FY14 RSM-EWN IPR

Honolulu District

Nani Shimabuku, Jessica Podoski & Tom Smith

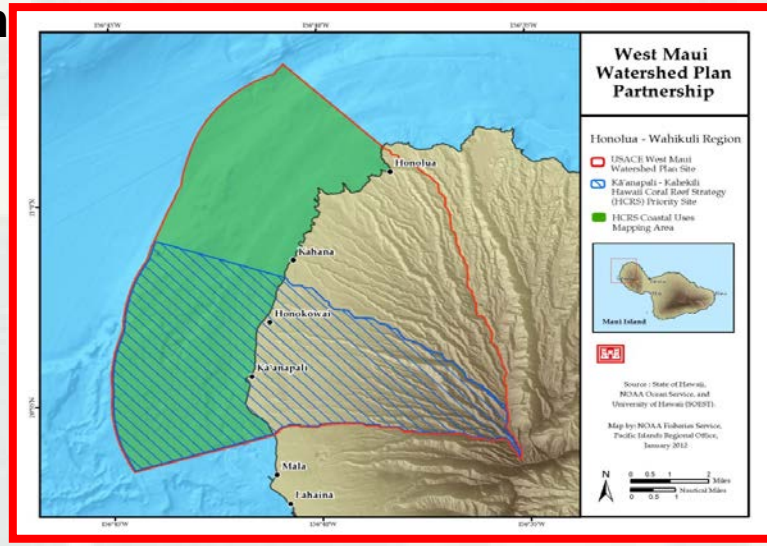
<u>BLUF:</u> Shoreline change analysis, coastal processes modeling, development of a regional sediment budget and various workshop activities are being conducted for the West Maui RSM Region. Changes in offshore sand sources and benthic habitat being quantified through processing of LiDAR data collected in 2000 and 2013 by the JALBTCX.

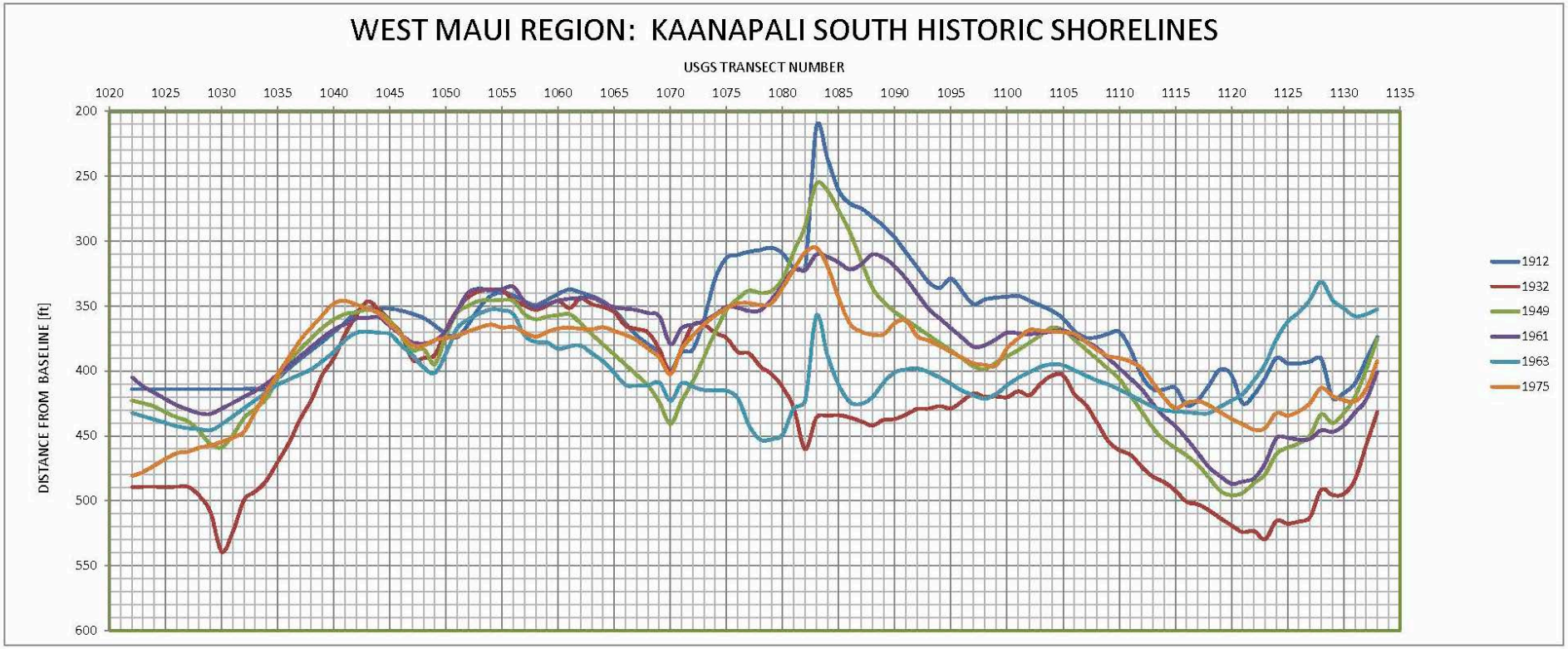
Description/Challenges

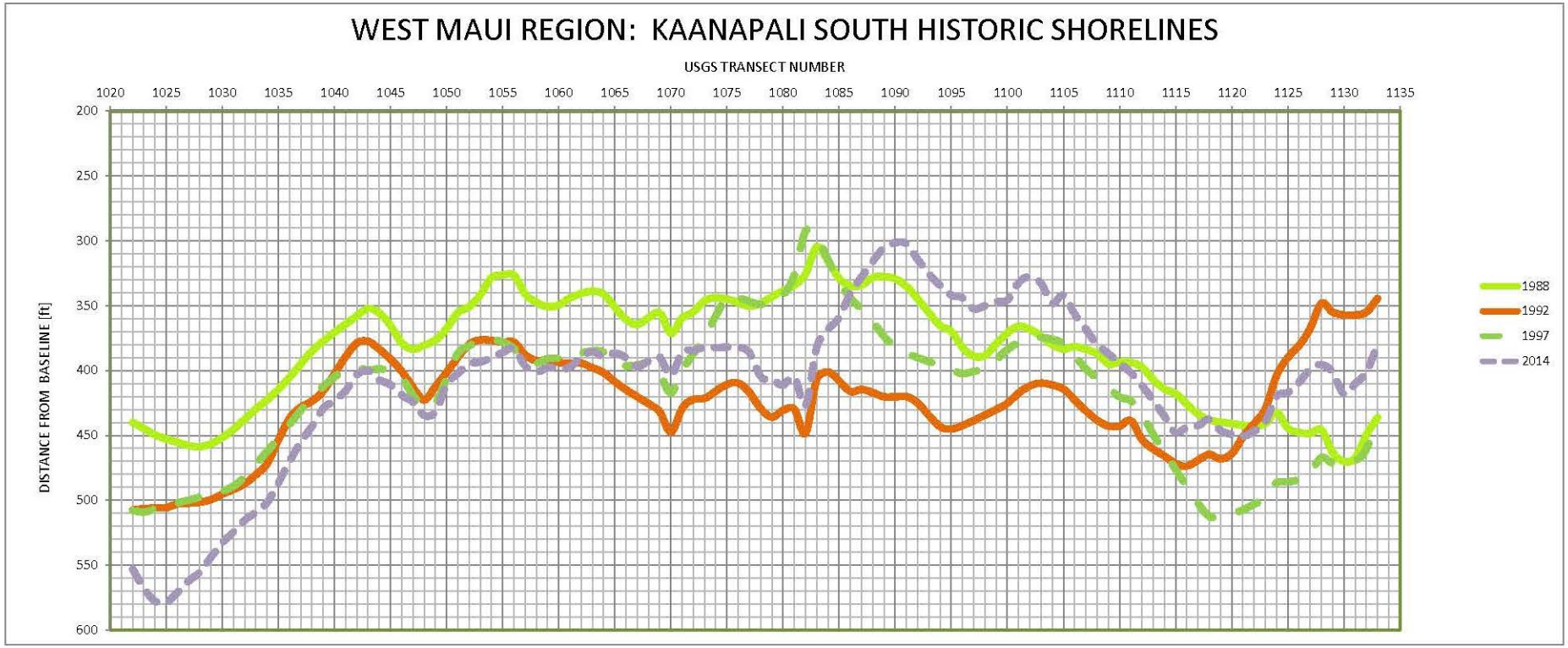
- **The West Maui Region incorporates a thin coastal margin backed by steep mountainous terrain that has been vastly altered by agricultural and urbanized development.**
- **Shoreline erosion threatens upland development consisting of large-scale resorts, hotels, condominiums and single-family homes.**
- **Shoreline hardening is being proposed in region**

Objectives

- **Quantify sediment resources and pathways in region**
- **Investigate beneficial use of dredged material from Kahului Harbor. Essayons due to dredge harbor in FY15.**




WEST MAUI REGION: KAANAPALI SOUTH HISTORIC SHORELINES
USGS TRANSECT NUMBER
1020
1025
1030
1035
1040
1045
1050
1055
1060
1065
1070
1075
1080
1085
1090
1095
1100
1105
1110
1115
1120
1125
1130
1135
DISTANCE FROM BASELINE [ft]
200
250
300
350
400
450
500
550
600
1912
1932
1949
1961
1963
1975


WEST MAUI REGION: KAANAPALI SOUTH HISTORIC SHORELINES
USGS TRANSECT NUMBER
1020 1025 1030 1035 1040 1045 1050 1055 1060 1065 1070 1075 1080 1085 1090 1095 1100 1105 1110 1115 1120 1125 1130 1135
DISTANCE FROM BASELINE [ft]
200 250 300 350 400 450 500 550 600
1988
1992
1997
2014

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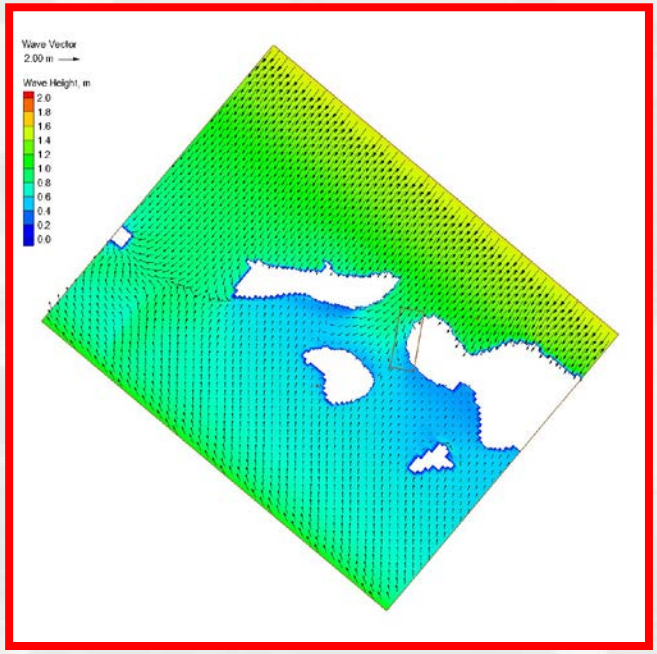


Approach

(including Tools/Models/Data Used)

- Shoreline change analyses (USGS & GPS)
- Coastal processes modeling (ADCIRC & STWAVE)
- Model output visualization (PTM)
- Conceptual regional sediment budget (SBAS)
- Web site updates
- Identification of potential RSM projects

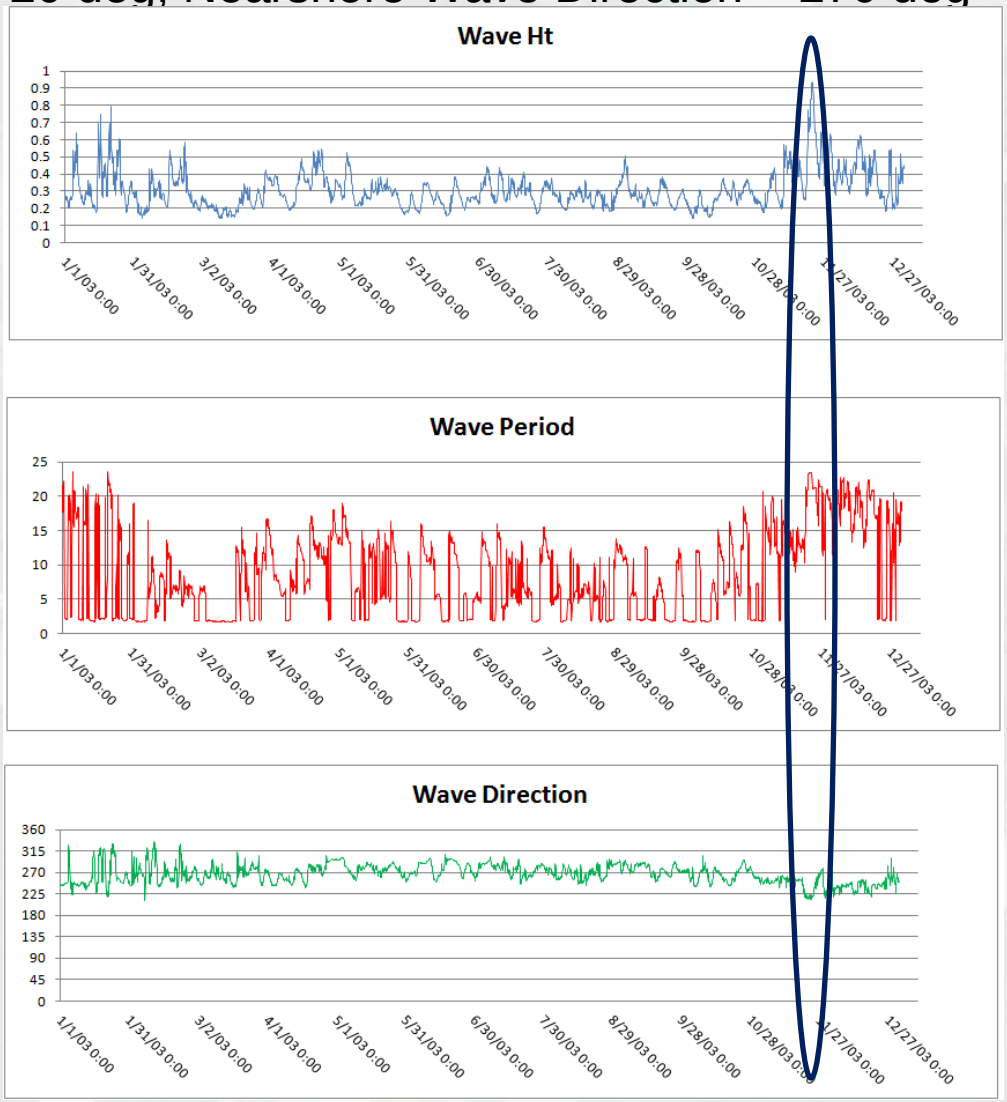
Deliverables

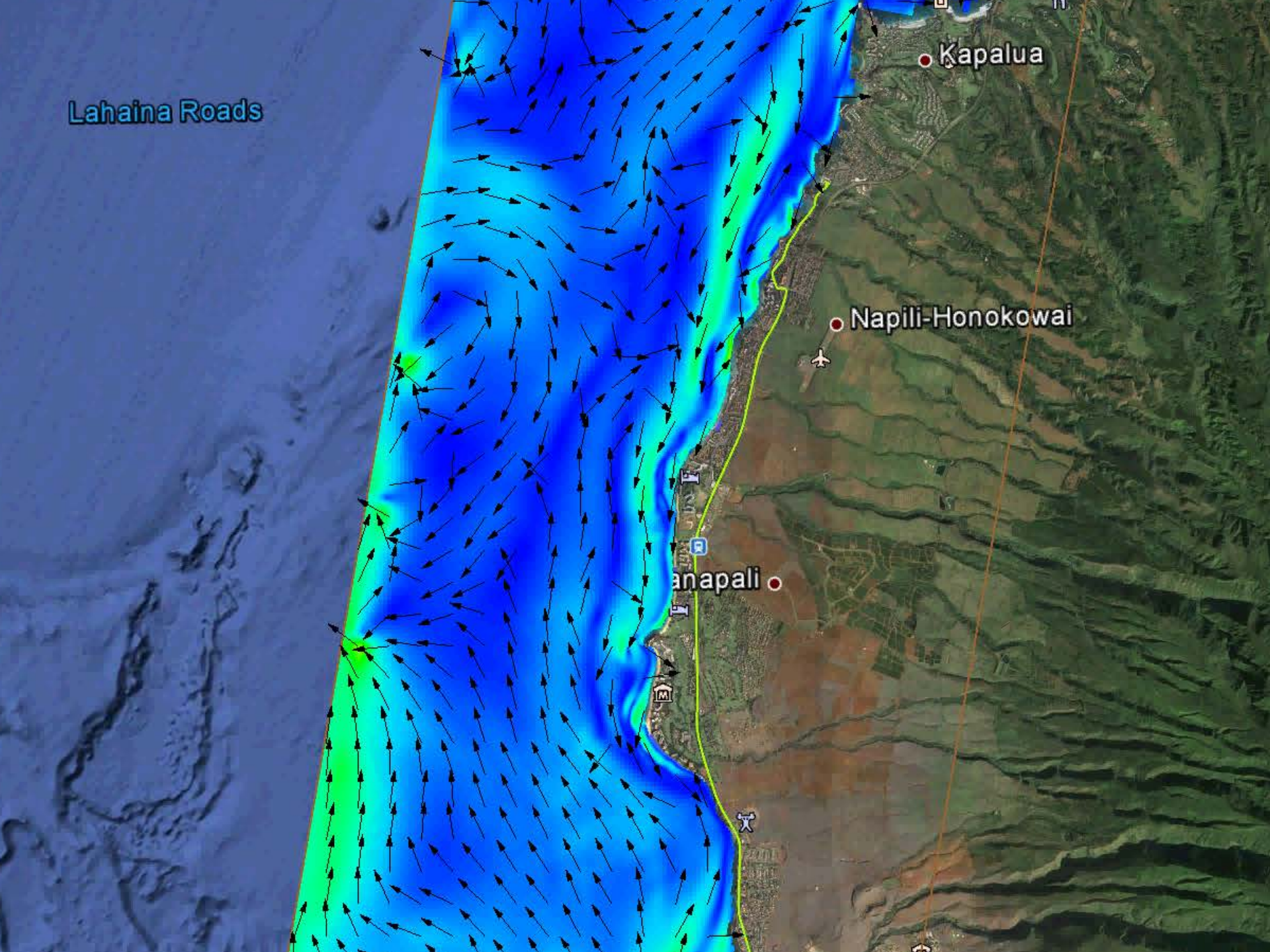
1. Shoreline Change Analysis	07/30/14
2. Wave and Current Modeling	07/30/14
3. West Maui Workshop	08/27/14
4. Identify Potential RSM Projects	09/30/14
5. Hawaii RSM Web Site Update	09/30/14
6. West Maui RSM Technical Note	09/30/14
7. Benthic Mapping	12/30/14

Accomplishments/Benefits/Lessons Learned
Actions-construction

- Able to add 2014 shoreline to the USGS database via GPS.
- Completed ADCIRC, STWAVE and PTM modeling.
- Unanticipated numerical modeling complexity. Island sheltering and wave climate seasonality were challenging.
- Essayons does not have pump-out capability. Must empty hopper in depths of at least 40 feet.
- There are numerous agencies and non-governmental organizations working within the West Maui Region. Efforts are being made by the West Maui Ridge to Reef coalition to coordinate and document the activities and their products.

NNE Swell Condition : Nov 20-25, 2003
Nearshore Hs = 1m, Offshore Hs = 4-5m, Tp = 16s, Offshore Wave Direction = 20 deg, Nearshore Wave Direction = 270 deg




Lahaina Roads
Kapalua
Napili-Honokowai
anapali

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PDT Members

- State of Hawaii
  - Sam Lemmo
  - Bradley Romine
- ERDC
  - Zeki
  - Liwha
- POH:
  - Nani
  - Jessica
  - Justin
  - Tom

Stakeholders and Partners

- Maui County
  - Jim Buika
  - Tara Owens-Miller
- Hotel Industry
- Condominium Associations
- Tourist Industry

Leveraging/Collaborative Opportunities

- JABLTCX – Benthic and Sediment Mapping
- NOAA – West Maui Ground Truth Data in exchange for Niihau LiDAR Data
- Kahului Harbor – O&M Dredging