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Field Lab #2
RSC5020
December 17, 2018

“Disappearing Shorelines and Managed Retreat: A Conference, A Conversation”
[Complete Audio Recording](#) (~ 7.0 hours)

Date/Time: 7 December, 2018 (10:00 – 17:30)
Location: Wai Ola Church - 535 Waine'e St, Lahaina, HI 96761
Hosted by: Na Papa'i Wawae 'Ula'ula and the West Maui Preservation Association
Format: Panelist Discussions w/ Audience Q&A

Problem

Sea level in Hawai'i is expected to rise by more than 3' as early as 2060 (Sweet et al., 2017) and statewide economic losses that result from increased coastal flooding and erosion are expected to greatly surpass \$19 billion in loss of land and structures alone and render 25,800 acres of land in the State unusable (Hawai'i Climate Commission, 2017). Although many social, cultural, economic and scientific uncertainties surround the issue of sea level rise (SLR) and its future behavior, an essential conversation amongst a broad spectrum of stakeholders is beginning to shape our planning and response decisions to this unavoidable and significant impact. In many sectors, the choices are ever decreasing and will move towards the challenging implementation of difficult adaptation strategies as the sea reclaims miles of Hawai'i's coastlines.

Keynote Address – Dr. Chip Fletcher (UH Prof at SOEST & Vice Chair Honolulu Climate Change Commission)

- Provided a compelling argument, backed by the latest science, that climate change is occurring and will impact Hawai'i in a significant way
- Emissions follow GDP and GDP is expected to increase 130% by 2050
- Cannot deploy renewable energy technology fast enough in developing nations so they are turning to fossil fuels
- IEA stated that we will need negative CO₂ emissions to ensure that the global temperature does not rise past 2°C
- Must participate in the [Global Carbon Law](#) as explained by the Stockholm Resilience Center – individually decrease carbon footprint by 50% every decade
- Greenland Ice Sheet is responsible for much of SLR & it has entered “exponential melt”
- Antarctica is also accelerating
- King tides preclude GMSLR – we are experiencing an increase in king tides in Hawai'i

Summary Notes of Panel Discussions

I. Managed Retreat/Resiliency – Dr. Chip Fletcher (UH Prof at SOEST & Vice Chair Honolulu Climate Change Commission), Brad Romine (UH Sea Grant – Coastal Hazards), Doug Codiga (attorney in climate change law), Shellie Habel (UH Sea Grant – Groundwater Inundation)

- Hawai'i will experience a >70% shoreline retreat due to SLR associated with climate change
- Retreat will be the most logical option
- All solutions for managed retreat will be site specific and carry some level of hardship

- Must provide an exit strategy for legally located individuals
- However, there is a moral hazard of using public tax money to bail out people who knowingly build along the shoreline
- Buyouts are not tenable (land value in HI is too high)
- Deed restrictions and rolling easements
- Continued warming will make the world uninsurable – explore community insurance funding strategies
- Continued research is critical to enable decision makers to implement policy changes
- Strong prohibitions for shoreline hardening / beaches will adapt as long as we get out of the way
- Vertical adaptation and adaptive design needs to be explored

II. County & State Planning for Managed Retreat – Pam Eaton (County Planning Chief, Long-Range Planning Division – Maui County), David Goode (Director of Public Works – Maui County), Jeff Dack (Coastal Resources – Maui County Planning Dept.), Scott Glenn (Director of State Environmental Quality Control)

- Maui Mayor & County Council officially accept the [Hawai'i Sea Level Rise & Vulnerability Report](#)
- Maui County is currently rewriting the entire zoning code to include pedestrian connections, among other tools, to foster more resilient communities
- Strengthen the building code
- Update shoreline setbacks and rules to reflect the erosion hazard zone line modeled by the PacIOOS [Sea Level Rise Viewer](#)
- Increase public participation in the formation of regulatory and planning responses through [workshops](#)
- There is a draft Maui County Retreat Report that will be publicly available soon – it focuses on episodic and chronic problems due to SLR that need to be addressed
- Create a “lei of parks” and wetland restoration to mitigate flood events (increased capture, infiltration, and evaporation)
- Using shoreline open space as a buffer and acquiring new coastal lands through municipal and private land trusts
- Unfortunately, there is a shortfall of money when it comes to implementing Maui Island and Community Plans

III. Realignment of Honoapi'ilani Highway – Lauren Armstrong (Director of Maui Metropolitan Planning Organization), Tamara Paltin (2018 Maui County Council Candidate & Activist), Tiare Lawrence (2018 State Representative Candidate, Activist & Grass-roots Leader in Maui County)

- Realignment of the 8-mile section from Ukumehame to Olowalu is critical because it is the only access road between West Maui and the rest of the Island
- Interrupted access results in a \$20 million per week loss to the West Side Community
- Federal money amounts to \$25 million annually to the County of Maui – enough to cover maintenance, not realignment
- Legislation was passed that added a \$2 per day tax to rental cars for the sole purpose of maintaining roads = \$10 million annually – looking to increase that fee
- The County is exploring a ½ % increase on the General Excise Tax – funds to remain in Maui County to help fund road realignments – there will be an earned income tax credit for those who qualify
- This is an opportunity for the visitor industry to chip in, collaborate, and begin a design study
- It will take an MPO, County, State, and Community collaboration to identify a funding source

IV. Financial Solutions – Dr. Jonathan Scheurer (Environmental Conflict Manager Consultant, Office of Hawaiian Affairs), Albert Perez (Executive Director Maui Tomorrow Foundation), Dr. Victoria Keener (Research Fellow East-West Center, Lead Investigator Pacific RISA – focus on practical applications of climate science for regional decision making), State Representative Angus McKelvey (10th District, West Maui), State Senator Gil Riviere (District 23, North Shore Oahu)

- “Do no more financial damage”
- How do we finance risk? 2 funding mechanisms
 - Chronic Problems
 - Catastrophic Shocks
- Adaptation must be incremental
- Must follow a comprehensive plan
- What are the financial, environmental, and social costs of letting structures “fall into the sea?”
- Make it administratively more difficult to repair existing sea walls on private property – financing for repairs on shoreline property is mortgage contingent/deed restricted
- It is a multijurisdictional problem
 - Bring stakeholders to the table by force
 - Include the community
 - Close loopholes
- Diversify income streams to include the visitor industry
- Encourage people to move out of the way / give them a way out
 - Offer a loan program to help
- Develop Cost Benefit Analysis models that are site specific
- Land swaps – shoreline for upcountry

V. SLR Impacts to Hawaiian Cultural Practices – Miwa Tamanaha (Executive Director of KUA), Felimon Sadang (Native Fisherman & Cultural Practitioner), Ruth Aloua (kia’i loko [fishpond guardian]), Ke’eaumoku Kapu (2018 Candidate for Office of Hawaiian Affairs, chief cultural advisor, practitioner and activist for Kanaka Maoli, advisor and counsel to Nā Papa Kanaka O Pu’ukoholā)

- Bring native and Western networks together to “share the burden”
- Move towards a deep systemic change
- Reframe the message to:
 - “Kanaloa is coming” (Hawaiian *akua* or deity) – What do you do when a god is coming?
 - Must be approached without hubris, there is no managing a god
- We are at a critical threshold on our island, must we increase development?
- differing world views:
 - Western: “Our environment is our economy”
 - Hawaiian: “ Our environment is my *akua*”
- Local and generational knowledge of a place is invaluable
 - the coast has changed, if nothing is done now, it will no longer exist

VI. Solutions for Managed Retreat – Tara Owens (UH Sea Grant on Maui), Kammie Tavares (Masters Candidate w/ Dr. Chip Fletcher), Kristian MacDonald (Masters Candidate w/ Dr. Chip Fletcher), Dave Revell (Chief Scientist, Revell Coastal LLC, CA)

- Within the current system, all values must submit to protecting capital – need to reframe and include the differing values
- Retreat comes in two ways
 - buyouts
 - move the coastal construction control line
- Our existing setbacks are erosion-based and set by 1.1-1.3 ft/year erosion rate

- Revise to match new erosion hazard zone line
- Reframe to look at benefits of retreat
 - more fish
 - more beach
- Must quantify the value of recreation and ecosystem services in new CBA models
- Must quantify the intrinsic value of land
- Inventory the sediment supply sources for beach nourishment
 - natural from the watershed – reconnect mauka to makai (mountain to sea)
 - system restoration of the “sand shed”
- Reimagine architecture
 - vertical
 - adaptive
- Guidance for disaster recovery needs to be developed at a sub-community scale
- Reform insurance program
 - in chronic rebuild situations, 3 strikes and you are out at a reduced damaged buyout price
- Investment properties need to be treated financially different than year-round residences – investment assumes a level of understood risk and reward
- Revamp real estate disclosure to include potential hazards of purchasing shoreline property

Closing Remarks – Archie Kalepa (Captain of the [Hōkūle‘a](#))

- When exploring these issues, we must “put place first and the people second, in this way the people can live in the place”
- There is much at risk: consider the 5 step risk management process
- Be a part of change – “What are you going to do to help create change?”
- Value local knowledge
- “We are all in the same canoe”

References

- Hawai‘i Climate Commission (2017). *Hawai‘i Sea Level Rise Vulnerability and Adaptation Report*. State of Hawai‘i Department of Land and Natural Resources, Office of Conservation and Coastal Lands. Honolulu: HI. Retrieved from https://climateadaptation.hawaii.gov/wp-content/uploads/2017/12/SLR-Report_Dec2017.pdf
- Sweet, W., Horton, R., Kopp, R., LeGrande, A., & Romanou, A. (2017). Sea level rise. In *Climate Science Special Report: Fourth National Climate Assessment, Volume I*. D.J. Wuebbles, D., Fahey, D., Hibbard, K., Dokken, D., Stewart, B., & Maycock, T. Eds. U.S. Global Change Research Program, pp. 333-363. doi:10.7930/J0VM49F2.