

# UNIVERSITY OF HAWAI'I

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Sea Grant Extension Service  
School of Ocean and Earth Science and Technology

2/5/09

**LATE**

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SB1280

Thank you for the opportunity to provide testimony for SB1280. I serve as extension faculty at the University of Hawaii, Sea Grant College Program and also serve as a technical advisor to the Department of Land and Natural Resources, Office of Conservation and Coastal Lands on shoreline issues. *My Testimony today is ON behalf of UH Seagrant.*

This bill seeks to fund an erosion study of Kailua Beach. As the principle investigator, I should point out there is an existing planning effort being conducted by the UH Sea Grant program for Kailua Beach which is funded by DLNR. The Kailua Beach and Dune Management Plan is designed to produce place-based beach and dune management recommendations for ensuring conservation of Kailua Beach during the 21<sup>st</sup> century. The Kailua Beach and Dune Management Plan will develop a site-specific plan to account for sea-level rise, erosion trends, and community development patterns along the beach. The goal of this plan is to identify innovative beach management approaches for Kailua and to serve as a template for place-based management on other Hawaii beaches.

While the existing study is innovative, it is currently under funded. Two elements of this plan, in particular require additional funding: the economic and planning component, and the engineering component. I recommend that the money appropriated in SB1280 be reprogrammed to the UH Sea Grant program to augment the existing study.

Attached is an amended version of SB1280 for your consideration.

THE SENATE  
TWENTY-FIFTH LEGISLATURE, 2009  
STATE OF HAWAII

SB 1280

A BILL FOR AN ACT  
MAKING AN APPROPRIATION FOR THE UNIVERSITY OF HAWAII.  
BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. The legislature finds that Kailua beach is that part of the east shoreline of the island of Oahu between Kawainui canal to the north and Alala point to the south in the Koolaupoko district. Kailua beach is subject to erosion related to sand deficiencies at Kailua beach park as well as future impacts related to sea-level rise. Specifically the southern end of Kailua beach is subject to long-term erosion which is migrating northward with time.

Currently the University of Hawaii Sea Grant College Program (UHSG) and the Department of Land and Natural Resources (DLNR) are conducting a Kailua Beach and Dune Management Plan. This plan attempts to address beach management issues in Kailua related to coastal erosion, sea level rise and land use development along the shoreline in Kailua. The goal of the plan is to define new and better management strategies for Kailua and to serve as a template for place-based management on other Hawaii beaches.

SECTION 2. There is appropriated out of the general revenues of the State of Hawaii the sum of \$100,000 or so much thereof as may be necessary for fiscal year 2009-2010 and the same sum or so much thereof as may be necessary for fiscal year 2010-2011 for the University of Hawaii, [~~school of ocean and earth science and technology~~] Sea Grant College Program to [~~conduct a two-year study on terminating, mitigating, and reversing beach erosion at Kailua beach~~] augment the existing Kailua Beach and Dune Management Plan, provided that the [~~school~~] UHSG shall consult with federal, state and county agencies as necessary. The sums appropriated shall be expended by the [~~University of Hawaii school of ocean and earth science and technology~~] UHSG for the purposes of this Act.

SECTION 3. The [~~University of Hawaii school of ocean and earth science and technology~~] UHSG shall submit an interim progress report for the Kailua Beach and Dune Management Plan to the legislature, the governor, and the mayor of the city and county of Honolulu not later than twenty days prior to the convening of the Regular Session of 2010. The progress report shall include but not be limited to a discussion of findings to date, potential short-term measures that may be adopted in order to reduce and mitigate beach erosion at Kailua beach.

SECTION 4. The [~~University of Hawaii school of ocean and earth science and technology~~] UHSG shall submit a final report, including recommendations and any necessary proposed legislation, to the legislature, the governor, and the mayor of the city and county of Honolulu not later than twenty days prior to the convening of the Regular

Session of 2011. The report shall include but not be limited to a discussion of short-term and long-term measures that may be adopted in order to ~~[reduce, mitigate, and reverse beach erosion at Kailua beach.]~~ manage coastal erosion, sea level rise and land use development along the shoreline in Kailua.

SECTION 5. This Act shall take effect on July 1, 2009.

## INTRODUCTION

The Department of Land and Natural Resources (DLNR), Office of Conservation and Coastal Lands (OCCL) intends to develop a beach and dune management plan for Kailua Beach on the eastern shoreline of Oahu. The project will include a partnership agreement between the OCCL and the University of Hawaii Sea Grant College Program (UH). The UH will consider bids from qualified consultants to assist the OCCL in the development of such a plan.

Kailua Beach is approximately 2.5 miles in length and is exposed to strong trade winds and their waves that approach from an angle. This generates alongshore currents ensuring that sand is shared along the length of the beach over the course of most years. Because the system is dominated by alongshore sand transport, it is important to manage the dune, beach, and offshore environments as a single, sand-sharing entity. Erosion stemming from sand deficiencies in one part will affect sand availability throughout the entire length of the beach.

The project area is in a developed urban area bounded by the northernmost sandy area of Kailua Beach at Castle Point, to the Kailua boat ramp in the south (Figure 1). From land to sea, the project area includes the seaward edge of private properties along Kailua Beach across the wet beach, and to the seaward edge of sand movement associated with beach dynamics (a point known as the “depth of closure” and identified offshore at the start of rocky seafloor). Kailua Beach is part of a larger Southeast Oahu Regional Sediment Management Project that is being developed and implemented in a joint Federal/State partnership.

Recent historical shoreline studies by the University of Hawaii (<http://www.soest.hawaii.edu/asp/coasts/index.asp>) have revealed that portions of Kailua Beach are expanding in size due to sand accretion on the shoreline. However, despite the apparent health of the beach ecosystem, seaward expansion and urbanization of the

## KAILUA BEACH MANAGEMENT PLAN PROJECT

abutting Kailua community can easily outpace the rate of natural accretion. Norcross et al. (2004) documented that although the rate of shoreline movement was accretional ~0.5 m/yr since World War II, the open sandy beach actually narrowed over the same period due to encroaching vegetation and urbanization.

The Kailua dune system has not been effectively managed despite local sand abundance. At Kailua Beach Park, dunes have been abundantly augmented with dredged sand from Kaelepulu Stream mouth. This has been to the detriment of the adjoining beach which has been starved of sand and is now eroding. Elsewhere the dune has been alternately developed, inappropriately landscaped, or altogether removed in random fashion based on localized development styles. A single consistent and conservation-oriented management plan is needed for the Kailua dune system.

There are a number of direct threats related to urbanization that may expose Kailua beach to chronic erosion and eventual loss if not addressed now. These include:

1. Continued erosion in the Kailua Beach Park region due to poor sand management practices related to clearing of Kaelepulu Stream mouth;
2. Loss of recreational beach and sand impoundment due to aggressive vegetation growth on the dunes and beach;
3. Unauthorized landscaping and loss of access the shoreline area;
4. Accreted land claims, subdivision, and new development makai of existing improvements;
5. Insufficient construction setbacks to guarantee conservation and hazard mitigation.

The Kailua Beach and Dune management plan has several objectives. These include:

1. Enhance and protect the healthy sand-sharing system of Kailua Bay before it is negatively impacted by poor development practices;
2. Protect the cultural and natural resources of the coastal dunes;
3. Document issues negatively impacting the beach and dune ecosystem;
4. Reduce coastal hazard exposure of abutting owners;
5. Educate the general public (including abutting owners) on appropriate beach development practices;
6. Expand understanding of the potential impacts of climate change in Kailua;

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7. Develop a system of rewards for abutting owners who take conservation appropriate steps;
8. Clearly identify the boundary between private property and public property;
9. Foster a co-management arrangement with the Kailua community;
10. Plan future coastal development in Kailua in conformance with community priorities;
11. Monitor shoreline processes within the area to improve management plans;
12. Improve sand management practices at Kailua Beach Park;
13. Develop recommendations for dune and beach management and restoration for specific areas.

### **BACKGROUND**

Studies show that nearly 25 percent of sandy beaches (17 miles) on the island of Oahu have been severely narrowed or lost over the past 70 years due to shoreline armoring. On the island of Maui, nearly 30 percent (9 miles) of the shoreline has experienced beach loss or significant narrowing. Beaches and dune systems are a critical component in the prevention of coastal erosion and flooding by serving as a natural buffer to prevent property damage from storm waves and undermining due to shoreline retreat. Beaches are also the backbone of Hawaii's visitor economy, which provides the majority of Hawaii's jobs and income. Beaches are also critical for ecological, spiritual, local recreational and cultural reasons.

Coastal management policies in Hawaii have not prevented the loss of miles of sandy beach and coastal land to the ravages of erosion and inappropriate development. The administration is poised to implement new, sustainable approaches to the problem of beach management provided that credible supporting scientific studies and data can be established on which to base decisions. This commitment takes on a critical light given global predictions for continued, possibly accelerated, sea-level rise and the ongoing focus of intense development along the Hawaiian shoreline. Hawaii's coastal resource managers are faced with the daunting prospect of managing the effects of erosion while simultaneously monitoring and regulating high-risk coastal development that often impacts the shoreline.

## KAILUA BEACH MANAGEMENT PLAN PROJECT

The primary goal of the project is to develop a long-term beach and dune preservation plan for Kailua that reflects the state of knowledge resulting from scientific understanding of long-term beach trends in Kailua Bay and abutting shoreline areas. This project will eventually be integrated into an overall beach management district plan for the Kailua and windward area and provide a template for statewide action as shoreline data become available. The beach and dune preservation plan is the first step in a more comprehensive effort that will eventually involve the urbanized areas of Kailua to ensure that this community will continue to offer a spectacular beach ecosystem for the benefit of present and future generations.

### **EVALUATION**

The Consultant shall be evaluated based on the following skills and competencies:

1. Ability to demonstrate working knowledge of existing issues, policies, and standards in coastal lands management;
2. Ability to work with on-line and digital data, and geographic information systems for map-making and resource planning;
3. Ability to demonstrate competence and familiarity in drafting and revising plans;
4. Ability to demonstrate skills and experience working with all stakeholders;
5. Ability to synthesize large amounts of information (positive and negative comments) and propose appropriate solutions that uphold the basic goals and objectives of beach conservation;
6. Ability to work with the UH, DLNR-OCCL, Office of Planning, County Planning Departments and other State, and Federal agencies, as well as other stakeholders;
7. Ability to conduct productive public meetings and to gain public participation in plan development by Kailua community members;
8. Ability to demonstrate an understanding of Hawaii land use and zoning laws;
9. Ability to manage conflicts in a positive manner;
10. Ability to understand the ecological aspects of coastal ecosystems;
11. Ability to understand potential impacts of climate change on beach systems;
12. Fee proposal (e.g., proposed hourly rate);
13. Ability to complete milestones to schedule;
14. Measured adherence to schedule and performance standards.

## **DELIVERABLES AND OUTCOMES**

The Consultant shall at a minimum deliver the following products as part of this project:

1. A final report to the DLNR including a comprehensive dune and beach management plan for the project area. The final report shall be delivered to the DLNR within 18 months of acceptance of the contract.
2. A digital GIS-based product for zoning and land use overlays. The GIS product will be compatible with existing State and County GIS databases for eventual implementation into land use decision making. The GIS product will include:
  - a. Existing infrastructure including roadways and TMK boundaries.
  - b. Seaward property boundaries for all oceanfront parcels.
  - c. Shoreline or Mean high water.
  - d. Shoreline setback line.
  - e. Historical shoreline positions and rates of change.
  - f. FEMA Flood zones
  - g. State of Hawaii, Tsunami Evacuation Zones
  - h. Zoning overlays for dune and beach management.
3. A narrative summary with State and County implementation strategies for recommendations within the plan. These strategies shall be presented in a format that will facilitate the City and County of Honolulu Department of Planning and Permitting in legally adopting and utilizing the recommended zoning changes.



**Figure 1. Kailua Project Area**  
(University of Hawaii Coastal Geology Group)



KAILUA BEACH MANAGEMENT PLAN PROJECT

**IV. Budget: Period of Performance: July 1, 2008 – June 30, 2010**

<u>Budget for Kailua Beach Management Plan Project</u> <u>07/01/08 – 06/30/10</u>	<u>FY 08-10</u>
1. Consultant (Primary land use planning consultant)	\$40,000
2. Supporting research and consulting services	\$ 6,000
3. Meeting Fees and materials	\$ 1,250
4. Other Materials and Supplies	\$ 1,059
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Subtotal	\$48,309
5. Indirect costs (3.5% of Modified Total Direct Cost)	\$ 1,691
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<b>Total</b>	<b>\$50,000</b>

Budget Justification

- 1,2. These budget categories will cover consulting costs for the project for a twenty four-month period.
  
- 3,4 These budget categories will cover a portion of the project operational expenses of the project. \$1,250 is budgeted for various materials and supplies, and \$1,059 for other miscellaneous costs, including duplication, communication, special meetings, etc. The OCCL will also contribute towards other operational expenses on an as needed basis.
  
5. Indirect costs for State sponsored projects utilizing non-federal funds are 3.5% of Modified Total Direct Costs. This amounts to a total of \$1,691.