities. PRiMO offers a wide selection of trainings, hui meetings, and presentations meant to engage our participants and initiate knowledge sharing, networking, and collaborations. Thank you for your participation and dedication to strengthening the Pacific in preparation for a resilient future.

**Aloha and Mahalo,**

A handwritten signature in black ink, appearing to read 'Jean Tanimoto', written in a cursive style.

**Jean Tanimoto | Chair, PRiMO**

# PACIFIC RISK MANAGEMENT 'OHANA LEADERSHIP

PRiMO Executive Director: Adam Stein, NOAA Office for Coastal Management

## Navigators' Council

PRiMO Chair: Jean Tanimoto, NOAA Office for Coastal Management - Pacific Islands

PRiMO Vice-Chair: Colby Stanton, Federal Emergency Management Agency

PRiMO Secretary: Jeff Payne, NOAA Office for Coastal Management

Michael Bruno, University of Hawai'i at Mānoa

Chris Chiesa, Pacific Disaster Center

Kristina Kekuewa, NOAA Office for Coastal Management - Pacific Islands

Karl Kim, National Disaster Preparedness Training Center

John Marra, NOAA Climatic Data Center

Jim Newberry, Island Insurance

Raymond Tanabe, NOAA National Weather Service

Sally Ziolkowski, Federal Emergency Management Agency, Flood Insurance Mitigation Division

## Senior Advisors

Cheryl Anderson, University of Hawai'i at Mānoa

Eddie Bernard, Retired from NOAA

Stanley Boc, U.S. Army Corps of Engineers

Margaret Davidson, NOAA

Victoria Keener, East-West Center, Pacific Regional Integrated Science and Assessments

John McCarroll, Environmental Protection Agency

Penehuro Lafale, Joint Center for Disaster Research, Massey University, Wellington, NZ

Eileen Shea, Partnership for Pacific Resilience

Michael Shulters, Retired from U.S. Geological Survey

Ed Young, NOAA National Weather Service

## Hui Steerspersons

### Communications

Jimmy Lagunero, University of Hawai'i at Mānoa

H. Ginger Porter, University of Hawai'i at Mānoa

### Health Security

### Indigenous Knowledge and Environment

Jean Tanimoto, NOAA Office for Coastal Management — Pacific Islands

Ramsay Taum, Life Enhancement Institute of the Pacific

### Information Access and Geospatial Technology

Eric Yamashita, National Disaster Preparedness Training Center

### Risk Assessment and Planning

Kitty Courtney, TetraTech

### Training and Education

Russell Uyeno, National Disaster Preparedness Training Center

### Resilient Communities

Colby Stanton, FEMA

# Tuesday, March 10 PRE-CONFERENCE TRAININGS AND WORKSHOPS

	ROOM 317B	ROOM 318	ROOM 319	ROOM 321
8:00 AM – NOON	NDPTC/Hi-DRAW Visualization Tools of Disaster Damage Assessment	(10:00 a.m. – Noon) VICTree Gardens: Homegrown Security	MGT-460 Planning for Disaster Debris Management	
NOON – 1:00 PM	Lunch (on your own)			
1:00 PM – 5:00 PM		Coastal Resilience Assessment Stakeholder Workshop for Hawaii	MGT-460 Planning for Disaster Debris Management <i>(continued)</i>	

# Wednesday, March 11

	ROOM 317B	ROOM 318	ROOM 319	ROOM 321
8:00 AM – 9:00 AM	Registration and Breakfast			
9:00 AM – 10:00 AM	<p style="text-align: center;"><b>Opening Protocol</b></p> <p style="text-align: center;"><b>Welcome</b></p> <p style="text-align: center;"><b>Keynote Speaker: The Honorable Fiame Naomi Mata’afa, Deputy Prime Minister of Samoa</b></p>			
	Group Photo – Steps Fronting Room 313			
10:00 AM – 10:30 AM	Break			
10:30 AM – NOON	Natural-Based Solutions for Community Resilience: Resources and Local Case Studies for Implementing Natural Infrastructure in the Pacific Islands	Build It and They Will Come: Resilience through Education and Training	Knowledge Sharing and Coalition Building to Address the Obstacles of Preventive Actions and Community Resettlement in the Context of Our Climate Crisis	O’ahu Resilience: Plans, Places, People and Nature
NOON – 1:30 PM	Lunch (on your own)			
1:30 PM – 3:00 PM	Building a Successful Retrofit Program	(1:30 – 2:15 p.m.) Hālana ka Mana’o: Lessons for Recovery and Long-Term Resilience from the Kaua’i Floods	Sea Level Rise Adaptation Across the Pacific	<p><b>Presentation Session:</b> Environmental Data and Disaster Risk Reduction</p> <p>Utilizing Fully National Weather Service Decision-Support Services to Strengthen Pre-Disaster Recovery Planning and Preparedness</p>

# Wednesday, March 11 CONTINUED

	ROOM 317B	ROOM 318	ROOM 319	ROOM 321
1:30 PM – 3:00 PM		(2:15 – 3:30 p.m.) Paradigm Shift on Kauai’s North Shore		Enhancing Coastal Community Resilience with Real-Time Notifications, and Long-Term Projections, of Hazardous Wave- Driven Flooding and Erosion Events in West Maui
				Disaster Planning and Preparedness in the Face of Changing ENSO: Evidence from the US-Affiliated Pacific Islands
				Vertical Datums 101
				Aerial Topographic and Bathymetric Lidar Collection in the Pacific Region for Sea Level Rise and Resiliency Planning
3:00 PM – 3:30 PM	Break			
3:30 PM – 5:00 PM	<b>Room 322</b>  Regional Leadership Roundtable  <i>Participation by Invitation Only</i>	Transportation Resilience: University Transportation Center (UTC) Experience	Hui Meeting: Risk Assessment and Planning  Connecting the Dots in Hawaii Government: Who’s Doing What with Resiliency and How Can We Leverage Each Other’s Work?	<b>Presentation Session:</b> Resilient Communities: Housing, Infrastructure, Planning and Mitigation / Recovery: Pre-disaster Recovery Planning and Preparedness
				PRiMO 2019 American Samoa: Outcomes and Highlights



# Wednesday, March 11 CONTINUED

	ROOM 317B	ROOM 318	ROOM 319	ROOM 321
3:30 PM – 5:00 PM				Internal Migration: Marshall Islands Case Study
				Decreasing the Vulnerability of Tourism Micro, Small and Medium Enterprises (MSMEs) to Tropical Cyclones through Disaster Risk Reduction Measures
				Climate Adaptation Science Center: Supporting Climate Resiliency in the Pacific
				Natural Hazard Events as Triggers of Disaster Risk Reduction Policy in Cities Around the World
5:00 PM – 7:00 PM	<p><b>Networking and Poster Reception</b></p> <p><b>Keynote Speaker - RDML Timothy Gallaudet, Assistant Secretary of Commerce for Oceans and Atmosphere and Deputy NOAA Administrator</b></p>			

# Thursday, March 12

	ROOM 317B	ROOM 318	ROOM 319	ROOM 321
8:00 AM – 9:00 AM	Registration and Breakfast			
9:00 AM – 10:00 AM	<p><b>Opening and Recap of Day 1</b></p> <p><b>Opening Speaker - Douglas Domenech, Assistant Secretary, Insular and International Affairs, U.S. Department of the Interior</b></p> <p><b>Keynote Speaker - The Honorable David Panuelo, President of the Federated States of Micronesia</b></p>			
10:00 AM – 10:30 AM	Break			
10:30 AM – NOON	Pre-Disaster Recovery Planning in Hawaii: Examples of State, County, and Community-Level Efforts	Weaving Indigenous Knowledge and Science for Resilient Communities	10-year Perspective of Tsunami Capacity Building	<b>Individual Presentation Session</b>
				Vulnerability Analysis of the Road Network on Oahu under Landslide Susceptibility
				Leveraging Emerging Technology for Predictive Analysis During Complex Incidents
				Are Financially Healthy Nonprofits Better Prepared for Disasters?
Symptoms of PTSD, Anxiety, Depression and Resilience Factors in Vulnerable Coastal Communities of Puerto Rico Post-Hurricane Maria				
To be confirmed				

# Thursday, March 12 CONTINUED

	ROOM 317B	ROOM 318	ROOM 319	ROOM 321
NOON – 1:30 PM	<p><b>Awards Lunch</b></p> <p><b>Presentation of Awards</b></p> <p><b>Cyclone Martin and the Resilience of Atoll People</b>                      Rachel Reeves, author of the book <i>Mātini: The Story of Cyclone Martin, Manihiki, Cook Islands</i>                      Arona Ngari, Director of Meteorological Service, Cook Islands                      The Honorable Henry Puna, Prime Minister of the Cook Islands</p>			
1:30 PM – 3:00 PM	Typhoon Wutip Relief and Recovery in the Federated States of Micronesia  Building Resilient Communities in Yap State, FSM	Designing for Resilience: Strengthening Hawaii’s Critical Infrastructure from Tsunami Hazards	Resilience Learning from, with, and for Islands	<p><b>Presentation Session:</b> Community Perspectives: Place-Based and Traditional Knowledge</p> <p>Wāhine tapuhi ō te Parawhenua Mea kia mataara – Enhancing Tsunami Resilience through Community-Based and Wāhine-Led Research</p> <p>Aligning Work on Slow Changes and Acute Shocks for Community Resilience</p> <p>Remote Communities and Oil Spill Response: Challenges and Lessons Learned from the Makah Tribe</p> <p>Social Networks and Social Capital for Resilience from Natural Disasters</p> <p>Drivers of Flood and Climate Change Risk Perceptions and Intention to Adapt: An Explorative Survey in Coastal and Delta Vietnam</p>

# Thursday, March 12 CONTINUED

	ROOM 317B	ROOM 318	ROOM 319	ROOM 321
3:00 PM – 3:30 PM	Break			
3:30 PM – 5:00 PM	<p><i>PRiMO Conference attendees are welcome to participate in any of the six Hui meetings.</i></p> <p><b><i>Training and Education Hui will meet in Room 316 A/B</i></b></p> <p><i>Disruptive Technology: Training on UAV/Drone Applications for Emergencies and Disaster Response and Recovery</i></p>			
	<p>Hui Meeting: Information Access and Geospatial Technology</p> <p>GIS and Disaster Response/Recovery Coordinated Efforts Statewide</p>	Hui Meeting: IKE Hui	Hui Meeting: Communications	Hui Meeting: Resilient Communities

# Friday, March 13

	ROOM 317B	ROOM 318	ROOM 319	ROOM 321
8:00 AM – 9:00 AM	Registration and Breakfast			
9:00 AM – 9:15 AM	Opening			
9:15 AM – 10:45 AM	<p align="center"><b>U.S. Government Panel: Building a Resilient Pacific</b></p> <p align="center">Moderator: Colby Stanton, Director of Readiness, FEMA Region IX, Pacific Area Office</p> <p align="center">Rear Admiral Tim Gallaudet, Assistant Secretary of Commerce for Oceans and Atmosphere and Deputy NOAA Administrator</p> <p align="center">Dr. Jim Reilly, Director, USGS.</p> <p align="center">Dr. John Wood, Director, Indo-Pacific Outreach, U.S. Indo-Pacific Command (J9)</p> <p align="center">Trigg Talley, Director, Office of Global Change, U.S. State Department</p>			
10:45 AM – 11:00 AM	Break			
11:00 AM – 11:40 AM	Keynote Speaker: Dr. Lori Peek, Director of the National Hazards Center			
11:40 AM – NOON	<p align="center">Closing Protocol</p> <p align="center">Statement from PRIMO Chair</p>			

## MEET OUR KEYNOTE SPEAKERS

### Wednesday, March 11, 2020



### MORNING KEYNOTE SPEAKER

#### **Honorable Fiame Naomi Mata'afa**

*Deputy Prime Minister of Samoa*

Deputy Prime Minister and Minister of Natural Resources and Environment, Honourable Fiame Naomi Mata'afa first entered Parliament in 1985 and is the Member of Parliament from the Lotofaga Constituency on Upolu's South Coast.

Fiame is the first female Deputy Prime Minister of Samoa. She first joined the Cabinet in 1991 as Minister of Education, Sports and Culture. She also served as the Minister of Women, Community and Social Development and in the last Parliamentary term, she was the Minister of Justice and Courts Administration.

Fiame has represented Samoa in the Executive Boards of UNESCO and Governors of the Commonwealth of Learning. She is currently the Chair and Pro-Chancellor of the University of the South Pacific and also the Chair of the Eminent Persons' Advisory Panel (Pacific Leadership Programme) Australia.

Fiame is a member of the Congregational Christian Church of Samoa at Lotofaga, Aleipata.

## MEET OUR KEYNOTE SPEAKERS

### Wednesday, March 11, 2020



#### EVENING KEYNOTE SPEAKER

##### **RDML Tim Gallaudet, Ph.D., USN Ret.**

*Assistant Secretary of Commerce for Oceans and Atmosphere and Deputy NOAA Administrator*

Timothy Gallaudet, Ph.D., was confirmed by the U.S. Senate on October 5, 2017, as the assistant secretary of commerce for oceans and atmosphere for the Department of Commerce in the National Oceanic and Atmospheric Administration.

Dr. Gallaudet was previously a rear admiral in the U.S. Navy, where his most recent assignment was Oceanographer of the Navy and Commander of the Navy Meteorology and Oceanography Command. During his 32 years of military service, Dr. Gallaudet has had experience in weather and ocean forecasting, hydrographic surveying, developing policy and plans to counter illegal, unregulated and unreported fishing, and assessing the national security impacts of climate change. He has led teams of Navy sailors and civilians performing such diverse functions as overseeing aircraft carrier combat operations, planning and conducting humanitarian assistance and disaster response efforts, assisting Navy SEAL Teams during high visibility counter-terrorism operations, and developing the Navy's annual \$52 billion information technology, cyber security and intelligence budget.

Dr. Gallaudet holds a bachelor's degree from the U.S. Naval Academy and master's and doctoral degrees from Scripps Institution of Oceanography, all in oceanography.

## MEET OUR KEYNOTE SPEAKERS

### Thursday, March 12, 2020



#### OPENING SPEAKER

##### **Douglas W. Domenech**

*Assistant Secretary of Insular and International Affairs, U.S. Department of the Interior*

Doug Domenech was nominated by President Donald J. Trump and unanimously confirmed by the United States Senate on September 13, 2017, as the Assistant Secretary for Insular Affairs. On September 18, 2017, he was sworn into office.

The Assistant Secretary's responsibilities were expanded on February 5, 2018 when the Secretary of the Interior signed [Secretarial Order #3361](#), expanding the functions and responsibilities of the Assistant Secretary for Insular Areas to include the [Office of International Affairs](#), and the [Ocean, Great Lakes, and Coastal Program](#). The new expanded portfolio under Assistant Secretary Doug Domenech is now Office of the Assistant Secretary Insular and International Affairs.



# MEET OUR KEYNOTE SPEAKERS

## Thursday, March 12, 2020



### MORNING KEYNOTE SPEAKER

#### **His Excellency David Panuelo**

*President of the Federated States of Micronesia*

His Excellency David W. Panuelo is the Ninth President of the Federated States of Micronesia (FSM).

David Panuelo received a bachelor's degree in political science from Eastern Oregon University in 1987. After earning his degree, Panuelo returned home to Pohnpei where he began his career in the FSM Department of Foreign Affairs as a foreign service officer. He served as deputy ambassador for the FSM Embassy in Fiji and later served in the same role at the FSM Mission to the United Nations. In 1996, he returned home and was named director of the Department of Resource Management and Development for the Pohnpei state government. In 2001, he was called back to the Department of Foreign Affairs where he became assistant secretary for the Division of American and European Affairs. In 2003, he entered the private sector and established various businesses including a construction company, a human services company and the nonprofit Care Micronesia Foundation. In 2011, he was elected Pohnpei state senator and served in that office until his election to the at-large seat in March of this year. On May 11th, 2019, Panuelo was elected by the 21st congress of the FSM to serve as the Nation's ninth President.

## MEET OUR KEYNOTE SPEAKERS

### Thursday, March 12, 2020

#### LUNCHTIME KEYNOTE PANEL

##### **Cyclone Martin and the Resilience of Atoll People**

Author Rachel Reeves and Cook Islands Meteorological Service Director Arona Ngari talk story about Cyclone Martin, a storm that devastated a remote sea-level atoll called Manihiki in the Cook Islands more than 20 years ago. Rachel was commissioned in 2014 to write a book examining not only the 30-foot waves that swept people away from their atoll, but also the impact of climate change on remote Pacific places and the resilience of the people who live in them anyway. Arona, who traces his lineage to Manihiki, worked at the Met Service at the time of the storm, which remains the most fatal in the Cook Islands' recorded history.



##### **Rachel Reeves**

*Author of Mātini: The Story of Cyclone Martin*

Rachel Reeves is a writer and reporter based in the Cook Islands. She has written about such subjects as the aerospace industry that transformed Los Angeles, the Tokelauan diaspora in Hawai'i whose imagined homeland is sinking, and protests against purse seining in the Cook Islands. Her first book, *Mātini: The Story of Cyclone Martin*, was published in 2015. Rachel has co-created publications about the value of traditional knowledge in the Cook Islands, which were funded by grants from the UN's Global Environment Facility and UNESCO. She is the recipient of a grant from Earth Journalism Network and currently using it to write about seabed mining in the Cook Islands. Rachel has a B.A. in International Studies from the University of California Santa Barbara and an M.A. in English/Creative Writing from the University of Hawai'i at Mānoa.

# MEET OUR KEYNOTE SPEAKERS

## Thursday, March 12, 2020



### LUNCHTIME KEYNOTE PANEL

#### **Mr. Arona Ngari**

*Director, Cook Islands Meteorological Service*

The Cook Islands Meteorological Service, operates under the Ministry of Transport and strives to ensure the integrity of the monitoring of the Cook Islands weather observational network so as to enhance the accuracy, effectiveness and understanding of impact-based forecasts. Arona graduated from Massey University with a Diploma in Public Sector Management in 2006 and then with a Master of Business Administration from USP in 2009. Arona started work with the Met Service in February 1984. In 2005, Ngari was elected to the Executive Council of the World Meteorological Organization (WMO), where he represented the region for five years.

## MEET OUR KEYNOTE SPEAKERS

### Thursday, March 12, 2020



#### LUNCHTIME KEYNOTE PANEL

##### **Honorable Henry Tuakeu Puna**

*Prime Minister of the Cook Islands*

Prime Minister Henry Puna assumed office in 2010 and previously served as secretary of the Ministry of Tourism and Transport.

Prime Minister Puna has led the establishment of the world's largest multipurpose marine reserve, Marae Moana, hailed as a major step forward for marine conservation.

Additionally, on January 1, the Cook Islands will become the first South Pacific island nation to officially achieve developed nation status. It was under Prime Minister Puna's premiership that the Cook Islands became, in November 2011, a founding member of the Polynesian Leaders Group, a regional grouping intended to cooperate on a variety of issues, including culture and language, education, responses to climate change, and trade and investment.

# MEET OUR KEYNOTE SPEAKERS

## Friday, March 13, 2020



### MORNING KEYNOTE SPEAKER

#### **Dr. Lori Peek**

*Director Natural Hazards Center and  
Professor of Sociology at University of  
Colorado*

Lori Peek is director of the Natural Hazards Center and professor in the department of sociology at the University of Colorado Boulder. She studies vulnerable populations in disaster and has conducted field investigations in the aftermath of the 9/11 terrorist attacks, Hurricane Katrina, the BP Oil Spill, the Christchurch earthquakes, the Joplin tornado, Superstorm Sandy, and Hurricane Matthew. Peek is author of *Behind the Backlash: Muslim Americans after 9/11*, co-editor of *Displaced: Life in the Katrina Diaspora*, and co-author of *Children of Katrina*. Peek has received numerous awards for her scholarship, teaching, and service to the broader hazards and disaster community. She is past chair of the American Sociological Association Section on Environment and Technology and is currently the president of the Research Committee on Disasters for the International Sociological Association. She is a board member for the William Averette Anderson Fund, which is dedicated to increasing the number of underrepresented professionals in hazards and disaster research and practice.

# MORNING PLENARY PANEL

## Friday, March 13, 2020

### **U.S. GOVERNMENT PANEL: BUILDING A RESILIENT PACIFIC**

PRiMO's 2020 conference aims to strengthen collective action toward building resilience across the Pacific Islands, which share a common set of risks including typhoons, tsunamis, rising sea levels, increasing temperatures, and ocean acidification. Senior representatives from U.S. Government agencies working in the Pacific will discuss their efforts to support the region's development of individual and collective ability to recover from and cope with the natural threats they face. These leaders will explore solutions to better prepare for future events in ways that leverage advances in science and technology and that reflect the culture and values of the Pacific.

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**MODERATOR: COLBY STANTON**  
**Director of Readiness, FEMA Region IX**  
**Pacific Area Office**

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**REAR ADMIRAL TIM GALLAUDET**  
**Assistant Secretary of Commerce for**  
**Oceans and Atmosphere and Deputy**  
**NOAA Administrator**



**DR. JIM REILLY**  
**Director, U.S. Geological Survey**

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**DR. JOHN WOOD**  
**Director, Indo-Pacific Outreach, U.S.  
Indo-Pacific Command (J9)**

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**TRIGG TALLEY**  
**Director, Office of Global Change,  
U.S. State Department**

# Tuesday, March 10

## Pre-Conference Trainings and Workshops

8:00 AM – 12:00 PM

NDPTC/HI-DRAW VISUALIZATION TOOLS OF DISASTER DAMAGE ASSESSMENT | ROOM 317

**Mike Vorce**, *President of Site Tour 360*

This demonstration/training is sponsored by NDPTC and Site Tour 360. This demonstration/training focuses on the use and application of 360 degree imagery, camera equipment, and Google Street View for disaster damage assessment, as well as introducing the use of the technology to assist in documenting assets for pre- and post-disaster recovery. This training will introduce participants to the various hardware camera technology available on the market, the software and imagery processing steps, technical specifications of the various technologies, baseline imagery capture, and allow for some hands on experience. The training will also discuss best practices, integration with other technologies for a greater range of assessment capabilities, and describe experiences based on actual damage imagery capture from recent and past disasters.

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10:00 AM – 12:00 PM

TRAINING: VICTREE GARDENS: HOMEGROWN SECURITY | ROOM 318

**Maraya Camila Ben-Joseph**, *The Olohana Foundation*

Olohana Foundation is presenting a working session focused on VICTRee Gardens™ Virtually interconnected Community Tree Gardens: Emergency food for a family of four for 4-6 days in the event of a natural disaster. Olohana Foundation will present the prototype through film and then have a working session on how to implement the long-term strategic goal of the project which is to increase not just the food security in neighborhoods and watershed regions throughout the island, but to increase the communication and interconnectivity of those community members to reinforce hastily formed networks and emergency manpower needs during natural disasters. Creating, attending to and reinforcing the fabric of connectivity increases the communities capacity to adapt, regenerate, and thrive during times of crisis and times of plenty. This strength, participation level and then involvement of the population should go far beyond the initial audience, impacting the already existing quarter of a million single family dwellings in the City and County of Honolulu. VICTRee Gardens engage the community at the family level, returning authority to mothers and family units, using the gardens as an access point to nature learning and climate science information for the students in the family as well as the family unit as a whole. These Gardens are geared towards informing populations, informing policy making, and creating the natural synthesis needed for good governance, while also offsetting burden on emergency management services by creating immediately local based capacity for families in place, shelter in place, and food in place.

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8:00 AM – 5:00 PM

TRAINING: MGT-460 PLANNING FOR DISASTER DEBRIS MANAGEMENT (NDPTC) | ROOM 319

Disasters such as hurricanes, tornadoes and floods can create enormous volumes of debris. Debris can hinder response and recovery efforts, cause costly delays, and pose significant logistical challenges. Debris management can be extremely complex, and creating, testing, and training to a pre-disaster debris management plan specific to the area is key to successful operations.

This management-level course is designed to enable participants to identify debris management components and the best planning practices using existing plan examples and case studies. Participants will also draft an outline of a debris management plan. MGT-460 Planning for Disaster Debris Management provides participants with the knowledge, skills, and tools necessary to create pre-disaster debris management plans for their own communities.



The goal of this course is to enable participants to outline a disaster debris management plan and recognize special considerations when planning for debris management after a natural disaster.

Course Modules:

- Introduction to Disaster Debris Management Planning
- Disaster Debris Management Plan Components
- Scenario Based Learning

At the conclusion of this course, participants will be able to:

1. Explain the basic concepts of debris management operations and the benefits of debris management planning
2. Outline the key components of a debris management plan
3. Apply strategies for special considerations encountered during debris management operations to plan outlines

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## 12:00 PM – 1:00 PM

LUNCH ON YOUR OWN

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## 1:00 PM – 5:00 PM

### COASTAL RESILIENCE ASSESSMENT STAKEHOLDER WORKSHOP FOR HAWAII'Ī | ROOM 318

During this workshop, learn about the Coastal Resilience Assessments and understand how assessment products can be used locally to prioritize management options and develop resilience solutions for Hawai'i. Help the Project Team identify and gather data needed to find open-space areas where implementing nature-based projects will maximize benefits to both human communities and fish and wildlife.

Register by sending your name and contact information to [kristen.byler@nfwf.org](mailto:kristen.byler@nfwf.org).

# Wednesday, March 11

8:00 AM – 9:00 AM

REGISTRATION AND BREAKFAST

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9:00 AM – 10:00 AM

OPENING PROTOCOL

**Welcome**

KEYNOTE SPEAKER

Hon. Fiame Naomi Mata'afa, *Deputy Prime Minister of Samoa*

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10:00 AM

GROUP PHOTO ON STEPS FRONTING ROOM 313

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10:00 AM – 10:30 AM

COFFEE BREAK

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10:30 AM – 12:00 PM

NATURAL-BASED SOLUTIONS FOR COMMUNITY RESILIENCE: RESOURCES AND LOCAL CASE STUDIES FOR IMPLEMENTING NATURAL INFRASTRUCTURE IN THE PACIFIC ISLANDS | ROOM 317B

Jeff Payne, *NOAA Office for Coastal Management*

Greg Fisk, *BMT Group*

David Rissik, *BMT Group*

Lauren Long, *Lynker/CSS at NOAA Office for Coastal Management*

Justine Nihipali, *Hawai'i Coastal Zone Management Program*

Natural infrastructure approaches are increasingly recognized by coastal communities as effective options to reduce coastal flooding, manage stormwater runoff, adapt to climate change, and protect the quality of coastal waters and ecosystems. This session will focus on using natural infrastructure to enhance resilience in the Pacific islands, from national policies, resources and information to local island-specific implementation. This session will also provide an opportunity for participants to share natural infrastructure projects they are working on and where natural infrastructure would be useful in enhancing resilience.

Presentations:

1. Green Infrastructure in the Hawai'i Ocean Resource Management Plan
2. How do we realise the opportunities of EbA using mangroves in the Pacific Region?
3. NOAA Resources Supporting Natural Infrastructure Implementation

## TRANSPORTATION RESILIENCE FORUM | ROOM 318

**Transportation Resilience: University Transportation Center (UTC) Experience***Eric Yamashita, University of Hawai'i, National Disaster Preparedness Training Center***A Multi-disciplinary Approach to Mitigating Sea Level Rise Impacts: Educating Communities, Professionals, and Policy-Makers***Wendy Meguro, University of Hawai'i at Mānoa***Planning, Designing, and Operating Resilient Transportation Systems and Infrastructure: Policy and Practice***Brian Wolshon, Louisiana State University***Transportation Resilience to Natural Hazards and Climate Change***Suwan Shen, Urban and Regional Planning Department, University of Hawai'i**Oceana Francis, Associate Professor, Civil and Environmental Engineering and Sea Grant College Program, UH Mānoa**Wendy Meguro, Assistant Professor, School of Architecture and Sea Grant College Program, UH Mānoa**Ray Chang, Assistant Professor, Department of Security and Emergency Services, Embry-Riddle Aeronautical University**Qing-Chang Lu, Professor, Department of Traffic Information and Control, Chang'an University, Xi'an, China*

## KNOWLEDGE SHARING AND COALITION BUILDING TO ADDRESS THE OBSTACLES OF PREVENTIVE ACTIONS AND COMMUNITY RESETTLEMENT IN THE CONTEXT OF OUR CLIMATE CRISIS | ROOM 319

*Julie Maldonado, Livelihoods Knowledge Exchange Network / Rising Voices**Heather Lazrus, National Center for Atmospheric Research / Rising Voices**Timi Melei, Minister of Education, Tuvalu**JR Naquin, Isle de Jean Charles Biloxi-Chitimacha-Choctaw Tribe**Kristina Peterson, Lowlander Center**Isabel Rivera-Collazo, University of California, San Diego**Kukuya Marguerita Noguera Vidal, Coalition of Indigenous Taino People United*

In some extreme circumstances, coastal territories around the world are becoming unviable to maintain livelihoods and settlements due to, for example, increasing flooding, coastal erosion, and/or sea level rise. Yet, there are significant policy obstacles and practical and regulatory challenges of community-wide actions. For example, most US federal policies and programs are written and designed based on individual—not community—rights. For many tribes and culturally connected communities, receiving support only at the individual level for processes such as relocation or other responses further scatters communities and perpetuates the harms such as loss of culture and identity incurred through forced assimilation policies. Often, the challenges dealt to at-risk communities are founded on centuries of injustices and accrued unpaid reparations. It is taking decades for communities to move forward with their proactive efforts. Panelists will engage in this ongoing conversation to share recent developments, challenges, and actions they are undertaking. This panel session will bring together community leaders and allies from diverse island and coastal locations from the mainland U.S., Caribbean Islands, and the Pacific Islands to share their stories and lived experiences of the challenges they have faced in working through the spectrum of preventive actions to build community resilience, to developing plans to be ready in case adapting in place is no longer viable, to those who have spent decades proactively working on community resettlement that holds their community's rights and cultural sovereignty intact. The session will include participatory sharing and generating ideas around addressing obstacles and coalition building to support communities' efforts from preventive planning to implementation.

**O'AHU RESILIENCE: PLANS, PLACES, PEOPLE AND NATURE | ROOM 321**

**Robert Franco**, *Kapi'olani Community College, University of Hawai'i*

**Albie Miles**, *University of Hawai'i West O'ahu*

**Keone Kealoha**, *Executive Director, Kanu Hawai'i*

A Community Resilience Hub is a facility and accompanying processes co-designed to function under almost any conditions, including natural disasters. The purpose is to collaborate with community members and organizations to effectively support their communities and each other through shocks and stressors. Developing an island-wide Resilience Hub Network is an important part of City and County of Honolulu's Resilience Strategy. By the end of 2020, the City will create, with broad input from key stakeholders, a Resilience Hub Action Plan that will capture community interest in resilience hubs, and develop location assessments, available infrastructure, and a framework for the prioritization of resilience elements.

Hau'ula provides a "best practice" in developing resilience hubs in a rural setting and the informative and inspiring story of its development, assets, opportunities, and challenges, will be shared by the leaders of this effort. The discussion will also include key issues of food system resilience, with a focus on the newly formed "Emergency Food and Food System Resilience Working Group" in Hawai'i; topics include outreach strategies for community awareness and readiness (e.g., adequate food storage), public-private partnerships, and policy initiatives.

Kapi'olani Community College is developing a Center for Neighborhood Resilience initially focused on Waikiki and then on Palolo/Kaimuki, where the College has established strong HUD-funded partnerships. Current efforts emphasize disaster readiness for the elderly and food production and distribution. The College can convene leadership across government, community, business, and other sectors to address environmental issues and climate challenges, and has numerous academic programs that can be deployed to increase resilience. This proposed Center enacts a strategic vision for engaging community partners in mitigating current and future grand challenges arising from environmental degradation, natural hazards, food security, and a rapidly aging population.

Our PRiMO workshop will explore scenarios for resilience hubs in rural settings and urban neighborhoods, strategies for launching these hubs, and the roles local, state, and federal agencies and foundations, and private sector investors can play in bringing the scenario to life.

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## 12:00 PM – 1:30 PM

LUNCH ON YOUR OWN

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## 1:30 PM – 3:00 PM

### **BUILDING A SUCCESSFUL RETROFIT PROGRAM | ROOM 317B**

**Asia King**, *Risk Analyst, Mitigation Division, FEMA Region IX, on FEMA retrofitting lessons learned assessment*

**Dennis Hwang**, *University of Hawai'i Sea Grant College Program, NOAA, on Hawai'i Homeowners Handbook and outreach/education planning*

**Marcus Aydlett**, *NOAA, Weather Ready Nation Ambassadors Program*

While some Pacific jurisdictions have created hardened homes and shelters, others remain at risk from high winds, floods, and storm surge associated with disasters. The City and County of Honolulu's 'Oahu Resilience Strategy, for example, indicates that "two out of every three O'ahu single-family homes will not provide sufficient shelter during a Category 1 hurricane or even a strong tropical storm and are in need of strengthening." This session will bring together national and local experts to examine the lessons learned from past and present retrofitting initiatives. Issues to be discussed include technical and policy aspects of retrofitting initiatives; a Hawai'i-based Education and Outreach Plan designed to reach a much greater percentage of the population with non-traditional methods of outreach and education, specifically targeting the hard-to-reach skeptical community members; potential public/private partnerships; potential lessons for Pacific jurisdictions; and proposals to encourage additional progress in strengthening homes in the Pacific.

## 1:30 PM – 2:15 PM

### HĀLANA KA MANA'O: LESSONS FOR RECOVERY AND LONG TERM RESILIENCE FROM THE KAUA'I FLOODS | ROOM 318

**Mehana Vaughan**, *Department of Natural Resources and Environmental Management and UH Sea Grant College Program, University of Hawai'i at Mānoa*

**Nelson Masang**, *University of Hawai'i at Mānoa*

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

**Kammie Tavares**, *University of Hawai'i at Mānoa*

With climate change, more typhoons, floods, fires and other local level ecological disasters threaten Hawai'i communities. In 2018, the island of Kaua'i, one of the wettest spots on earth, received approximately 50 inches of rain in 24 hours, causing flooding across the island. Landslides closed the only highway, traveled by over a million tourists each year. Communities all along the coast found themselves isolated. Community members and local nonprofits quickly organized to check on neighbors, evacuate tourists and reunite families by boat, deliver meals, conduct door to door assessments of family needs, staff medical teams, and clear storm debris. Less immediate actions included community coordination of home rebuilding and cleaning water ways to prevent future floods. One year after the floods, graduate students from the University of Hawai'i at Mānoa interviewed over seventy community members, including first responders, government officials, non-profit leaders and flood survivors to document their experiences and learning. Some emerging lessons include the importance of strong local level institutions and networks, neighbor-to-neighbor response, and local knowledge of changing ecological patterns such as historic stream paths. Community led government supported actions, local level jobs in proactive management of natural resources and rebuilding in anticipation of future disasters, rather than pushing to simply return to "normal" all promote long-term resilience.

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## 2:15 PM – 3:00 PM

### PARADIGM SHIFT ON KAUA'I'S NORTH SHORE | ROOM 318

**Lee Steinmetz**, *County of Kaua'i*

**Joel Guy**, *Hanalei Initiative*

**Nadine Nakamura**, *State Representative*

**Sue Kanoho**, *Kaua'i Visitor Bureau*

**Alan Carpenter**, *Hawai'i State Parks*

The crisis of Kaua'i's North Shore flood event of April 2018 also brought opportunity to change the status quo on the North Shore at one of Kaua'i's most heavily travelled destinations: Hā'ena State Park. A working group representing multiple State and County agencies and the community worked together to implement plans that normally would have taken a decade, but are being implemented in one year to address congestion, visitor impact on communities, and protection of sensitive resources.

This session will provide a statement of problems that needed to be addressed (congestion, safety, impact to sensitive resources), an overview of plans that were developed prior to the flood (Hā'ena State Park Master Plan, Tourism Strategic Plan, Shuttle Feasibility Study), and how a multi-agency and community working group worked together to fast-track implementation. In addition to plans and policy, legislative steps that were taken to support implementation will also be discussed. Challenges along the way and next steps will be presented.

The process used may be a model for other parts of the State facing similar issues. The panel will also discuss elements that are critical to success for those who may wish to consider a similar process.

## SEA LEVEL RISE ADAPTATION ACROSS THE PACIFIC | ROOM 319

Makena Coffman, *Institute for Sustainability and Resilience, UH Mānoa*  
Michael Bruno, *Provost, University of Hawai'i at Mānoa*  
Charles Fletcher, *Associate Dean, SOEST University of Hawai'i at Mānoa*  
Benjamin Graham, *Former Chief Secretary, RMI, Asia Development Bank*  
Maxine Burkett, *Professor of Law, UHM*

Hawai'i and Pacific Islands are increasingly vulnerable to a number of direct and indirect threats related to climate change. Leading global projections assert continued use of fossil fuel-based energy and resulting greenhouse gas emissions - further evidenced by the U.S. moving to pull out of the Paris Agreement. This will make it exceedingly difficult to achieve the target of limiting warming to 1.5-2°C above pre-industrial levels. As such, communities across the Pacific (and the world) must brace for what was initially considered "worst case scenarios" of expected climate change impacts. Physical impacts, that can be categorized as "shocks," include increased likelihood of land-falling hurricanes, intensive rain events, extended and deepening drought, and marine heat waves. "Stressors" include growing urban heat, sea level rise and a host of impacts to marine and terrestrial ecosystems. The social and economic damages to Pacific Island communities from climate change are clearly vast - though just recently being well understood and documented. This panel will include leaders in sea level rise adaptation policy from Hawai'i and the Pacific to discuss the range of responses from building new islands to enabling managed retreat. The panelists will discuss the social and economic implications of such policies in the context of shared yet distinct land use regimes across the Pacific.

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## ENVIRONMENTAL DATA AND DISASTER RISK REDUCTION | ROOM 321

### Utilizing fully, National Weather Service Decision Support Services to Strengthen Pre-Disaster

Scott Rozanski, *NOAA National Weather Service Pago Pago*

### Enhancing Coastal Community Resilience with Real-Time Notifications, and Long-Term Projections, of Hazardous Wave-driven Flooding and Erosion Events in West Maui

Tara Owens, *Hawai'i Sea Grant*

Fiona Langenberger, *Pacific Islands Ocean Observing System (PacIOOS)*

### Disaster Planning and Preparedness in the face of Changing ENSO: Evidence from the US-Affiliated Pacific Islands

Rashed Chowdhury, *Pacific ENSO Applications Climate Center, Joint Institute for Marine and Atmospheric Research, University of Hawai'i at Mānoa*

### Vertical Datums 101

Ed Carlson, *National Geodetic Survey*

### Aerial Topographic and Bathymetric Lidar Collection in the Pacific Region for Sea Level Rise and Resiliency Planning

Megan Blaskovich, *Woolpert*

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## 3:00 PM – 3:30 PM

COFFEE BREAK

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## 3:30 PM – 5:00 PM

## REGIONAL LEADERSHIP ROUNDTABLE | ROOM 322

*Participation by Invitation*

**BUILD IT AND THEY WILL COME: RESILIENCE THROUGH EDUCATION AND TRAINING | ROOM 318**

Karl Kim, *University of Hawai'i, National Disaster Preparedness Training Center*

Andrew Duncan, *INVEST DM Project, Chief of Party, Mercy Corps*

Micah Fisher, *Research Associate, INVEST DM Project, National Disaster Preparedness Training Center and University of Hawai'i*

Zaherman Muabessi, *Director of Collaboration, Legal Unit of BNPB (Indonesia National Disaster Mitigation Agency)*

Dody Ruswandi, *BNPB (Indonesia National Disaster Mitigation Agency) Senior Trainer*

Tiare Eastmond, *Regional Advisor-Pacific, USAID/OFDA*

Nicole Boothman-Shepard, *Vice President Resilience + Recovery, AECOM*

Integrating perspectives from Hawai'i, Indonesia, and other places, this session will look at efforts to build resilience through training and education. We will consider both pre-service and in-service training programs, their evolution and relationships to national preparedness goals and the training landscape. What is the role of universities, governments, NGOs and others in developing and delivering curriculum and content for emergency management and disaster risk reduction? How is this linked to formal education (degrees and certificates) and lifelong learning which occurs in the field, on-the-job, and working on disaster response, recovery, mitigation and adaptation? What is the essential knowledge, skills, and values to be included in training and education programs? How should the content be delivered? What are indicators and determinants of student and institutional effectiveness? The panel will include senior officials, academics and those involved in the development and delivery of training and education to build resilient systems.

**HUI MEETING: RISK ASSESSMENT AND PLANNING - CONNECTING THE DOTS IN HAWAII GOVERNMENT: WHO'S DOING WHAT WITH RESILIENCY AND HOW CAN WE LEVERAGE EACH OTHER'S WORK? | ROOM 319**

Elton Ushio, *Kaua'i Emergency Management Agency*

Pam Eaton, *County of Maui*

Matthew Gonser, *City and County of Honolulu, Office of Climate Change, Sustainability and Resiliency*

Douglas Le, *Hawai'i County*

This panel session will bring together state and county officials and subject matter experts to discuss how they are integrating community resilience and climate adaptation across a range of plans and strategies and how we can improve inter-agency coordination to avoid redundancy and capitalize on each other's work. Local government officials and resilience specialists from Hawai'i Sea Grant will provide updates on ongoing work around integrating hazards and resilience considerations into planning. This includes improving disaster recovery preparedness, addressing sea level rise in community plans, and community-based vulnerability assessments. This session aims to capture emerging best practices from local and national experts for improving resilience across a range of state and county plans. Community development, infrastructure improvements, and hazard mitigation in Hawai'i are guided by state and county plans and policies that don't always "talk" to each other as well as they could. In this era of climate change, local governments are also embarking on climate action plans and resilience plans/strategies. These plans and policies are often carried out by individual agencies with distinct mandates. For example, a county hazard mitigation plan that meets FEMA federal guidelines might be carried out by the emergency management agency. The community plans are carried out by the planning department following county code. And now the concept of resilience plans are often coming from the cabinet level. These plans all share the goal of improved resilience to hazards, and there are similarities in the information that they provide. To that end, there are growing needs and opportunities to consider how these plans, strategies, and responsible agencies can be aligned to optimize outcomes.

RESILIENT COMMUNITIES: HOUSING, INFRASTRUCTURE, PLANNING AND MITIGATION / PRECOVERY: PRE-DISASTER RECOVERY PLANNING AND PREPAREDNESS | ROOM 321

**PRiMO 2019 American Samoa: Outcomes and Highlights**

Ginger Porter, *Pacific International Training Desk, NDPTC*

**Internal Migration: Marshall Islands Case Study**

Angela Saunders, *International Organization for Migration*

**Decreasing the Vulnerability of Tourism Micro, Small and Medium Enterprises (MSME's) to Tropical Cyclones through Disaster Risk Reduction Measures**

Thalia Balkaran, *The University of the West Indies*

**Climate Adaptation Science Center: Supporting Climate Resiliency in the Pacific**

Heather Kerker, *Pacific Islands Climate Adaptation Science Center*

**Natural Hazard Events as Triggers of Disaster Risk Reduction Policy in Cities around the World**

Daniel Nohrstedt, *Department of Government and Centre of Natural Hazards and Disaster Science (CNDS), Uppsala University, Sweden*

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**5:00 PM – 7:00 PM**

NETWORKING AND POSTER RECEPTION

KEYNOTE SPEAKER

Rear Admiral Tim Gallaudet, *Assistant Secretary of Commerce for Oceans and Atmosphere and Deputy NOAA Administrator*

POSTER PRESENTATIONS

*See Conference Program Addendum*



# Thursday, March 12

## 8:00 AM – 9:00 AM

REGISTRATION AND BREAKFAST

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## 9:00 AM – 10:00 AM

OPENING SPEAKER

Douglas Domenech, *Assistant Secretary of Insular and International Affairs*

KEYNOTE SPEAKER

His Excellency David Panuelo, *President of the Federated States of Micronesia*

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## 10:00 AM – 10:30 AM

COFFEE BREAK

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## 10:30 AM – 12:00 PM

PRE-DISASTER RECOVERY PLANNING IN HAWAII: EXAMPLES OF STATE, COUNTY, AND COMMUNITY-LEVEL EFFORTS | ROOM 317B

Moderator: Karl Kim, *National Disaster Preparedness Training Center*

Roberto Porro, *National Disaster Preparedness Training Center*

Brad Romine, *Hawaii Sea Grant*

Chris Cunningham, *City and County of Honolulu*

Tara Owens, *Hawaii Sea Grant*

Jim Buika, *County of Maui*

Recent disasters have highlighted the vulnerability of coastal communities across the nation, and particularly that of islands. Hawaii is especially vulnerable due to its exposure to a multitude of hazards as well as its isolation. This vulnerability is expected to increase with climate change, as has already been evident from the unusually active hurricane seasons and intense rain events of recent years. Historically, pre-disaster planning efforts have focused on the response, mitigation and preparedness phases of the disaster management cycle. Less attention has been given to long-term recovery. This has begun to change, with a growing body of academic literature and examples of pre-disaster recovery plans across the country.

The importance of pre-disaster recovery planning has also been recognized in Hawaii, with several recent initiatives sparking discussions and planning efforts around this previously unexplored issue. Examining potential impacts, stakeholder roles and authorities, and long-term recovery alternatives prior to a disaster increases chances of a successful recovery post-disaster. This panel session will highlight some of the ongoing and recent efforts to look at these issues in Hawaii, including efforts at the State, County, and Community levels. These include the recently released *Guidance for Disaster Recovery Preparedness in Hawaii*, (Hawaii, Sea Grant, State of Hawaii, Tetra Tech, Inc.); the City and County of Honolulu's long-term recovery planning efforts (Office of Climate Change, Sustainability and Resiliency); Maui County's reconstruction guidelines and protocols (County of Maui, Hawaii, Sea Grant) and the Waikiki Pre-Disaster Recovery Planning Project (National Disaster Preparedness Training Center, Waikiki Businesses Improvement District Association); among others.

As the pre-disaster recovery planning field is still evolving, plans are continually being tested and lessons being drawn. This panel will provide the opportunity to share knowledge across panelists and session participants to help current and future pre-disaster planning efforts in Hawaii, and elsewhere.

### Pre-covery Planning for Post-Disaster Housing: Urban Risk Lab Toolkit

Lily Bui, *Massachusetts Institute of Technology Urban Risk Lab*

Recovery planning for post-disaster is best done before a disaster event even occurs. This is the ethos behind 'pre-covery' planning. The MIT Urban Risk Lab Pre-Planning Toolkit is an interactive guide that assists localities in identifying and organizing information related to their unique constraints and priorities for housing resilience and recovery. The information presented through the toolkit is intended to help localities determine their strategic objectives and to strengthen their operational capacities before, during, and after a disaster. Beyond articulating priorities for post-disaster and resilience planning for housing, the Toolkit seeks to help localities integrate their strategies with existing disaster plans.

The Toolkit is divided into three levels: in the 'Basic' level Toolkit, the user learns about disaster-related housing, in the 'Intermediate' level Toolkit, the user plans for disaster-related housing assistance, and in the 'Advanced' level Toolkit, the user aims to change their local environment to better facilitate the distribution of disaster-related housing assistance. Each level in the Toolkit is broken into the same four steps: consider long-term housing objectives, evaluate hazards and vulnerabilities, review federal disaster-related housing assistance, and review federal mitigation assistance.

Thus far, the Toolkit has been piloted in three U.S. localities: Sacramento and Yolo County, CA; Savannah, Chatham County, GA; and Toa Baja, PR. This presentation will provide a walkthrough demo of what the Basic Toolkit entails, as well as brief case studies of the pilot communities.

## WEAVING INDIGENOUS KNOWLEDGE AND SCIENCE FOR RESILIENT COMMUNITIES | ROOM 318

**Moderator: Manuel Mejia**, *The Nature Conservancy - Hawai'i*

**Kalani Souza**, *Olohana Foundation*

**Kanoe Morishige**, *University of Hawai'i*

**Kawika Winter**, *He'eia National Estuarine Research Reserve*

**Tarcisius Kabutaulaka**, *University of Hawai'i at Mānoa*

**Failautusi Avegalio Jr.**, *University of Hawai'i at Mānoa*

With rising sea levels and more frequent extreme weather events, we need to expand our toolbox for mitigating and adaptation to climate change. Trusting the science behind climate change and where models can forecast which regions of the coastline will be inundated under storm surges and or king tides, in combination with place-based knowledge should provide communities with down-scaled forecast models, will help with pre- and post-disaster planning and recovery. A panel comprised of UC Santa Cruz and USGS modelers will present on their latest models on coastal protection from coral reefs, followed by local community leaders from Hawai'i, presenting on their longer term, on-the-ground observations and what their communities are doing to become more resilient (traditional food production systems and lifestyles, land management practices to improve human wellbeing). The moderator will actively engage the panelists and audience to better understand how weaving both the latest science with place-based ecological knowledge can enhance our ability to proactively mitigate and adapt to coming changes and how to increase our communities' resilience.

## 10-YEAR PERSPECTIVE OF TSUNAMI CAPACITY BUILDING | ROOM 319

**Rocky Lopes**, *Retired from NWS Tsunami Program*

**Yoshiki Yamazaki**, *University of Hawai'i*

**Arletta Peau**, *American Samoa Dept. of Homeland Security*

**Leo Espia**, *Guam Dept. of Civil Defense/Homeland Security*

**Jonathan Villagomez**, *CNMI Dept. of Homeland Security*

This session will provide a robust history of tsunami capacity building for interests of the United States in the Pacific between 2009 and 2019. During that time, American Samoa experienced a devastating tsunami. Other islands have had major hits from typhoons, hurricanes, volcanic eruptions, and floods.

Through these years, the resilience of our colleagues on the CNMI, Guam, American Samoa, and Hawai'i has been an example of positive and productive public safety, preparedness, mitigation, mapping, outreach, education, and are true examples of what resilience means.

Having served as the Administrator of the National Tsunami Hazard Mitigation Program (NTHMP) during this time, and also managing the NOAA Tsunami Activities Grants process at the headquarters of the National Weather Service, the speaker has a unique perspective on the resilience efforts on our U.S. islands for tsunami activities.

This session will present details on activities accomplished by these U.S. territories and state, given by professional leadership from these locations. The overall session summary will provide a positive path forward for ongoing accomplishments from which others may learn, replicate, and apply in the future.

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## INDIVIDUAL PRESENTATION SESSION | ROOM 321

### Vulnerability Analysis of the Road Network on 'Oahu under Landslide Susceptibility

Guohui Zhang, *University of Hawai'i*

### Leveraging Emerging Technology for Predictive Analysis During Complex Incidents

Jason Krause, *Louisiana State University*

### Are Financially Healthy Nonprofits Better Prepared for Disasters?

Paul Manson, *Portland State University*

### Symptoms of PTSD, Anxiety, Depression and Resilience Factors in Vulnerable Coastal Communities of Puerto Rico Post-Hurricane Maria

Claudia Cruz Tirado, *University of Puerto Rico, Mayagüez Campus*

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## NOON – 1:30 PM

### AWARDS LUNCH

#### Presentation of PRiMO Awards

#### Presentation of NDPTC Award

#### Cyclone Martin and the Resilience of the Atoll People

Moderator: Rachel Reeves, *Author of the book Mātini*

Honorable Henry Puna, *Prime Minister, Cook Islands*

Arona Ngari, *Director of Meteorological Service, Cook Islands*

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## 1:30 PM – 3:00 PM

### FEDERATED STATES OF MICRONESIA SESSION | ROOM 317B

#### Typhoon Wutip Relief and Recovery in the Federated States of Micronesia

Tiare Eastmond, *USAID/OFDA*

Jan Morrow, *USAID/OFDA Agriculture Technical Advisor*

This session will provide an overview of the impact of Typhoon Wutip across 30 remote atoll and island locations in the Federated States of Micronesia. The session will review the results of a post-disaster needs assessment across the major humanitarian sectors. Participants will be engaged in the case study to apply disaster-resilient approaches to relief and recovery based on the assessment's findings in small group settings. A discussion of the food security of the typhoon-affected populations will focus on core food crops grown on the island, including breadfruit, taro, bananas, and coconuts. The session will also review how the USAID-FEMA hybrid approach to disasters in FSM was activated during this response using lessons learned from the past.

## Building Resilient Communities in Yap State, FSM

Cheryl Morgan, *Catholic Relief Services*

Catholic Relief Services (CRS)- Micronesia is pleased to present our abstract for, “The Pacific Risk Management ‘Ohana” (PRiMO) conference on building a resilient Pacific for the Pre-disaster Recovery Planning and Preparedness theme.

CRS has been working in Yap since early 2017 to implement the 30-month United States Agency for International Development/Office of Foreign Disaster Assistance (USAID/OFDA) funded disaster risk mitigation project in 5 Municipalities and 6 Outer Island Settlements in Yap State, FSM. The Adaptive Community Transformation (ACT) on Yap project promoted precovery and aimed to increase the capacity of vulnerable communities to prepare for and recover from frequent typhoons and droughts. The project engaged municipal chiefs, village chiefs, and other community leaders as well as individual households to build capacity in four (4) sectors: 1) Disaster Risk Management, 2) Savings and Internal Lending, 3) Agriculture and Food Security, and 4) Water, Sanitation, and Hygiene (WASH).

To foster precovery, the project adapted a series of proven training modules for building disaster risk management capacity which have been tested and standardized by previous CRS projects around the globe. The approach trained local leaders on basic concepts of community-based disaster risk management (CBDRM) and climate change adaptation (CCA). The project also facilitated the establishment and training of community task forces to ensure that emergency response efforts are comprehensive and that clear roles and responsibilities are publicized prior to an emergency. The project then accompanied the newly trained task forces in conducting GIS-based community risk assessments and in developing CDRM/CCA plans, which included early warning systems and evacuation center management policies. The training course culminated in a community-wide simulation exercise to test and refine contingency plans and clarify the roles of taskforce members. Once the community-level CDRM/CCA plans were finalized, CRS co-invested in disaster risk reduction initiatives that were prioritized through a participatory planning process at the community level.

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## DESIGNING FOR RESILIENCE: STRENGTHENING HAWAII’S CRITICAL INFRASTRUCTURE FROM TSUNAMI HAZARDS | ROOM 318

Justine Nihipali, *Hawaii Coastal Zone Management Program*

Ian Robertson, *University of Hawaii*

Gary Chock, *American Society of Civil Engineers*

The Hawaii Coastal Zone Management (CZM) Program is strengthening Hawaii’s resilience to coastal hazards through the recently completed Probabilistic Tsunami Design Zone Maps for ‘Oahu. Tsunami have been identified as a high risk and priority natural hazard for both the 2013 and 2018 State of Hawaii Multi-Hazard Mitigation Plans.

Devastating events throughout the world, such as the events of Tohoku (2011) and Indonesia (2018), have demonstrated the risk to communities in the face of tsunami events. Hawaii’s building stock is particularly vulnerable to tsunami from sources generated throughout the “Pacific Ring of Fire.” In response, the American Society of Civil Engineers (ASCE) has worked towards more stringent building codes for structures of critical importance to withstand tsunami loads and effects.

The CZM program has taken the next step to refine mapping products to be used in conjunction with the ASCE standards to better inform critical infrastructure building design and future siting.

The session highlights the nexus of utilizing probabilistic mapping to inform policy implementation, discusses the future applications of the Probabilistic Tsunami Design Zone maps, and demonstrates the impact on strengthening resiliency of existing and future critical infrastructure throughout the State.

Panelists will represent broad perspectives from government, academia, and engineering practice, and describe how these entities have partnered together to effectuate change in coastal communities on ‘Oahu, with the intention to build upon this success throughout the State.

## RESILIENCE LEARNING FROM, WITH, AND FOR ISLANDS | ROOM 319

Karl Kim, *University of Hawai'i, National Disaster Preparedness Training Center*

Santos Rivera Cardona, *University of Puerto Rico Mayaguez*

Leonardus Tumuka

Phillip Drake, *University of Kansas*

Resilience Learning from, with, and for Islands. This session will bring together practitioners and researchers focused on the resilience of islands in the Pacific and across the world which have experienced recent disasters. There are key challenges as well as opportunities to integrate place-based strategies for response and recovery and address concerns regarding not just supply chains and the hazards of distance and isolation. In addition to robust networks to support mutual aid, there are also pressing needs to increase self-sufficiency, agility, and reliance on social capital, community assets, natural systems, local knowledge, and island systems for response and recovery. Drawing on experiences from Hawai'i, Samoa, as well from Puerto Rico, Virgin Islands, and the Bahamas, the session will also seek to identify new strategies for partnering and connecting and building resilient approaches to response and recovery. How can islands build a "culture of preparedness" and promote greater capabilities to manage hazards, threats, and risks?

## COMMUNITY PERSPECTIVES: PLACE-BASED AND TRADITIONAL KNOWLEDGE | ROOM 321

### Wāhine tapuhi ō te Parawhenua Mea kia mataara- Enhancing Tsunami Resilience through Community-Based and Wāhine-Led Research

Lucy Kaiser, *GNS Science/Massey University*

Kristie-Lee Thomas, *GNS Science*

### Aligning Work on Slow Changes and Acute Shocks for Community Resilience

David Perkes, *Gulf Coast Community Design Studio*

### Remote Communities and Oil Spill Response: Challenges and Lessons Learned from the Makah Tribe

Haley Kennard, *Makah Tribe Office of Marine Affairs*

### Social Networks and Social Capital for Resilience from Natural Disasters

Kiyomi Kawamoto, *Associate Professor, Toyo University*

### Drivers of Flood and Climate Change Risk Perceptions and Intention to Adapt: an Explorative Survey in Coastal and Delta Vietnam

Chong Chinh Ngo, *Asian Management and Development Institute*

P. Marijn Poortvliet

## 3:00 PM – 3:30 PM

COFFEE BREAK

## 3:30 PM – 5:00 PM

### HUI MEETING: INFORMATION ACCESS AND GEOSPATIAL TECHNOLOGY | ROOM 317B

#### GIS and Disaster Response/Recovery Coordinated Efforts Statewide

Garrett Johnson, *Kaua'i GIS*

Alex Wong, *Kaua'i GIS*

Jim Hayden, *C&C Honolulu GIS*

Jonathan Levy, *C&C Honolulu GIS*

All four counties and the State experienced disasters during 2018, all had to cope with intense, quickly-evolving demands for GIS products during the events and developed ad-hoc solutions. After a year of self-evaluation, now is an opportunity to compare notes, look at ways to standardize products and prepare for future events. This session focuses on the GIS tools, needs and requirements for effective disaster response and recovery. The intent is to work towards coordinated standards in data, processes, and analyses across each county and with the State of Hawai'i. Participants, who would GIS analysts and coordinators from the counties and State of Hawai'i, and emergency management will identify:

- What was the recent experience,
- What was useful/what was not, and
- How might the tools be standardized/easier to use
- Were the GIS products useful? did they include information that was useful to Emergency Management?
- What info did the products lack?
- Was the presentation/format useful?

Are there data and information that should be identified, collected, and compiled pre-disaster or pre-recovery?

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### HUI MEETING: INDIGENOUS KNOWLEDGE AND ENVIRONMENT HUI | ROOM 318

#### Finding the Quantitative within the Qualitative

We erroneously think stories are shaped by people; in fact stories shape people. Critical stories have connections to the best science, best practices, and relationship to the art of survival. Could the science of storytelling be directly linked to the art of survival? Is our capacity to adapt directly linked to our ability to communicate? As remotely sensed and ground based science capabilities increase, science communication relies even more on storytelling to convey this research; moving content from data collection to stories, anecdotes and narratives which are much easier to comprehend. Non-expert audiences often get the majority of their scientific information from mass media relying on stories that are relevant and resonate. This panel will share their experiences of how traditional storytelling demonstrates multiple ways of knowing including practices that encourage sustainability and communicate lessons learned today through more effective storytelling, artful, compelling media, and more impactful results. This panel hopes to call attention to indigenous storytelling as an option worth adding to the repertoire of resilience planners and practitioners who aim to: (1) link resilience actions to indigenous worldviews; (2) stress the importance of connections between indigenous peoples and their sense of place; (3) facilitate intergenerational transfer of indigenous knowledge; (4) support dialogue on the evolution of resilience practices by looking to the past; and (5) offer a constructive approach for greater inclusion of indigenous peoples in resilience planning.

## HUI MEETING: COMMUNICATIONS | ROOM 319

The PRiMO Communications Hui will be meeting to connect with our Communications Hui members and anyone else that is interested in or involved in Communications. Our focus and priority are to have an open dialogue on the types of equipment and processes in use, that provide hazards and warning information to users as well as to review communications best practices and lessons learned during recent events affecting the region.

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## HUI MEETING: RESILIENT COMMUNITIES | ROOM 321

PRiMO is creating a Resilient Communities Hui to foster a Resilient Pacific by encouraging Pacific Island communities and individuals to ensure their dwellings and structures are prepared for disaster, and that insurance is in place to protect what they've built. This first meeting of the Hui will provide an opportunity for interested parties to discuss ideas for incentives to retrofit and social marketing and consider demonstration projects. The group will also discuss potential strategic partnerships with non-governmental organizations and community groups to support their work in championing retrofitting and leverage existing national campaigns like #HurricaneStrong.

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## HUI MEETING: TRAINING AND EDUCATION | ROOM 316A

### **Disruptive Technology: Training on UAV/Drone applications for Emergencies, Disaster Response, and Recovery**

National Disaster Preparedness Training Center (NDPTC)

National Domestic Preparedness Consortium (NDPC)

This hui session will be led by NDPTC/NDPC members. This session will discuss what training currently is provided or coming soon from the Federal Emergency Management Agency, National Training, and Education Division through the NDPC. The training available through FEMA is centered around topics of establishing a UAS program within your organization (e.g., first responder or emergency management agency), counter-drone capabilities and applications for first responder and emergency management, managing UAS for emergency response, accident reconstruction, and critical infrastructure inspection. The session will discuss the current needs and gaps in training for UAS operations for emergencies and disaster response and recovery.

# Friday, March 13

**8:00 AM – 8:30 AM**

REGISTRATION AND BREAKFAST

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**9:00 AM – 10:45 AM**

WELCOME

## U.S. GOVERNMENT PANEL: BUILDING A RESILIENT PACIFIC

PRiMO's 2020 conference aims to strengthen collective action toward building resilience across the Pacific Islands, which share a common set of risks including typhoons, tsunamis, rising sea levels, increasing temperatures, and ocean acidification. Senior representatives from U.S. Government agencies working in the Pacific will discuss their efforts to support the region's development of individual and collective ability to recover from and cope with the natural threats they face. These leaders will explore solutions to better prepare for future events in ways that leverage advances in science and technology and that reflect the culture and values of the Pacific.

**Moderator:** Colby Stanton, *FEMA Region IX Pacific Area Office*

Rear Admiral Timothy Gallaudet, *Assistant Secretary of Commerce for Oceans and Atmosphere and Deputy NOAA Administrator*

Dr. Jim Reilly, *Director, U.S. Geological Survey*

Dr. John Randolph Wood, *Director, Indo-Pacific Outreach, U.S. Indo-Pacific Command (J9)*

Trigg Talley, *Director, Office of Global Change, U.S. State Department*

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**10:45 AM – 11:00 AM**

COFFEE BREAK

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**11:00 AM – 11:40 AM**

KEYNOTE SPEAKER

Dr. Lori Peek, *Director Natural Hazards Center and Professor of Sociology at University of Colorado*

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**11:40 AM – 12:00 AM**

PRiMO CLOSING CEREMONY



# JOIN US FOR A FREE PUBLIC EVENT

## Storm & Disaster Preparedness Info Day

SATURDAY, MARCH 14TH, 2020 | 9:00 AM - 2:00 PM |  
HAWAII CONVENTION CENTER | ROOM 316

**Come learn how to protect your family, home or commercial building from intense storms, then talk to the right person to get the job done!**

### Join Us For:

- A presentation series to learn about impacts of intense storms and what you can do to increase your ability to protect your families and property.
- An exhibit area to have one-on-one conversations with companies and organizations that can provide you information on storm related risks and access to the products and services that can help you prepare.

Homeowners are encouraged to bring information about their building (e.g. year of construction, whether their property is single- or double-walled, and if it is in a high-hazard flood zone) so that onsite experts can help them determine suitable home strengthening retrofits to reduce property damage and make it more likely that they can shelter in place during a tropical storm or hurricane.

### Hosted By:

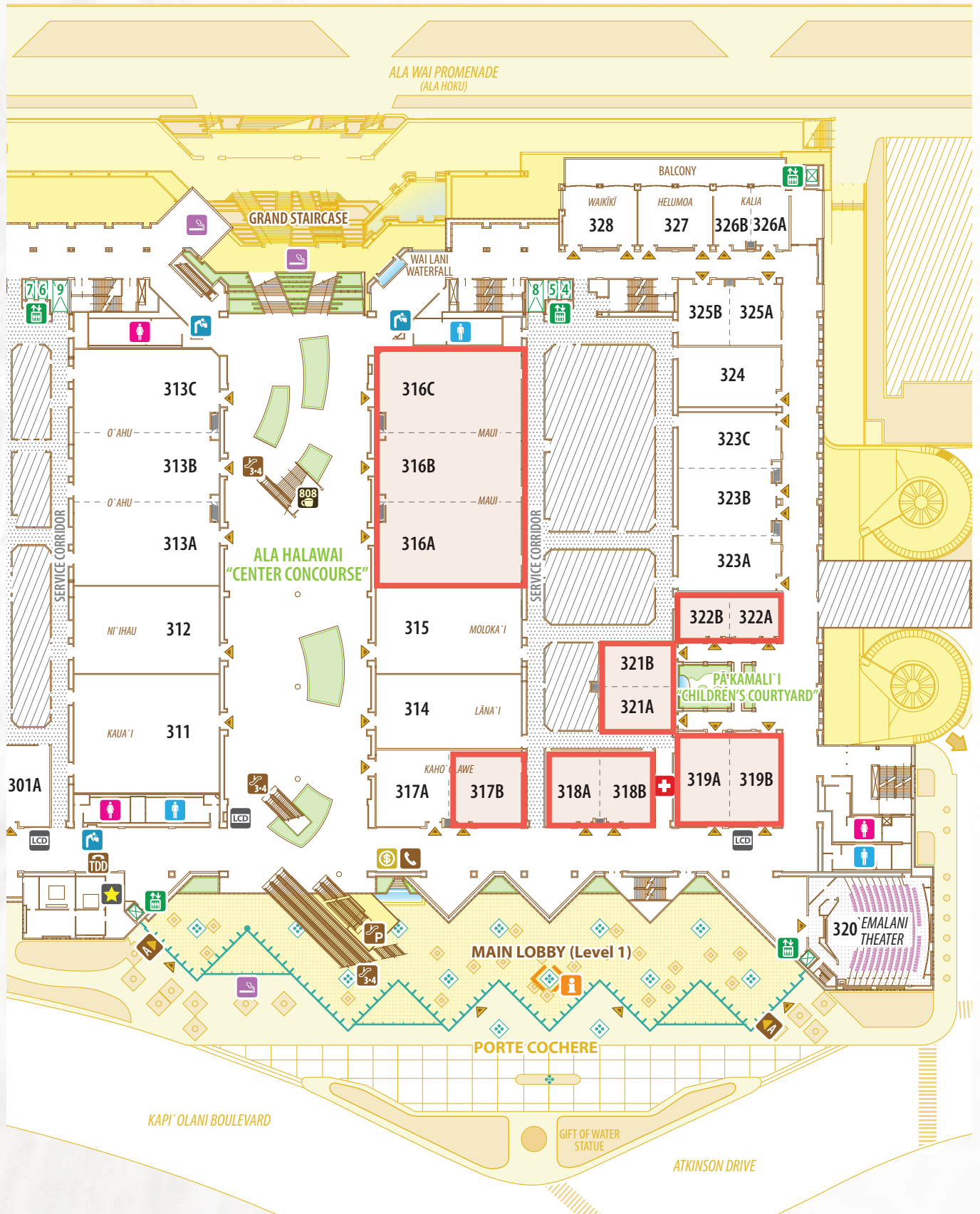


### With Support from Our Partners:

City & County of Honolulu Department of Emergency Management City & County of Honolulu Office of Climate Change, Sustainability, and Resiliency • Federal Emergency Management Agency (FEMA) • Pacific Area Office NOAA Office for Coastal Management • University of Hawai'i — Sea Grant College Program

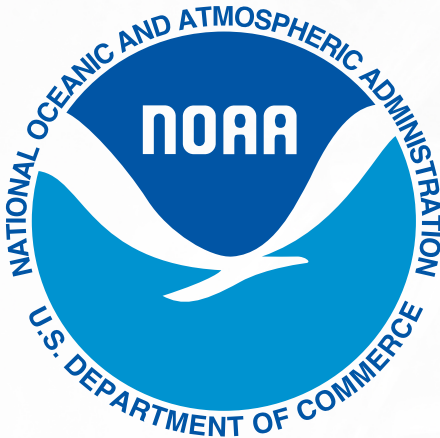
Registration is encouraged at [stormdisasterprep.eventbrite.com](https://stormdisasterprep.eventbrite.com)

# MAP OF HAWAII CONVENTION CENTER



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