

District: Honolulu District, Pacific Ocean Division

Initiative Title: Hawaii Regional Sediment Management (RSM) – Sunset Beach RSM

Bottom Line up Front (BLUF): Sunset Beach RSM studies will engage various federal, state and county agencies in the implementation of a strategy to maximize the use of the region’s scarce sediment resources. The Sunset Beach RSM initiative will quantify shoreline changes, coastal processes, the sediment budget and identify potential RSM projects in the region. The region extends along the three (3) miles of shoreline from Pupukea Beach to Velzyland on Oahu’s north shore (Figure 1).

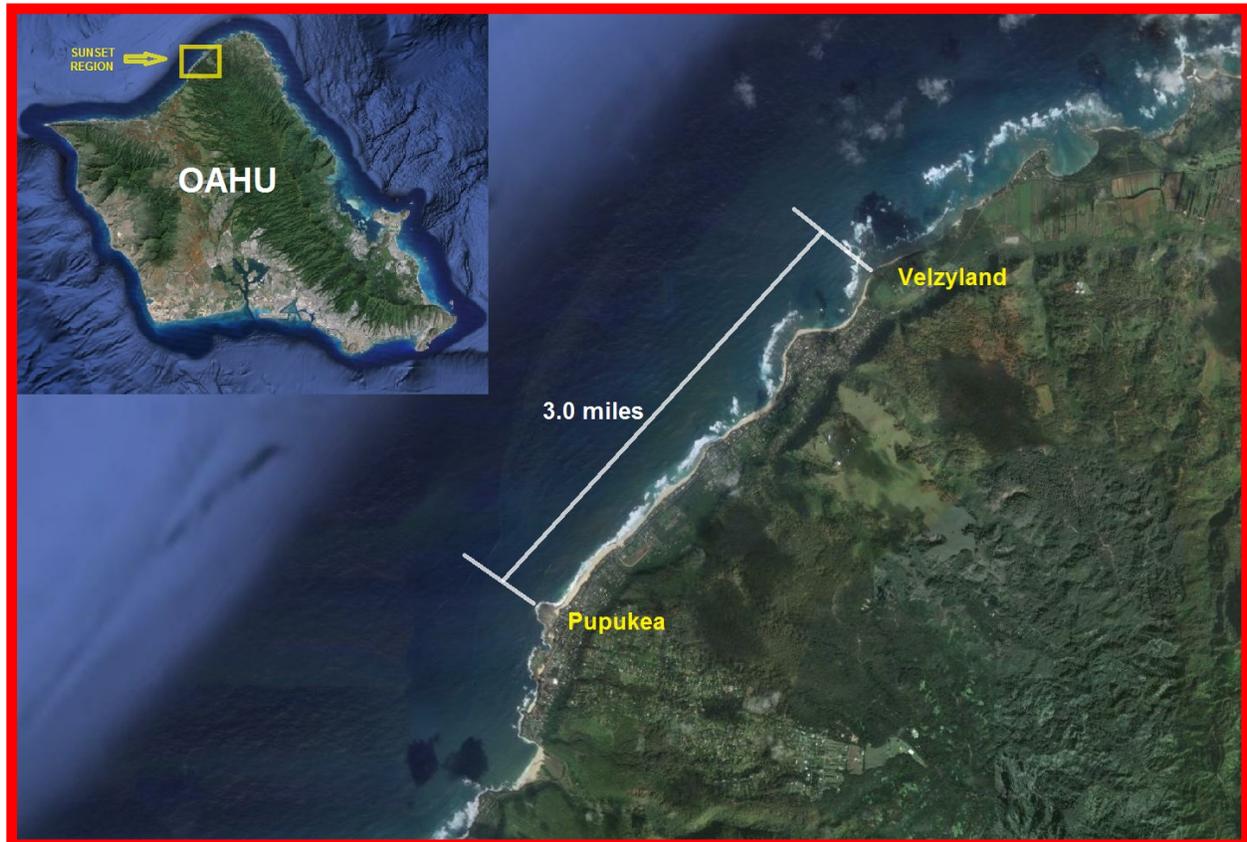


Figure 1: Location map of the Sunset Beach RSM study which extends from Pupukea to Velzyland on Oahu’s north shore.

1) Background: Hawaii RSM will investigate sediment management opportunities along all shoreline regions in Hawaii. To date, Hawaii RSM has been instrumental in quantifying coastal processes and identifying sediment related issues in various regions on the islands of Oahu, Maui and Kauai. On Oahu, RSM investigations have lead to greater understanding of the sediment related issues in the Mokapu Point to Makapuu Point Region, Diamond Head to Pearl Harbor Region and the Haleiwa Region.

2) Regional Framework: Shoreline erosion is currently threatening upland development within the Sunset Beach Region. In December 2013, the shifting sands within the region caused problems for several homeowners. As the winter 2013 northeast swells began to ramp up, the beach experienced the average annual amount

of erosion in a matter of days. Backyards, staircases, and even a swimming pool were swept away in a matter of days.



Figure 2: Sandbags are piled up in front of a house within the Sunset Beach Region damaged by severe beach erosion in December 2013.

3) Leveraging Opportunities: Various data sets acquired during the FY13 JABLTCX mapping initiative in Hawaii will be utilized in the preparation of deliverables for the Sunset Beach Region. The State of Hawaii Department of Land and Natural Resources Office of Conservation and Coastal Lands (OCCL) and the City and County of Honolulu have a vested interest in pursuing RSM in the Sunset Beach Region on both an environmental and fiscal basis. Honolulu District will work closely with these and other agencies to enhance the utilization of the region's sediment resources.

4) Stakeholder Participation: RSM stakeholder participation will be encouraged through a workshop to identify RSM needs and opportunities within the region. The Hawaii RSM Project Delivery Team will present study findings at the workshop and solicit stakeholder input on potential RSM investigations and projects for the region. Stakeholder participation will also be paramount to identification, coordination and resolution of RSM impediments within the State of Hawaii.

5) Proposed FY15 Tasks:

Task 1:

Title: Shoreline Change Analysis (in-house effort)

Description: Shoreline change rates for the regions will be developed based on available T-sheets and aerial photography. Coastal process data requirements will also be compiled, including borrow area identification, beach profile data, dredging records

and topographic/hydrographic LiDAR. Collaboration and Leveraging with USGS shoreline change experts.

Benefits: This task will help in developing the Regional Sediment Budget for the region.

Cost: Products: Maps and figures documenting shoreline rate changes and historical shorelines.

Task 2:

Title: Coastal Modeling (in-house effort)

Description: This task consists of using Wave Information Study hindcasts and Coastal Modeling System (CMS) numerical models (CMS-FLOW and CMS-WAVE) to determine water circulation and wave transformation characteristics for the region.

Benefits: Advancing the state-of-knowledge of regional coastal processes in Hawaii and improvement of sediment management in the Sunset Beach Region. Coastal modeling data will be used to develop a conceptual regional sediment budget. Collaboration with ERDC's Coastal Inlets Research Program is planned for this task.

Cost:

Products: WIS and CMS will generate wave, water level, and water circulation characteristics for the Sunset Beach Region.

Task 3:

Title: Regional Sediment Budget (in-house effort)

Description: Develop a conceptual sediment budget for the Sunset Beach Region. Associated sediment pathways will be identified via numerical modeling coupled with the shoreline change analysis. This task will provide shoreline managers information they can use in prioritizing the use of limited sediment resources and allow local landowners to make decisions on practicable shoreline stabilization measures. Collaboration with ERDC's Coastal Inlets Research Program is planned for this task..

Cost:

Products: Technical note documenting the development and results of the regional sediment budget analysis utilizing SBAS.

Task 4:

Title: Identify Potential RSM Projects (in-house effort)

Description: All potential RSM project opportunities will be scoped to improve sediment management strategies in the region.

Benefits: Identification of potential RSM project within the Sunset Beach Region will provide enhancements in beneficial use and identification of sustainable shoreline protection alternatives.

Cost:

Products: A technical note will detail opportunities within the regions for potential RSM projects.

Task 5:

Title: Update Hawaii RSM Web Site (in-house effort)

Description: The Hawaii RSM web site will be updated by posting information and findings from the FY15 Sunset Beach Region workshop. Other web site updates will be deferred until FY16 in response to lessons learned from previous tasks of a similar nature. In the past, web updates were consistently pushed out to the end of the fiscal years due to the timing of deliverable due dates. This has created end of the year resource issues due to other district priorities and expiring funds concerns. This change in procedure will enable final products to be uploaded to the Hawaii RSM web site as they become available in the fiscal year subsequent to their due date.

Benefits: This task will enable uploading of Sunset Beach Region workshop information and findings to the web site in FY15.

Cost:

Products: The Hawaii RSM web site will be updated to include information and findings from the Sunset Beach RSM workshop.

Task 6:

Title: Sunset Beach Region Workshop (in-house effort)

Description: Conduct a workshop in the region concerning RSM needs and opportunities. The PDT will present RSM goals and strategies at the workshop and solicit stakeholder input on potential RSM investigations and projects for the region. Collaborating agencies include the City and County of Honolulu and State of Hawaii DLNR/OCCL and other Sunset Beach region stakeholders.

Benefits: This effort would solicit stakeholder input on potential RSM investigations and projects for the region.

Cost:

Products: Workshop documentation summarizing the needs, finding, and RSM opportunities discussed for the region.

6) Deliverables:

Deliverables:

	Date
Shoreline Change Analysis (Task 1)	7/30/15
Coastal Modeling (Task 2)	7/30/15
Regional Sediment Budgets TN (Task 3)	9/30/15
Potential RSM Projects TN (Task 4)	9/30/15
Update Hawaii RSM Web Site (Task 5)	9/30/15
Sunset Beach Region Workshop (Task 6)	TBD