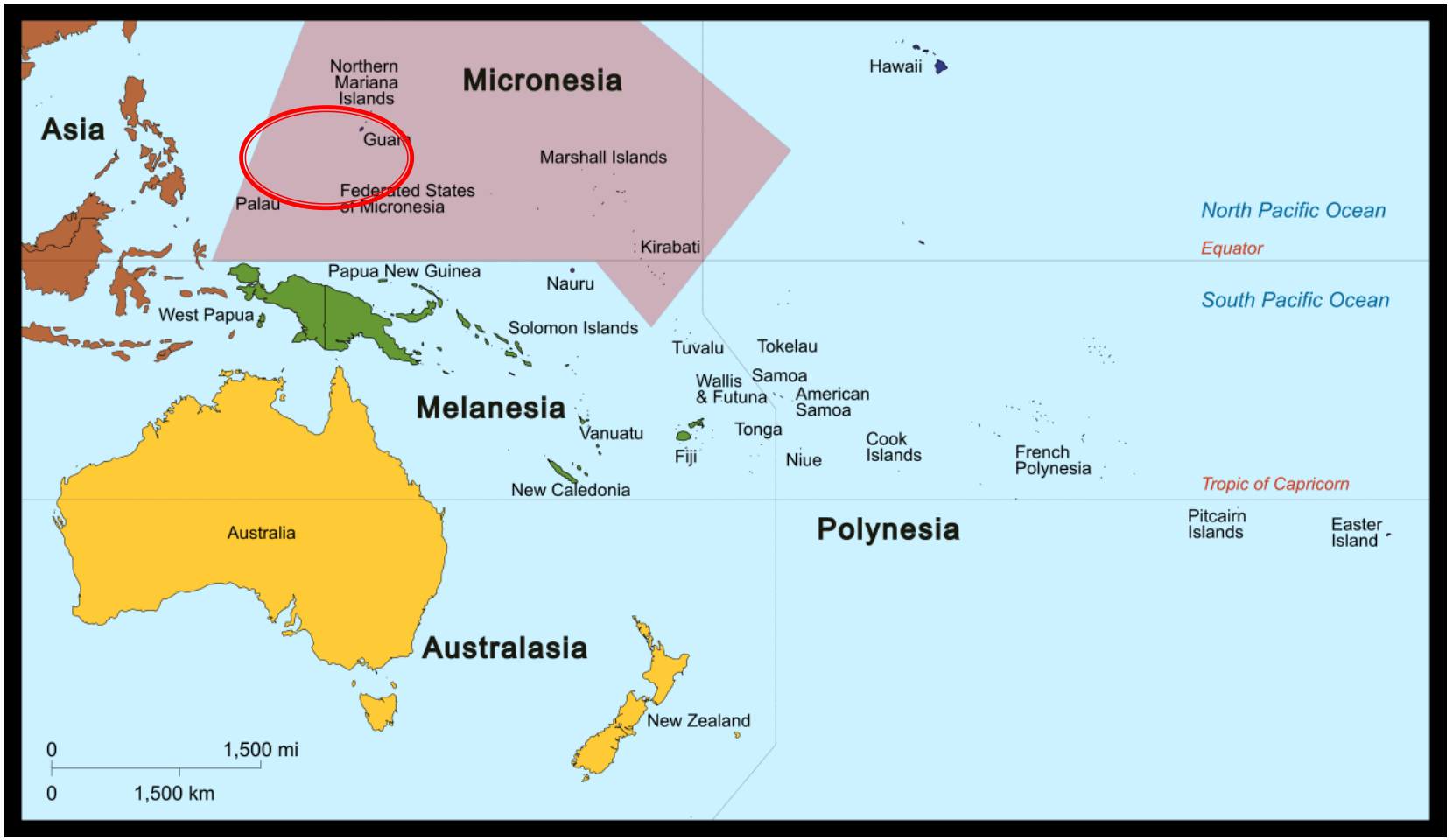
Modeling Work Informing Design of Potential Solutions for Highly Vulnerable Coasts of Atoll Islands

Republic of the Marshall Islands

Where is the Marshall Islands?



www.commons.wikimedia.org

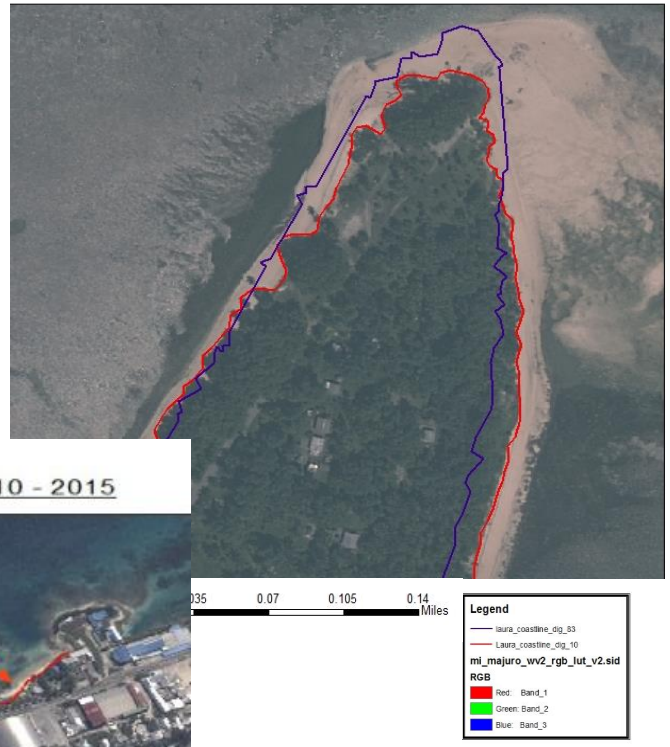
Key Challenges: Coastal Erosion, Sea Level Rise, etc.

Typhoon Nangka

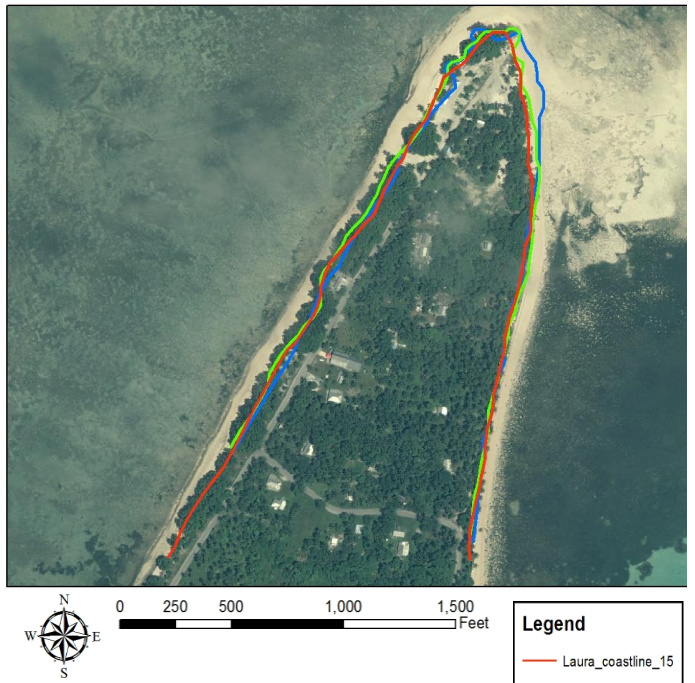
Ongoing Initiatives – GIS Mapping Activities

Figure 12: *The red line shows the seawall that has been washed away over the years. This area has an inundation of approximately 6 meters over the period of 5 years .*

Coastal Change Detection 1983 – 2010



Coastal Change Detection 2007 – 2015



Delap Coastline Change 2010 - 2015

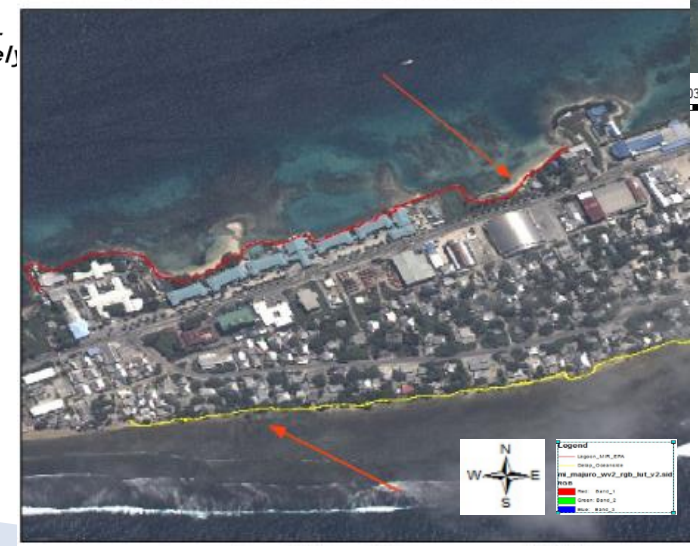
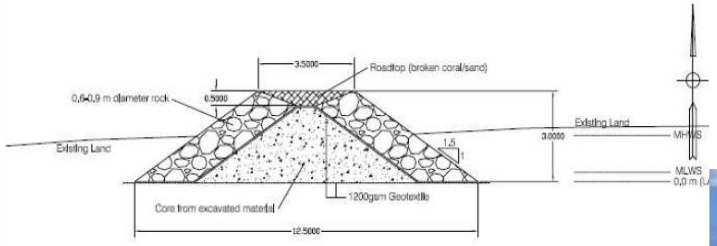


Figure 10: The image shows the high risk eroded areas on Delap

Case Study- Woja Ailinglaplap

2010

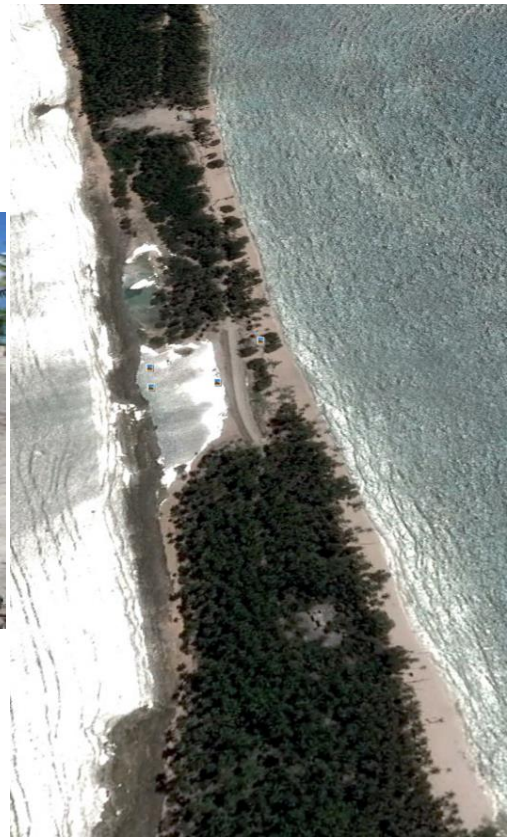


Causeway Cross-Section

New Causeway (red line) set 15 m west of existing road

Feasibility study 2013-14

2015

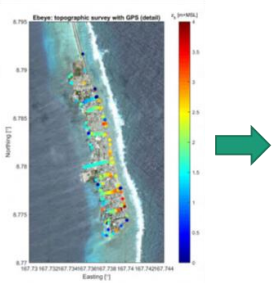


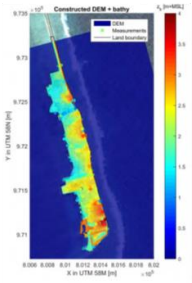
2017

Pacific Resilience Program Phase II – Coastal Risk Assessment Ebeye

1. **Data**
   (Ebeye and Majuro)

DEM



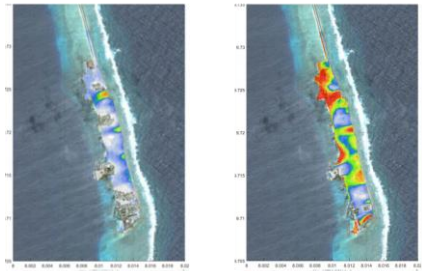


2. **Quantification of coastal hazards**
   (Ebeye and Majuro)

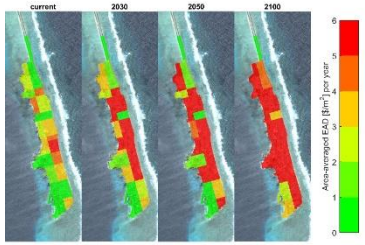
Return period in years	Maximum Hs (m) at Ebeye	Maximum SSL (m) at Ebeye	Maximum Hs (m) at Majuro	Maximum SSL (m) at Majuro
5	3,16	0,08	2,27	0,10
10	4,61	0,10	3,34	0,12
30	7,21	0,15	5,42	0,19
50	8,57	0,16	6,58	0,24

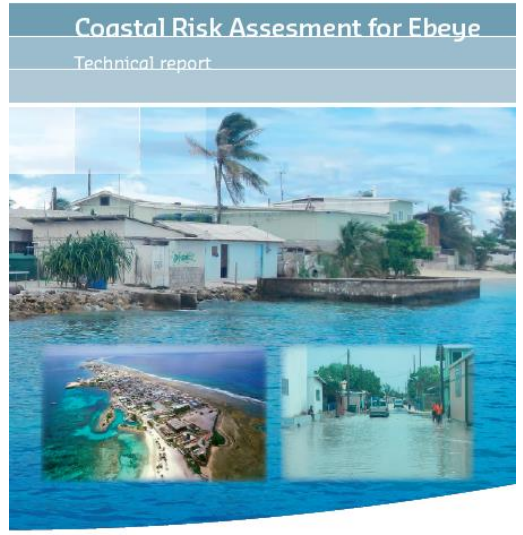
3. **Impacts of coastal hazards**
   (Ebeye)

Current period *Future: 2100 (RCP 8.5)*



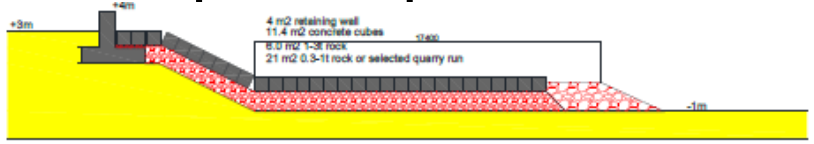
Maximum inundation depths (Return period =10 years)





4. **Coastal Risk assessment**
   (Ebeye)

5. **Conceptual design and adaptation options**
   (Ebeye)



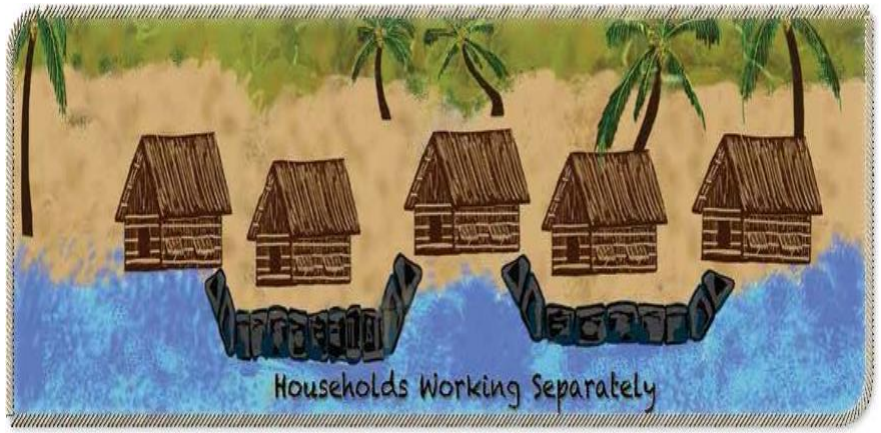
GFDRR
Global Facility for Disaster Reduction and Recovery

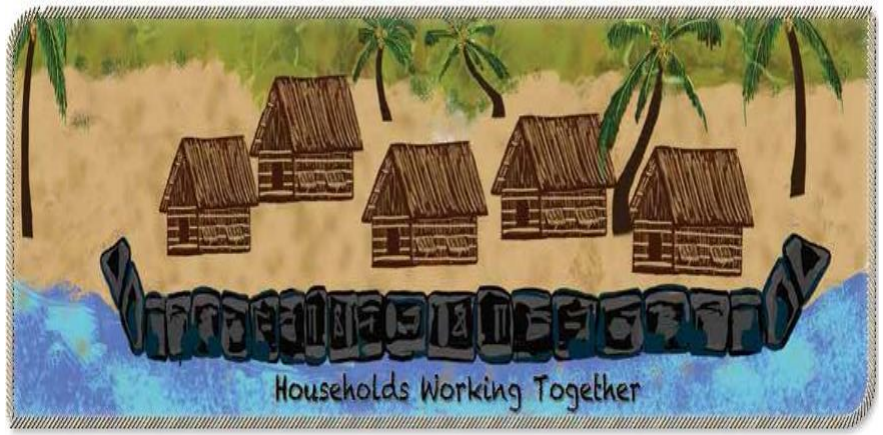
SISRI
SMALL ISLAND STATE RESILIENCE INITIATIVE

Way Forward…

Understanding Energy Settings

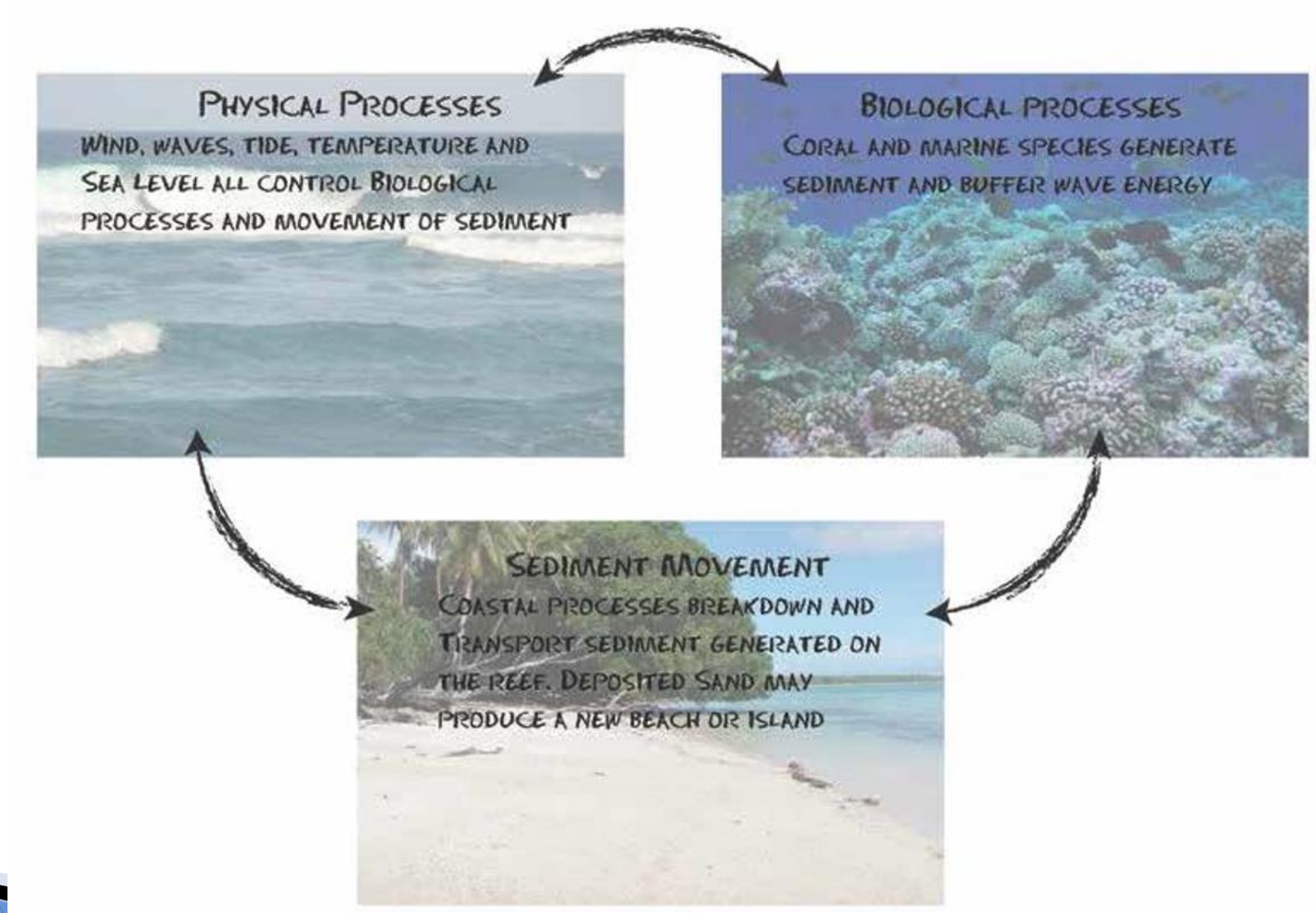
Communities Working Together





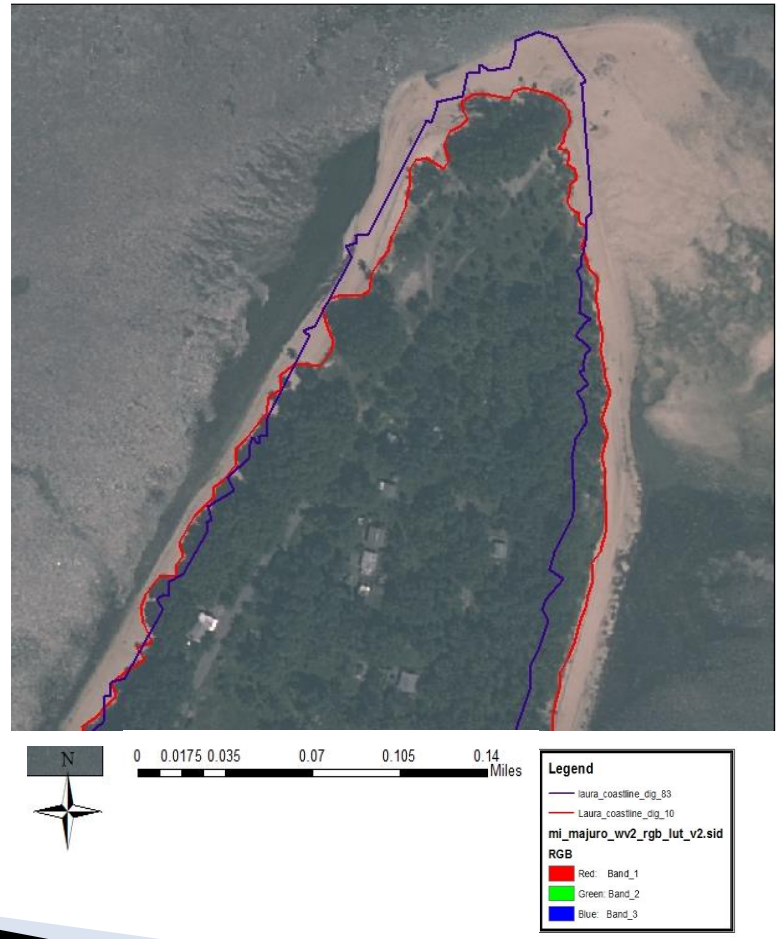
Komoltata!!

Understanding Natural Processes



Coastal Change Detection

Coastal Change Detection 1983 – 2010



Coastal Change Detection 2007 – 2015