



HAWAIIAN HOME LANDS

HAWAIIAN HOMES COMMISSION · DEPARTMENT OF HAWAIIAN HOME LANDS

## **Item G-4**

# **So. Molokai Shoreline Erosion Management Plan**

## **Project Update**

January 18-19 2022



# Previous Outreach Activities

- August 2015: Molokai Coastal Homestead Resilience & Disaster Planning Workshop
- November 14, 2018: Informational Meeting for Kapa‘akea and Kamiloloa-One Ali‘i Homesteads
- January 31, 2019: Project Orientation Meeting
- April 2019: HHC Informational Update
- February 10, 2021: First Virtual Focus Group Meeting
- April 2021: HHC Informational Update



# Project Purpose

- Enable DHHL to proactively plan for and manage shoreline erosion
- Investigate underlying causes of shoreline erosion, and likely future progression
- Identify effective and sustainable shoreline erosion management strategies that maintain natural processes and consider community needs
- Educate the community as to causes of shoreline erosion and appropriate management responses.



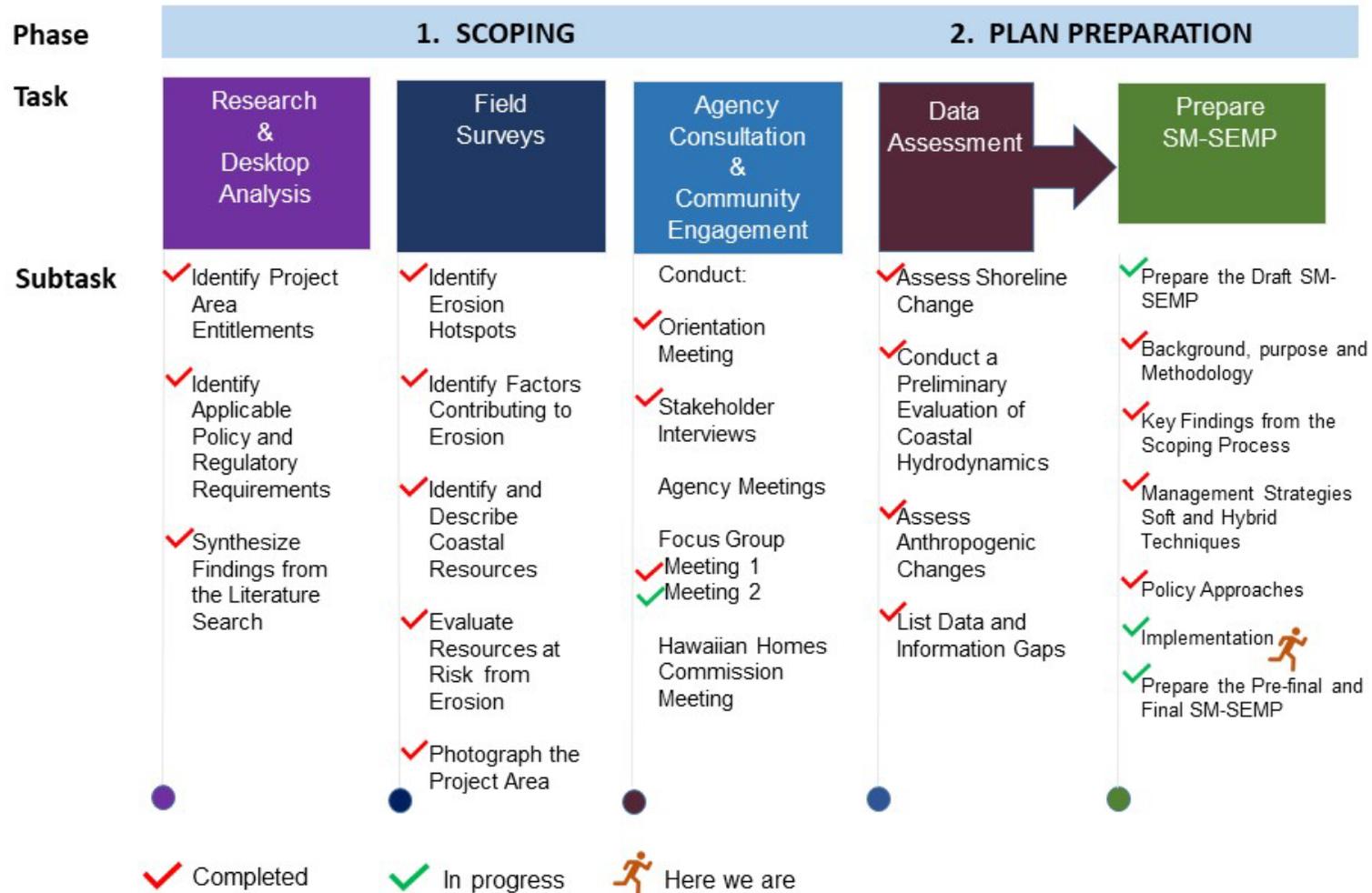
# COVID-related Impacts to Timeline

- Unable to hold in-person workshops since 2019
- Unable to return for follow-up site visits
- Virtual focus group held in February 2021 posed difficulties for full participation (lack of bandwidth or connection, small screen sizes, learning curve for Zoom software)
- Contract extended to end of February, 2022
- Will hold one more focus group at end of January 2022 to get feedback on Draft SM-SEMP
- In-person Community Open House will be held by DHHL staff when safe to do so (tent. April 2022)



# Current Project Status

## SM-SEMP Planning Process





# SEA LEVEL RISE IMPACTS ON MOLOKAI

- Increasing storms (volume + frequency) = FLOODING
- Silt runoff & bleaching impacts on REEFS
- Salt intrusion to WETLANDS
- Coastal erosion leading to seawalls = BEACH LOSS
- Wave overtopping = CLOSED ROADS
- Vulnerable INFRASTRUCTURE
  - Kamehameha V Highway
  - Police Station
  - Fuel Storage Tanks
  - Wastewater Treatment Plant





# SM-SEMP Project Area

Kalama'ula, Kaunakakai (Malama Park) Kapa'akea, Kamiloloa and One Ali'i Hawaiian Home Lands Along the Shoreline that Comprise the Project Area.

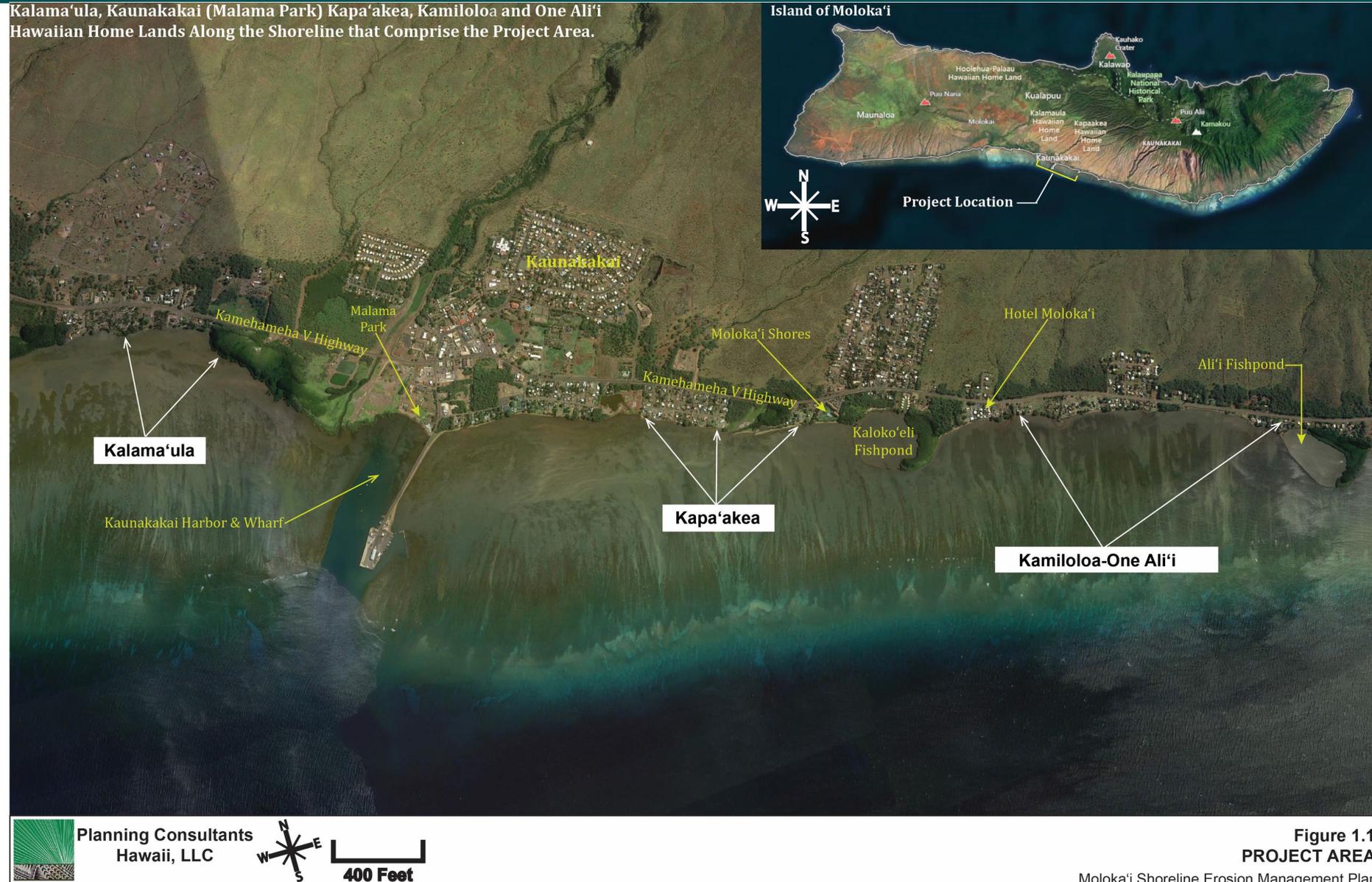


Figure 1.1  
PROJECT AREA

Moloka'i Shoreline Erosion Management Plan



# Draft SM-SEMP - Organization

## Chapter 1 (Introduction)

- Overview of project area's relationship to island as a whole and to coastline of south central Moloka'i.
- Discusses project purpose and objectives, severity of erosion problem, cultural and ecological benefits of a healthy shoreline.

## Chapter 2 (SM-SEMP Planning Process)

- Describes process being used to prepare the SM-SEMP.
  - Phase 1 (Desktop Research)
  - Phase 2 (Field Surveys)
  - Phase 3 (Stakeholder Outreach)
  - Phase 4 (Stakeholder Vetting of Draft Recommendations)
  - Phase 5 (Prepare the Draft and Final SM-SEMP)



# Draft SM-SEMP – Organization (cont.)

## Chapter 3 (Place and Context)

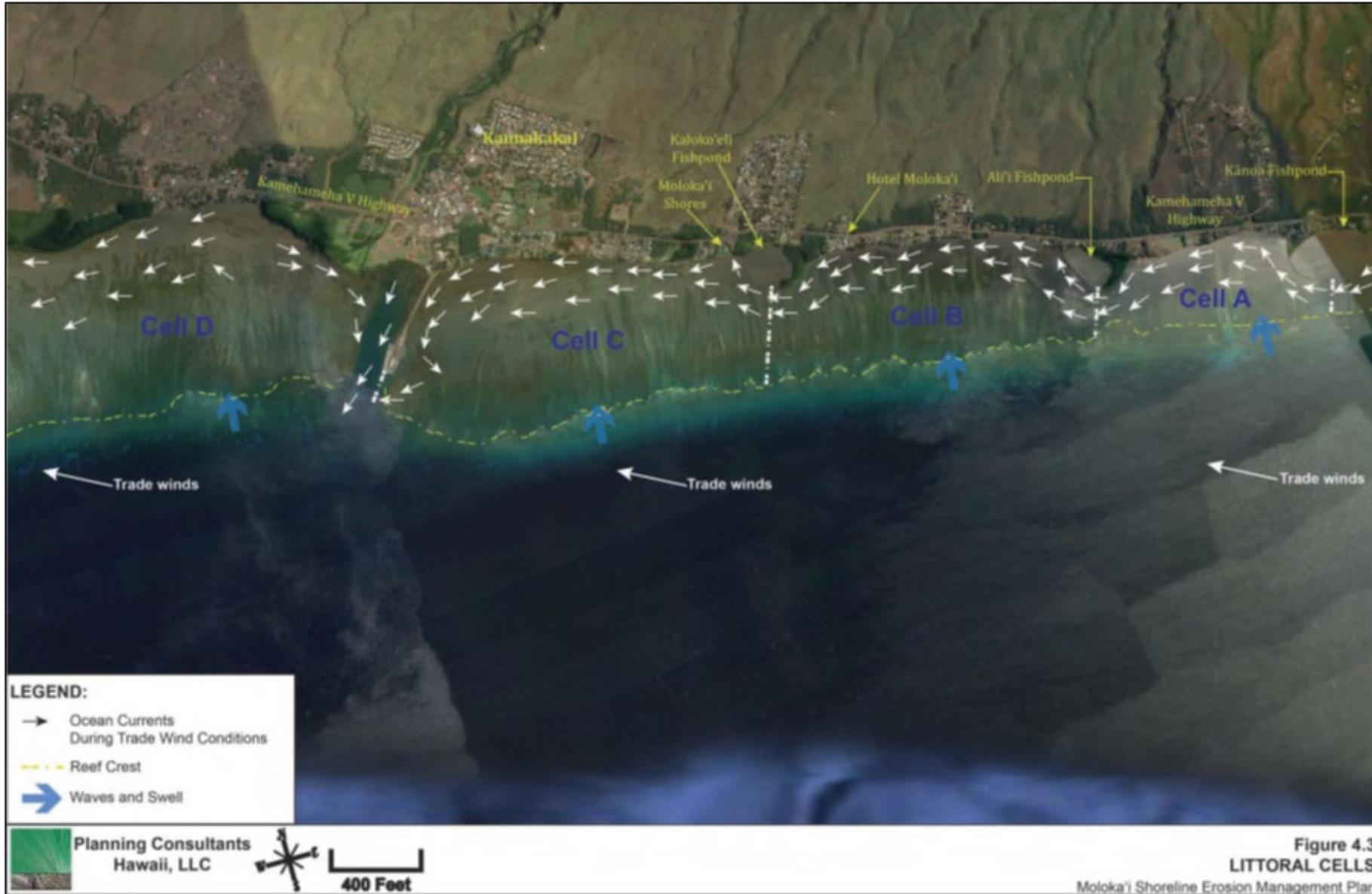
- Analyzes project area within context of Moku and five ahupua'a within the SM-SEMP study area: Kalama'ula, Kaunakakai, Kapa'akea, Kamiloloa, and Makakupa'ia.
- Uses historical maps and photographs to describe how project area has evolved over time in response to human activity.
- Briefly describes socio-economic environment, and planning and regulatory conditions that may influence appropriate responses to shoreline change.

## Chapter 4 (Coastal Hydrodynamics)

- Identifies and describes factors that influence wave energy and physical form of coastline within the SM-SEMP study area, including wave conditions, currents, tidal changes, storm surge, bathymetry, sediment characteristics, and sources of sediment.
- Identifies four littoral cells fronting the DHHL communities. A littoral cell is a coastal compartment that contains a complete cycle of sedimentation including sources, transport paths, and sinks.



# Littoral Cells A-D





# Draft SM-SEMP – Organization (cont.)

## Chapter 5 (Shoreline Erosion Management Options)

- Explores erosion management strategies and describes mitigation approaches ranging from soft, nature-based remedies to hard, man-made structures.
- Explores concept of adapting to shoreline change by realigning structures to reduce their exposure to coastal hazards.

## Chapter 6 (Implementation Strategy)\*

- Identifies appropriate responses to shoreline change, and specific remedies for areas threatened by erosion within littoral cells A through D.

## Chapter 7 (Policy Recommendations)\*

- Provides policy and regulatory options intended to reduce, avoid, minimize, and/or mitigate adverse impacts from coastal hazards on built environment and enhance protection of life, limb, and public safety.
- Suggest policies that will discourage building in harm's way and encourage long-term sustainability.

**\*Second focus group will ask beneficiaries to review Chapters 6 & 7 and provide feedback.**

# Response Options to Changing Shorelines

A continuum of green (soft) to gray (hard) shoreline stabilization techniques

GREEN - SOFTER TECHNIQUES

GRAY - HARDER TECHNIQUES

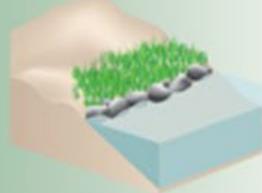
## *Living Shorelines*



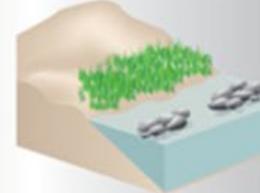
**VEGETATION ONLY -**  
Provides a buffer to upland areas and breaks small waves. Suitable only for low wave energy environments.



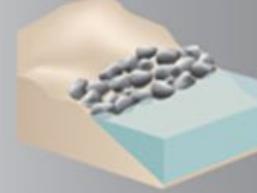
**EDGING -**  
Added structure holds the toe of existing or vegetated slope in place.



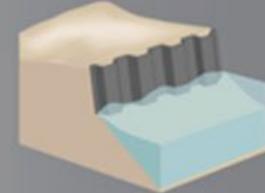
**SILLS -**  
Parallel to existing or vegetated shoreline, reduces wave energy, and prevents erosion. Suitable for most areas except high wave energy environments.



**BREAKWATER -**  
(vegetation optional) - Offshore structures intended to break waves, reducing the force of wave action, and encourage sediment accretion. Suitable for most areas.



**REVETMENT -**  
Lays over the slope of the shoreline and protects it from erosion and waves. Suitable for sites with pre-existing hardened shoreline structures.



**BULKHEAD -**  
Vertical wall parallel to the shoreline intended to hold soil in place. Suitable for areas highly vulnerable to storm surge and wave forces.



# Next Steps

- Results from Feb. 10, 2021 Focus Group meeting processed; finalize Draft SM-SEMP
- Host second Focus Group meeting to get feedback on draft recommendations (end of Jan. 2022)
- Revise draft recommendations to reflect input received during Focus Group Meeting #2
- Provide newsletter update to community (early Feb. 2022)
- Prepare Final Draft of plan and present to HHC (February)
- Host a Community Open House (late Spring/early Summer)
- Finalize Plan; initiate “Developing Community Resilience for Molokai Coastal Homesteads” project

# MAHALO! SOUTH MOLOKAI SHORELINE EROSION MANAGEMENT PLAN

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