



From Mana’o to Mālama: Gathering experiential knowledge of Department of Hawaiian Home Lands beneficiaries to adapt to sea level rise

“It’s quite possible that 25 feet of shoreline has been lost within the last 50 years along Moloka’i’s southern shore,” said Nancy McPherson, Planner and Moloka’i Liaison at the Department of Hawaiian Home Lands (DHHL). Recognizing that many of the coastal parcels they lease are vulnerable to the impacts of rising sea levels, DHHL is working to develop a strategy for addressing those impacts. They have started an effort on Moloka’i by requesting assistance from the University of Hawai’i Dept. of Urban and Regional Planning (UH-DURP) to help them identify vulnerabilities and engage the community in building potential solutions.

“We are very interested in the area of community resilience and coastal hazard mitigation,” said McPherson, who worked as a Community Planner doing coastal zone management for the County of Maui on Moloka’i for 5 years. “I learned quite a bit from Moloka’i residents about some of the issues along the shoreline, the resources, the conditions, and particularly the concerns of native Hawaiians for loss of their resources and displacement from the shoreline.” She brought that knowledge with her to DHHL and was tasked with looking into how the agency could better respond to coastal zone management issues.



Figure 1 Erosion on the south shore of Moloka'i.

“Recently, climate change adaptation and sea level rise issues have been coming to the forefront,” she said, “and we are seeing impacts happening right now on Moloka’i.” One example of coastal erosion that McPherson pointed out was Kiowea Beach Park on the south shore of Moloka’i, where the homestead community was planning to construct a new park facility. The beach park has seen significant erosion in recent years and existing infrastructure on the *makai* (seaward) side of the park was already being impacted. Recognizing the threat to their community’s recreational

resource, homestead leaders asked for advice on the project. It was recommended that they locate the proposed facility *mauka* (inland) from the existing pavilion. This project brought to DHHL’s attention the need to consider the impacts of sea level rise on land and infrastructure on homestead land. As sea levels rise, not only public facilities but also private homes will be impacted.

“In some cases the *makai* boundaries of Hawaiian Home Lands parcels are now extending out in the ocean and houses are vulnerable,” said McPherson. “Especially in Kapa’akea, homesteaders are experiencing a lot of erosion and they want to find ways to stabilize the *makai* boundaries of their parcels.” McPherson



explained that protecting the shoreline is very important to native Hawaiian communities that value the coastal area for recreation, cultural connection and subsistence. “The coastline is an important cultural and natural resource so we need to find a way to sustainably protect it without contributing to erosion down the line.”

Key Message: Educating the public can go a long way in protecting coastal resources.

Homestead lessees are asked to inform DHHL of actions on their land and acquire the necessary permissions but at times, as an emergency measure, shoreline armoring is done without authorization. This type of unpermitted, ad-hoc armoring is happening across the islands but because DHHL has unique land use authorities not subject to County land use regulations, there are unclear guidelines on coastal zone management.

In the absence of clear shoreline management guidelines, DHHL sought to form a strategy. That’s when Professor Luciano Minerbi and graduate students at UH-DURP responded to a call to work with DHHL on a project to assess the vulnerability of DHHL communities on each island. DURP students took on this project as their graduate-level practicum in Spring 2015. With the assistance and participation of coastal homestead beneficiaries, the students produced a comprehensive report including an assessment of the threat coastal hazards pose to homestead lessees, an in-depth analysis of the most vulnerable homestead communities on each of the 5 islands on which homestead lands are located, and an adapted community resilience manual outlining workshops tailored to be specifically implemented in native Hawaiian communities. The report shed light on the extent to which DHHL beneficiaries are vulnerable to coastal hazards, providing data that will support DHHL efforts to increase homestead community resilience.

The following summer, inspired by their practicum work, two practicum students volunteered to implement the methodology outlined in the community resilience manual. They condensed the 3-day workshop into 1 day, interviewing community leaders about observed hazards, disasters and changes to the environment, in



Figure 2 An example of coastal hazard exposure mapping presented in UH-DURP's practicum report.



addition to places of importance to the community. DHHL can then use this information alongside GIS analysis of projected changes to identify areas that need action and protection based on the homestead community's priorities. McPherson appreciates the methodology that the UH DURP students developed because it draws on the extensive observational knowledge of homestead lessees that have grown up and live on the land.



Figure 3 Shoreline armoring along the south shore of Moloka'i.

“When you talk to people who were born and raised on Moloka'i, older people who spend a lot of time on the shoreline, they have traditional ecological knowledge, common sense, observational knowledge,” said McPherson. Including their *mana'o* (thoughts, ideas) gives insight to anecdotal changes that may not be apparent in broad scale GIS modeling, as well as increases their involvement and support of adaptation actions which will be very important on homestead lands.

Key Message: It is important to tap into local observational knowledge and community priorities to inform adaptation planning.

“Beneficiaries are very tied to their place, to their home,” said McPherson. “When you're a native person and you've been displaced, then you're given the opportunity to move back onto the land, I think there's a very strong sense of 'You're never going to displace me again. There's no way that I will be leaving.'”

McPherson hopes that DHHL can thoughtfully navigate climate adaptation and continue the momentum of this work on Moloka'i by using the results from the workshop to inform adaptation action on Moloka'i, and by hosting these workshops in other homestead communities. Ultimately, she would like to see the ideas of community resilience inform all aspects of agency operation. “From a systems standpoint, resilience should be permeating everything we do – it has to be integral. The thing about this kind of planning is that it's interdisciplinary – it has to overcome silos in order to be successful” said McPherson.

Written by Ali Andrews, Tetra Tech; based on an interview with Nancy McPherson, Planner and Moloka'i Liaison at the Department of Hawaiian Home Lands, December 16, 2015.