



EOLA KA OLOWALU

**A VISION TO PROTECT A CRITICAL REEF
IN WEST MAUI**

**Kim Falinski, PhD
Tamara Farnsworth
Emily Fielding
Scott Crawford
Nalei Sampson**

OUR TEAM



KIM FALINSKI

Dr. Falinski is a water resource engineer and soil scientist specializing in hydrologic connectivity and wetland processes.



TAMARA FARNSWORTH

Ms. Farnsworth comes to TNC from County of Maui, where she spearheaded programs in sustainability. With over a decade of experience in project management to benefit the 'aina, she is the lead Project Manager for our work in Olowalu.



SCOTT CRAWFORD

Scott Crawford is our Maui Marine Program Manager. Scott's work on Maui has included community planning, non-profit management and land-acquisition.



NALEI SAMPSON

Nalei Sampson leads and supports community engagement and partnerships for TNC in Maui Nui and across the islands.



EMILY FIELDING

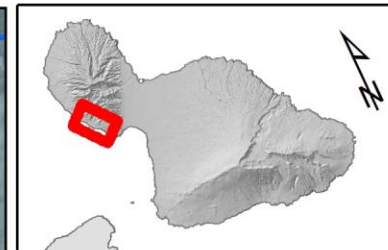
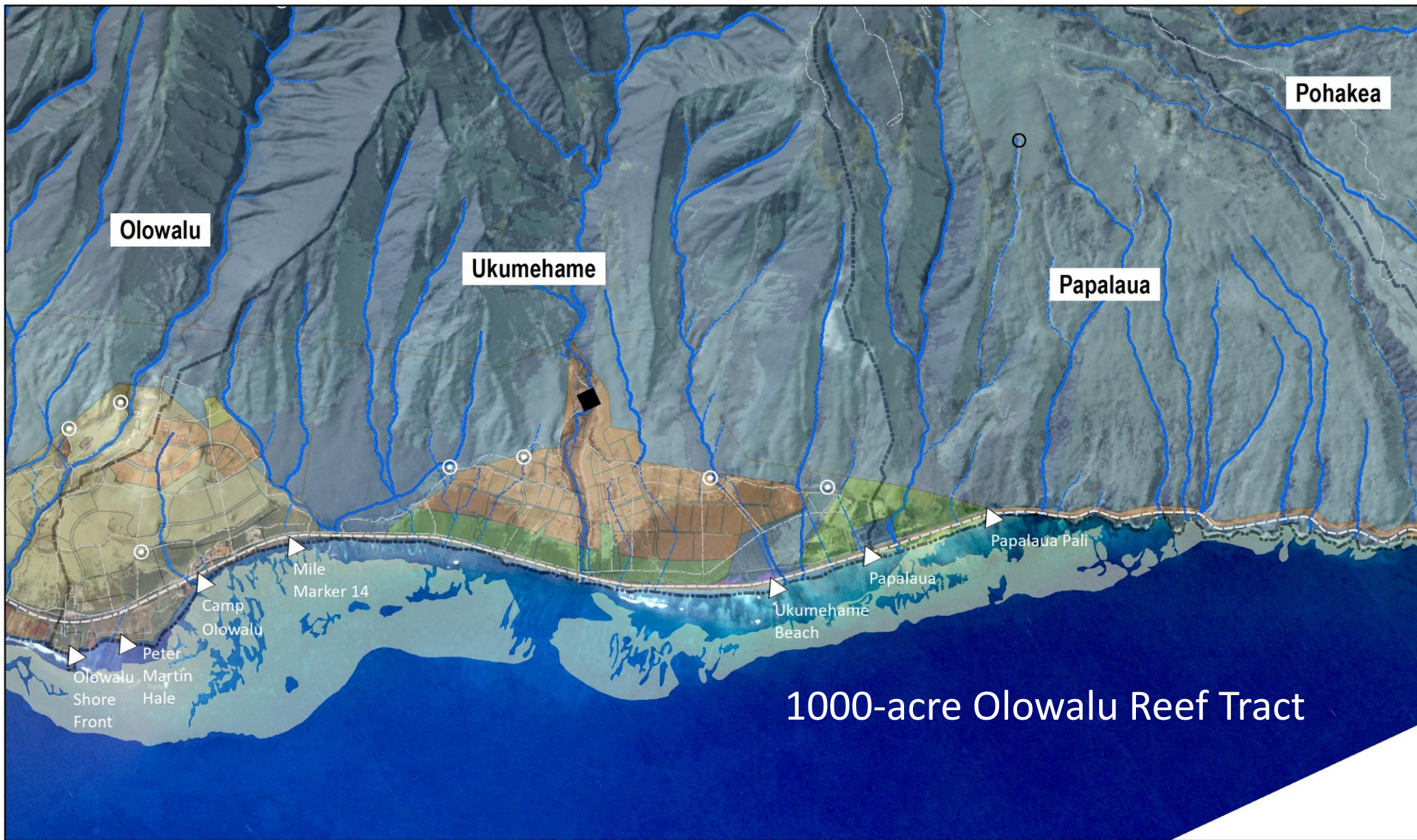
Ms. Fielding has led conservation work on Maui for 15 years and her expertise includes project management, capacity building for community-based marine management and conservation planning for marine protected areas



A RICH HISTORY

“Olowalu”, in addition to being the name of this ahupua'a is also a Hawaiian verb/adjective, used to describe a number of sounds occurring at once, or a din, such as drums beating, dogs barking, or chickens crowing at the sun. La'amaikahiki, who is credited with bringing the drum to Hawai'i from Tahiti in the eleventh century, is called, “O ke ali'i ke olowalu o ka pahu o Hawai'i.” “The ali'i is the rumble of Hawai'i's drums.” Both definitions find resonance at Olowalu Valley.

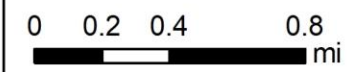
- Wahi Pana
- Cultural Sites
- Indigenous Agriculture



Ownership

Major Owner

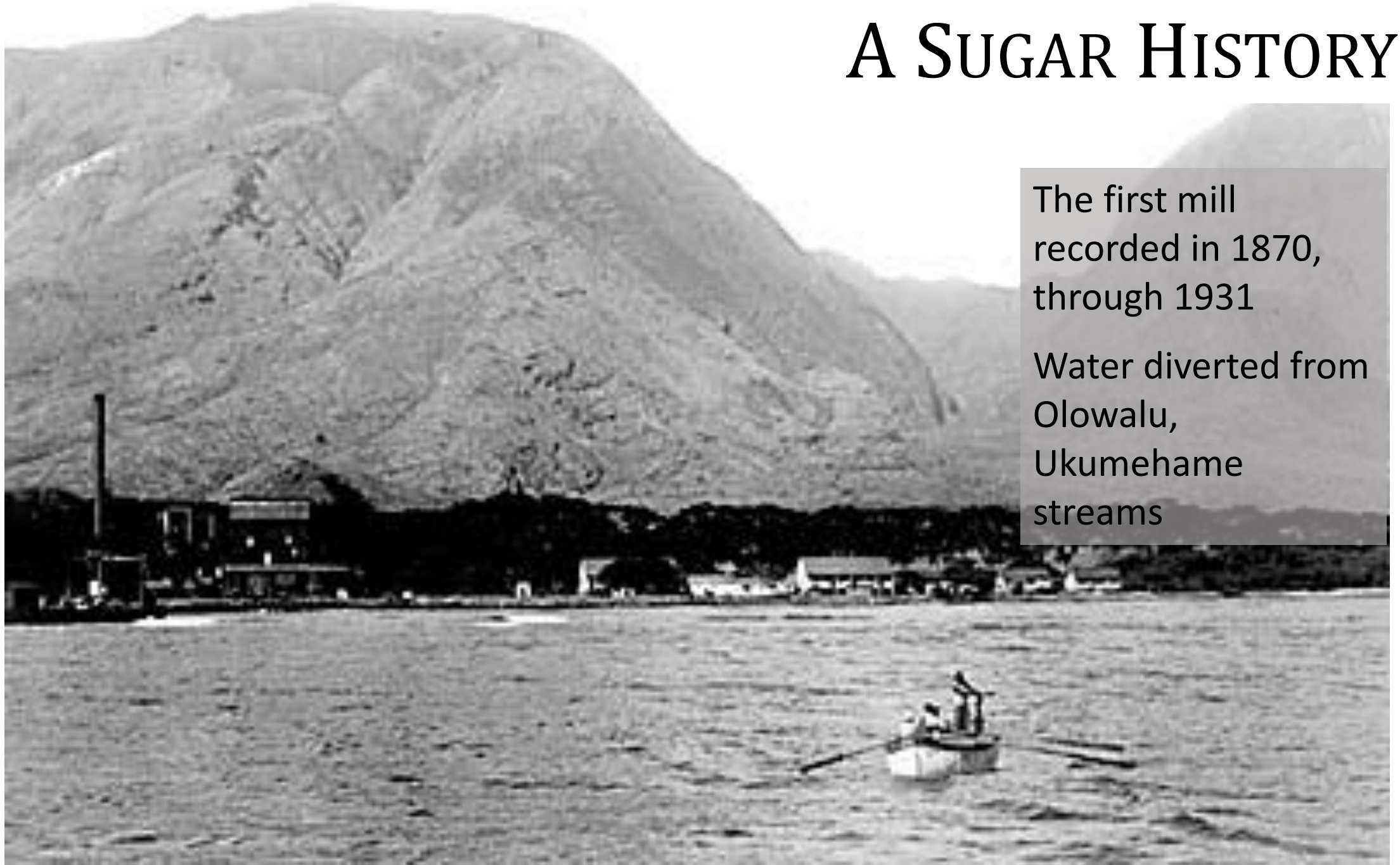
- A.Y. Ting III
- B. & A. Curtis
- Govt. County Maui
- Govt. State
- Hawaii Conf. Foundation
- Olowalu Elua
- other



A SUGAR HISTORY

The first mill
recorded in 1870,
through 1931

Water diverted from
Olowalu,
Ukumehame
streams





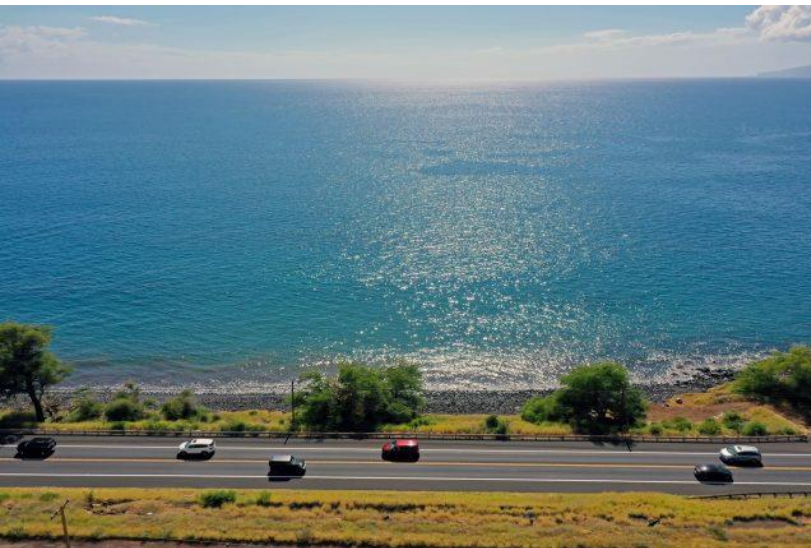
A RISING TIDE

POTENTIAL IMPACTS

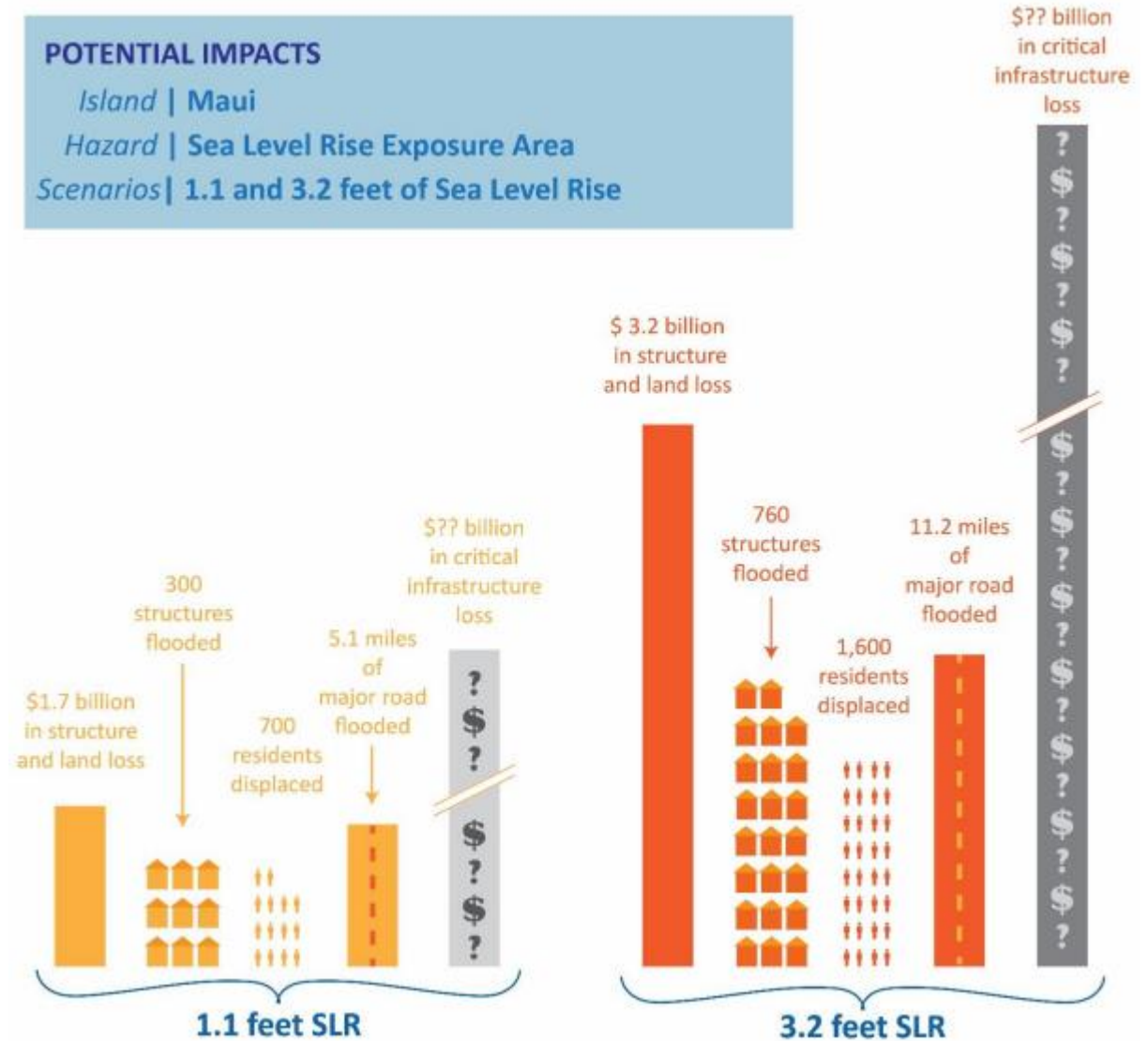
Island | Maui

Hazard | Sea Level Rise Exposure Area

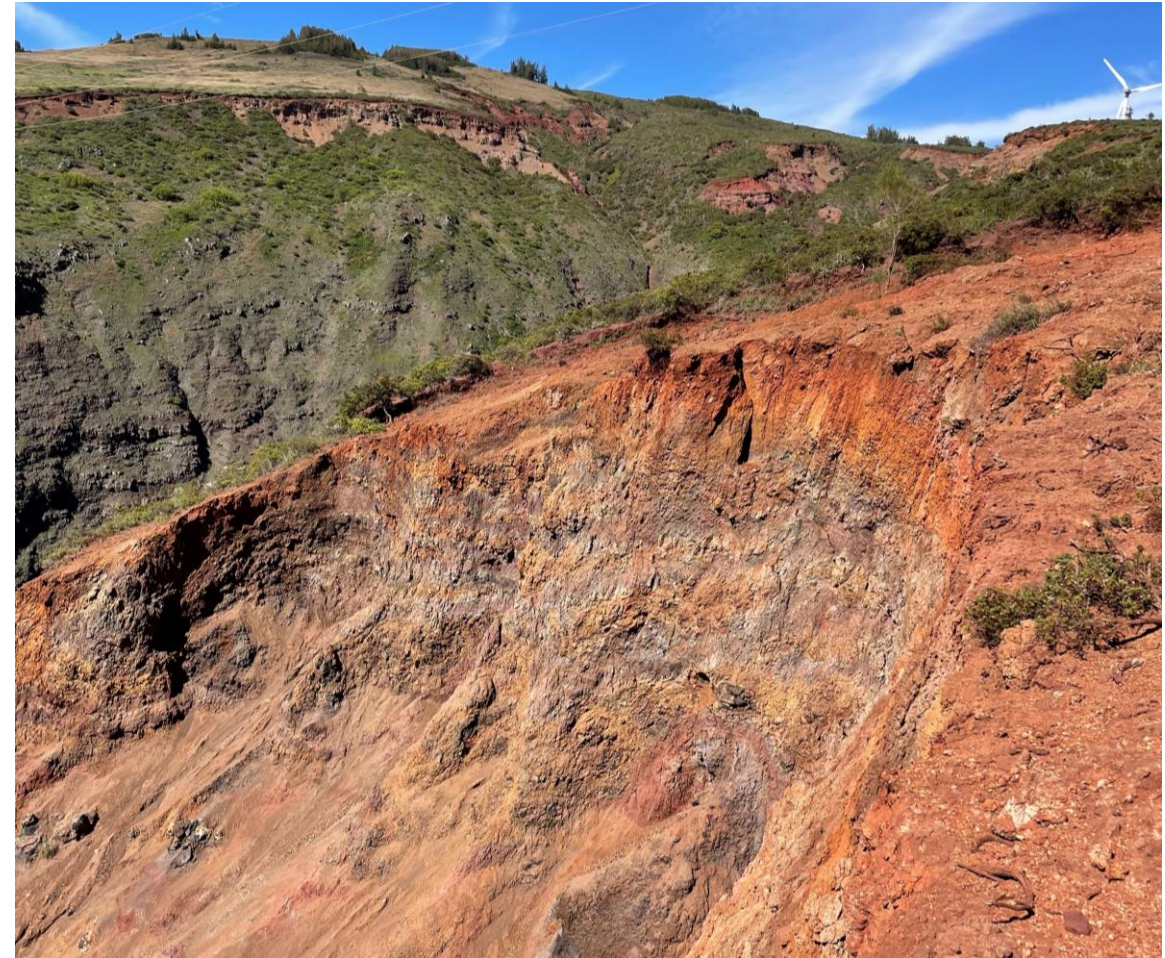
Scenarios | 1.1 and 3.2 feet of Sea Level Rise



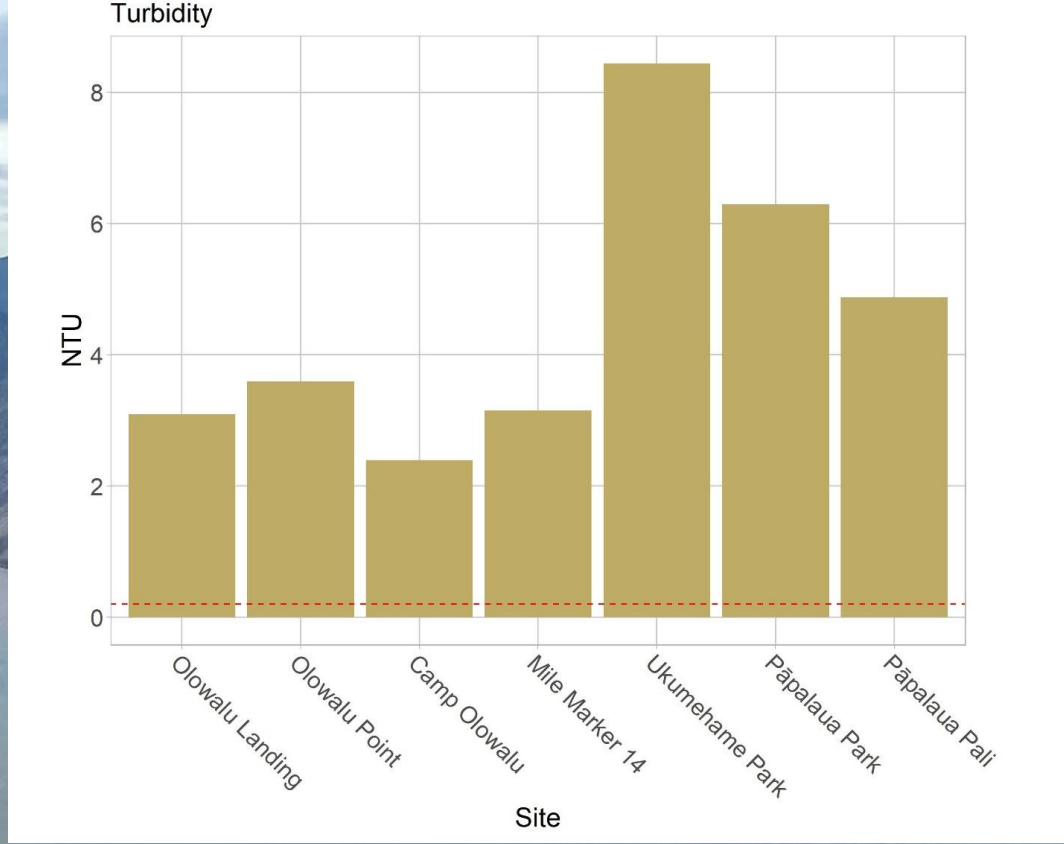
State DOT received \$22 million to realign Honoapi'ilani Hwy



EROSION AND STORMWATER RUNOFF



Papalaua Gulch (makai and mauka)

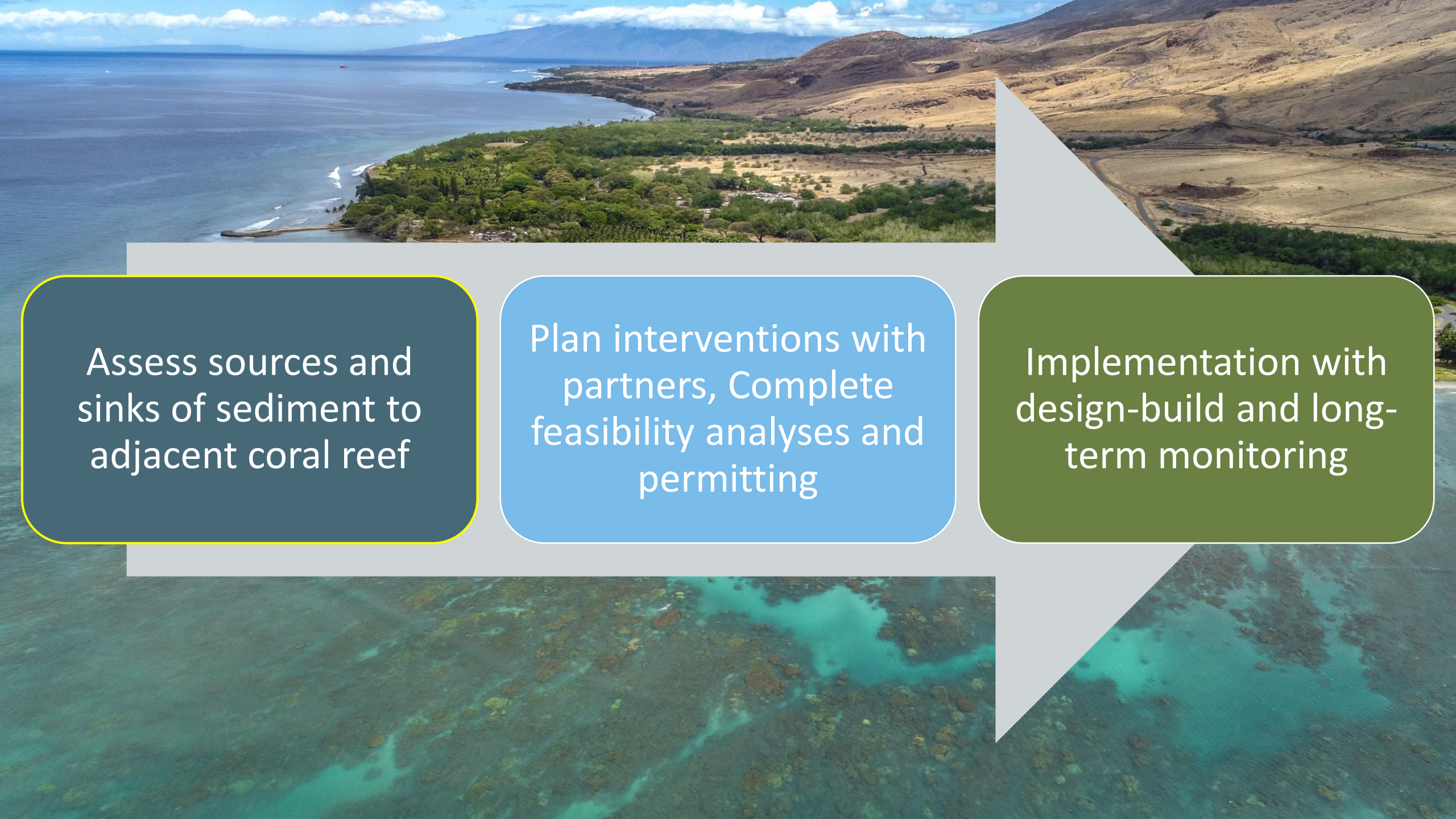


The biggest floods wrap around from central Maui (PC Mount Kahalawai WP)

PC: DOFAW

WILDFIRE AND AXIS DEER





Assess sources and sinks of sediment to adjacent coral reef

Plan interventions with partners, Complete feasibility analyses and permitting

Implementation with design-build and long-term monitoring

FIELD SURVEYS

- Conversations about historical features at gatherings, walkabouts
- Vegetation identification, soils, geology

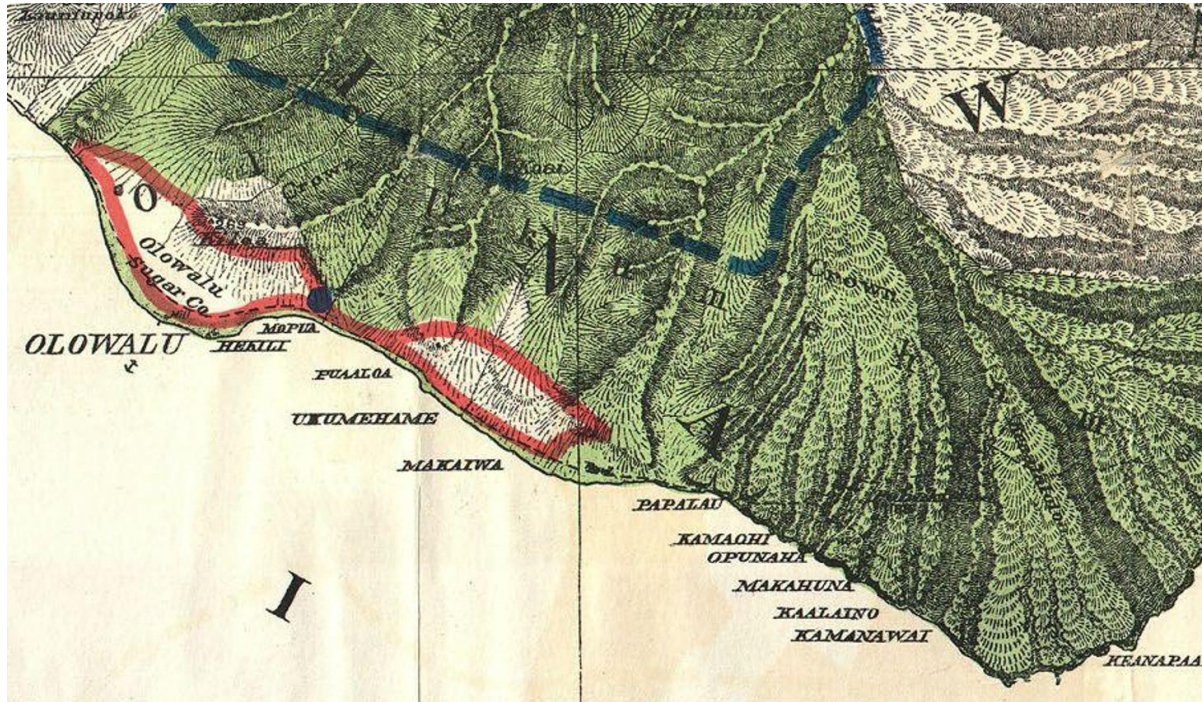


Community gathering at Kipuka Olowalu on Sept 9, 2022



With USGS geomorphologist John Stock, looking at historical ashfall that's been uncovered after vegetation loss

HISTORICAL LAND USE

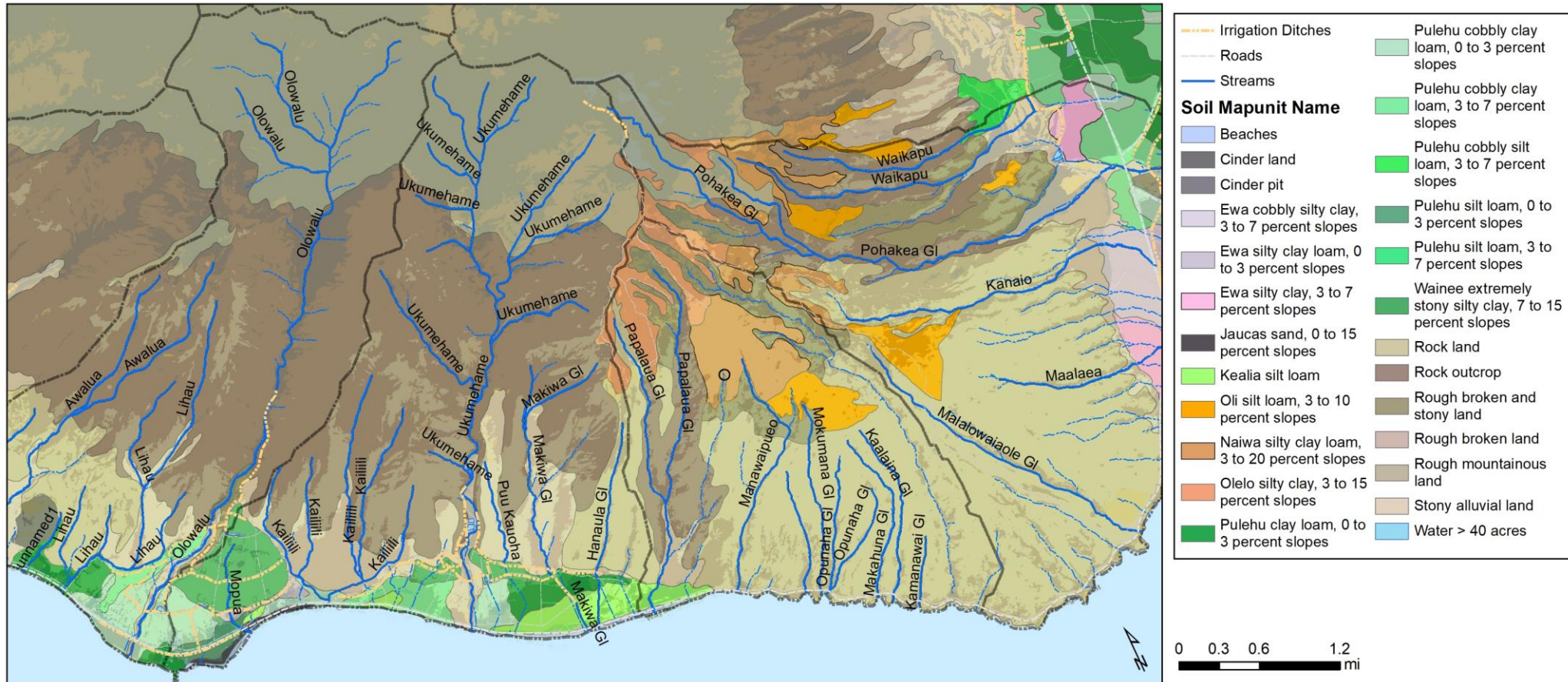


1885 map for place names and land use after Mahele



1950 Aerial Imagery shows the extent of the former sugarcane system

IDENTIFYING EROSION HOTSPOTS



The most erodible soils are in Papalaua and the Pali watersheds (in orange above)

DELINEATING WETLANDS

- Historically, all of Olowalu and Ukumehame's alluvial plains were used for growing food
- Kūpuna (elders) suggest that the wetlands were extensive, and by sugarcane days some areas had to be pumped to stay dry



1950 photo of Ukumehame stream and buffer

CONCLUSIONS

Geochemical analysis using fire and combustion signatures shows transport to critical reef areas from the Pali watersheds

Mid-elevation Papalaua/Manawaipueo are the “hotspots”, along with a few locations in Ukumehame.

While Ukumehame is the largest watershed by area, the soil and vegetation characteristics of Papalaua and the smaller Pali watersheds (Manawaipueo) show the southern watersheds are eroding at an accelerated rate

About 750 acres out of 13,800 total acres are highest priority for upland restoration

There is unused retention capacity on the landscape to hold back sediments





NEXT STEPS

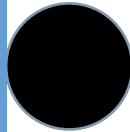


Project Description

MAUKA (UPLAND)

Landscape scale protection to retain soils

- FENCE AND REMOVE DEER



- PREVENT FIRE



- RESTORE VEGETATION



Project Description

MANAWAIPUEO GULCH

Reduce sediment before it gets to the ocean

- FEASIBILITY STUDY TO REDESIGN CULVERT AND PARKING LOT TO HOLD MORE SEDIMENT – IN PROGRESS

- ENGINEERING DESIGN AND PERMITTING TOWARDS IMPLEMENTATION

- RESTORE NATIVE FOREST AND VEGETATION COVER MAUKA (DOFAW)

- FIRE PREVENTION (DOFAW)



Project Description

UKUMEHAME WETLANDS

Restore a key wetland for west Maui

- IDENTIFY PRIORITY WETLAND RESTORATION SITES
- OUTLINE PERMITTING AND COMPLIANCE STEPS AND WORK WITH LANDOWNER
- INITIATE ENGINEERING FEASIBILITY ANALYSES FOR RESTORATION



Project Description

OLOWALU STREAM

Protect Olowalu stream's banks from erosion

- SUPPORT PARTNER ORGANIZATION KIPUKA OLOWALU
- CONDUCT SEQUENCED CANOPY REPLACEMENT FROM NON-NATIVE TREES TO NATIVE TREES
- MALAMA OLOWALU BY WORKING TO ENSURE CONTINUED STREAM FLOW



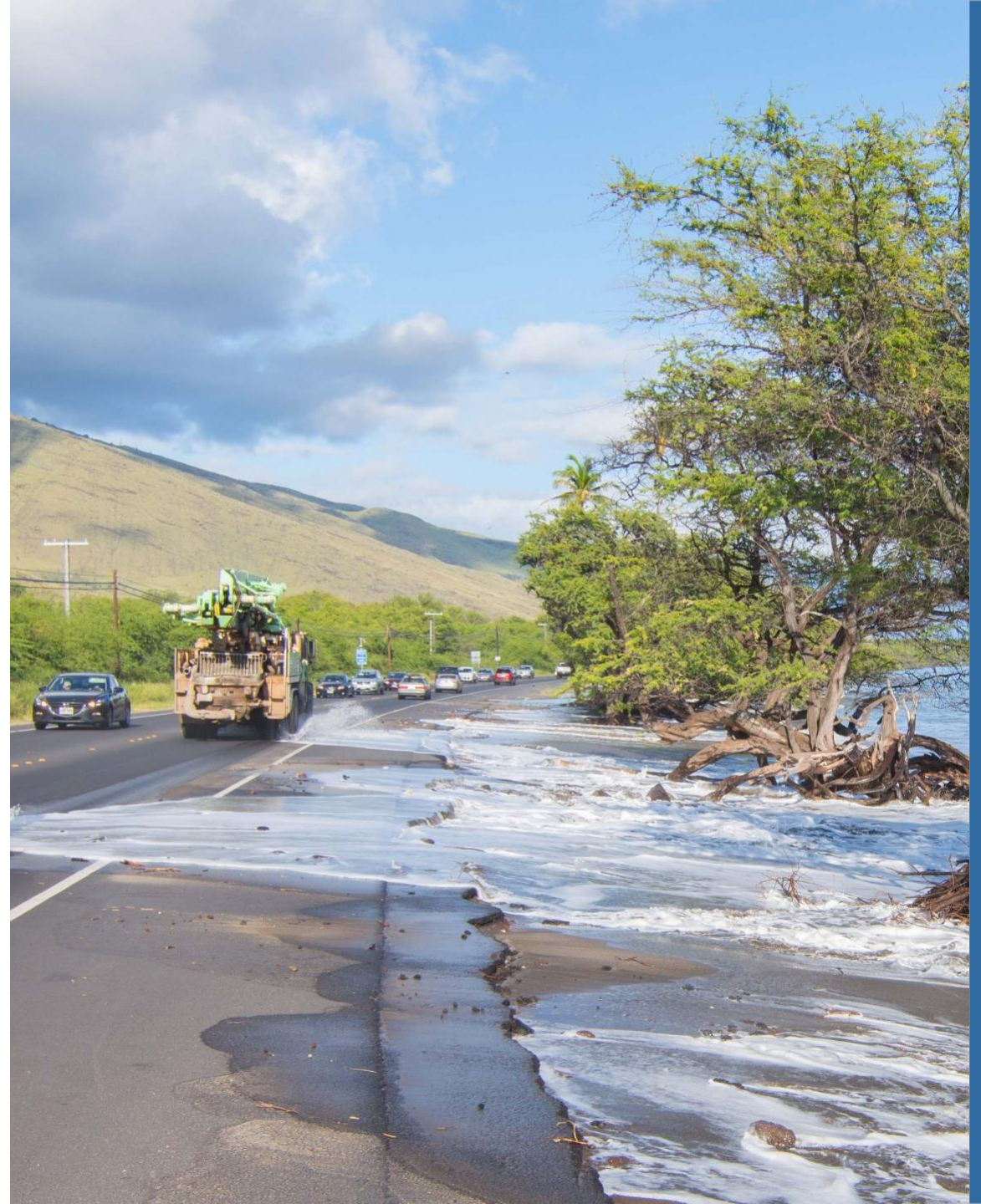
PARTNER:
KIPUKA OLOWALU

Project Description

MOVE THE HIGHWAY

Maximize ecosystem and cultural services when the bypass is created

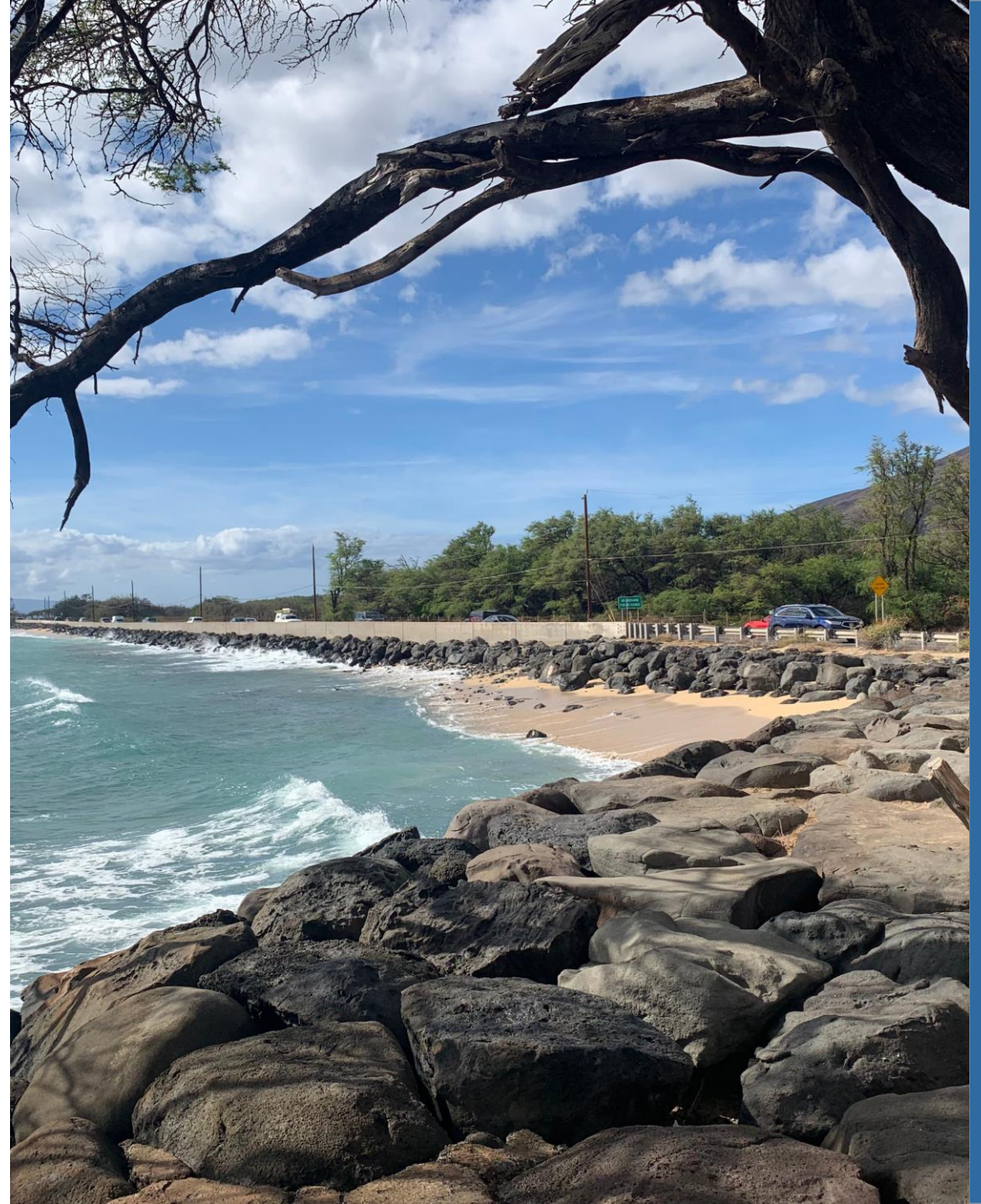
- PROVIDE TECHNICAL GUIDANCE ON STORMWATER CONDUITS AND GREEN INFRASTRUCTURE
- COORDINATE A COMMUNITY VISION FOR CURRENT COUNTY ROAD
- COLLABORATE WITH HDOT AND COUNTY TO COMMUNICATE PLAN



Project Description

COASTAL RESILIENCE PLANNING

- WORK WITH COMMUNITY AND EXPERTS TO DEFINE KEY COASTLINE FOR PLANNING
- CONDUCT FEASIBILITY STUDY TO DETERMINE OPTIONS AND POTENTIAL COSTS
- COLLABORATE WITH COUNTY AND COMMUNITY ON FUTURE PLANNING EFFORTS





MAHALO

kim.falinski@tnc.org
tamara.farnsworth@tnc.org
scott.crawford@tnc.org

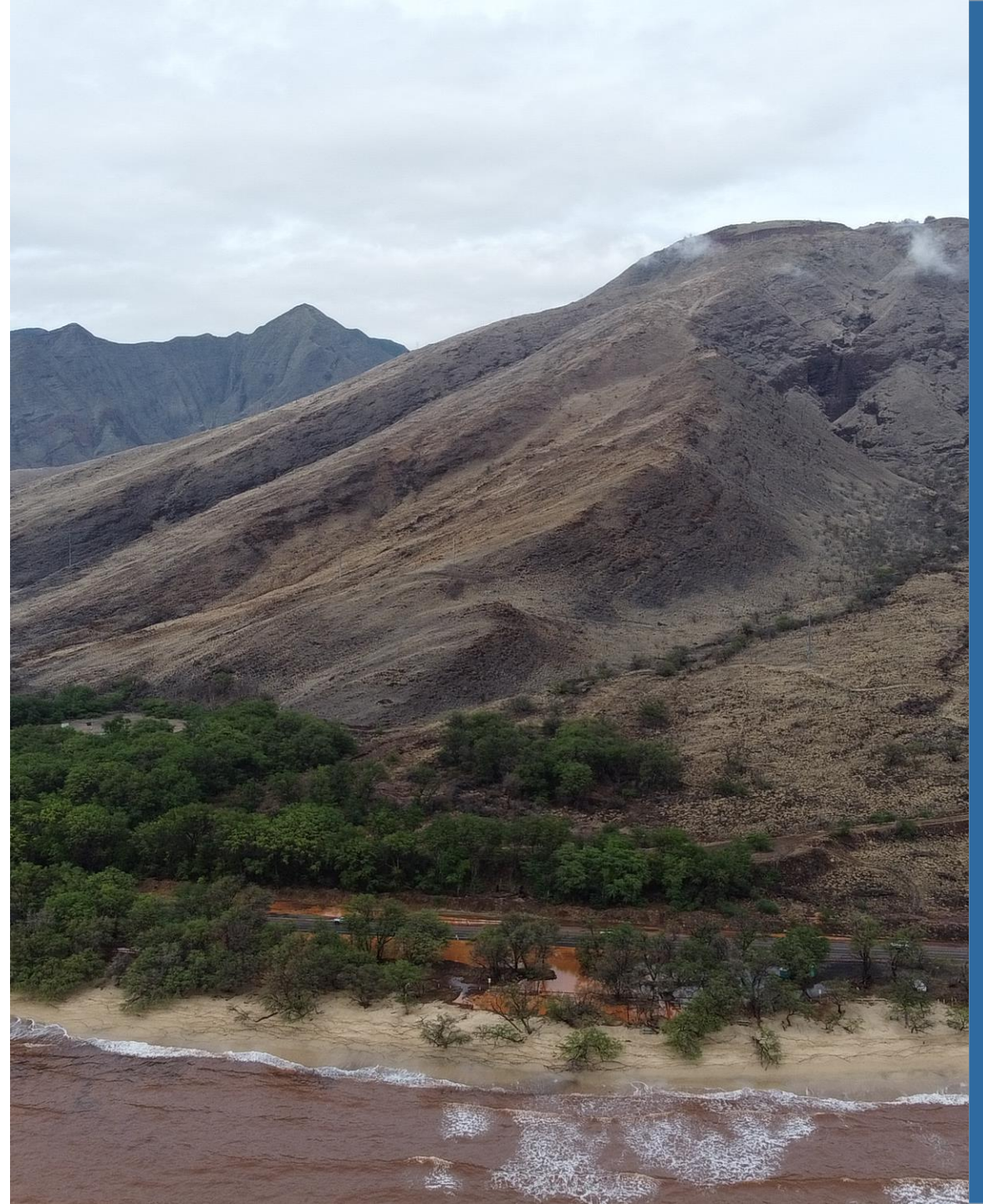


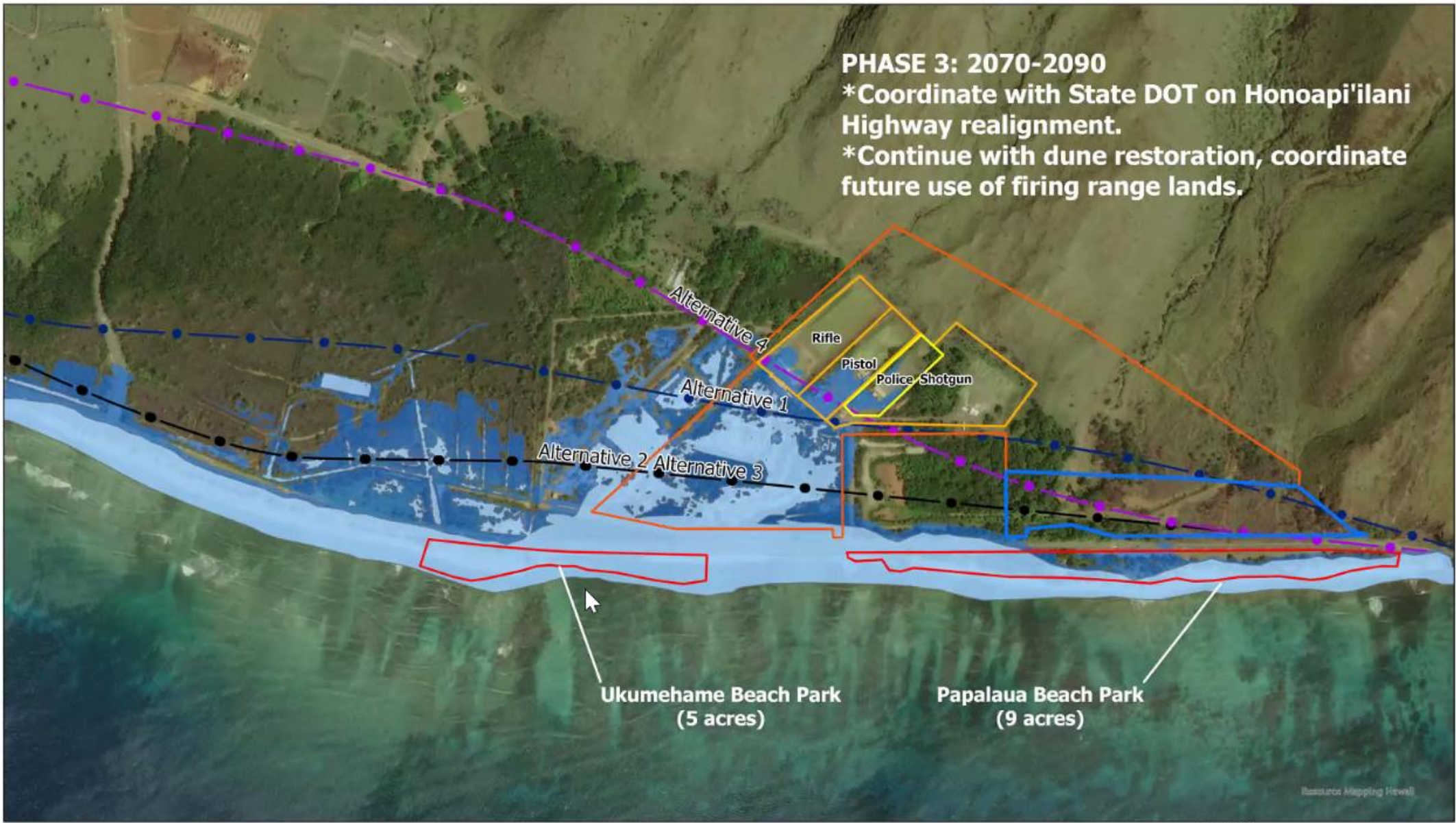
Project Description

PAPALAUA GULCH

Improve the existing sediment retention basin

- CONDUCT HYDROLOGIC ANALYSIS TO UNDERSTAND NEEDED CAPACITY OF DETENTION BASIN
- COLLABORATION WITH STATE TO WRITE OPERATIONS & MAINTENANCE GUIDE
- ASSESS IF ADDITIONAL IMPROVEMENTS CAN BE MADE TO BASIN DESIGN





PHASE 3: 2070-2090
 *Coordinate with State DOT on Honoapi'ilani Highway realignment.
 *Continue with dune restoration, coordinate future use of firing range lands.

Ukumehame Beach Park
(5 acres)

Papalaua Beach Park
(9 acres)

DRAFT Ukumehame Adaptation Strategy

February 17, 2023



LEGEND

- Potential Park Relocation (14 ac)
- Ukumehame Firing Range
- SLR Exposure Area (2.0 ft)
- SLR Exposure Area (3.2 ft)
- DOT Alignment Alternatives**
- Alternative 1
- Alternative 2
- Alternative 3
- Alternative 4

Resource Mapping Hawaii

Resilience to Sediment & Thermal Stresses

07-11/2023: Collect Corals and Corals of Opportunity

11-12/2023: Biopsy Corals, Begin Thermal Stress Test

12/2023-02/2024: Fragment Thermally Resilient Corals,
Measure Sedimentation

03/2024: Outplant Fragments, Set-up Experimental Stations

Thru 03/2025: Quarterly Monitoring for 1 Year

Key Partners:

