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Ms. Suzanne Case, Chairperson
Board of Land and Natural Resources
Department of Land and Natural Resources
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Aloha Chair Case and Board Members,

SUBJECT: K-1. Hawai'i State of the Beach Presentation – Support for Beach Restoration Options for Coastal Projects in Hawai'i

Sea Engineering, Inc., is pleased to present testimony supporting beach restoration as a holistic, nature based, coastal management opportunity that is well suited for some Hawaiian nearshore and coastal environments.

Shorelines in Hawai'i are responding to the continuing impacts of sea level rise and global warming, with extreme weather threats along the coast projected to increase into the future. As Hawai'i responds to current impacts and plans for future conditions, a range of coastal management options are and will continue to be needed for tailoring unique, appropriate, site-specific solutions. Beach restoration and stabilization are key options for deployment on short and medium-term timelines for coastal management. Other strategies, such as hardening, vertical accommodation, and horizontal retreat, can be employed alongside or in series with beach-oriented options.

Beach restoration also serves as sea level rise adaptation, and well designed and carefully implemented projects provide the combined benefits of coastal hazard mitigation, environmental resource restoration, aesthetic enhancement, landward social and cultural resource protection and conservation, and economic benefit. Beach restoration is considered and implemented as an environmental resource restoration and conservation strategy locally, nationally, and abroad. Worldwide, beach restoration design and implementation have a wealth of focused research, project observational data, and long-term studies to draw on for assessing feasibility and potential impacts. Beach restoration is not a new mitigation strategy, and it is not limited in interest, application, and study to Hawai'i. Many of the design guidelines and implementation techniques were developed on an international stage and have been adapted for application on the sandy shorelines of Hawai'i.

In Hawai'i, beach restoration is typically applied at a smaller scale, suitable for our highly variable reefs and diverse coastlines. Here individual beaches are studied to better understand



their physical characteristics, including their relationships to the nearshore environment. Central to this investigation is understanding the natural and cultural resources that are interconnected with, and often dependent on, sandy beaches. These include, but are not limited to, the nearshore reef environments, inter-tidal communities, and beach and dune ecosystems. Moreover, endangered and protected species are routinely found, and have identified habitat, on these sandy shorelines and backshore features.

Beach restoration has been successfully implemented in Hawai‘i, with projects that range from beach nourishment (Waikīkī, Figure 1) to structurally supported beach systems (Iroquois Point, Figure 2).

These projects were well designed, meaning they minimized impacts to the local resources and utilized a suite of Best Management Practices that draw upon international best practices, local agency and public recommendations, and site-specific designs. These projects have resulted in habitat restoration, resource improvements, and greater access for the public along the coastline.

We support the Office of Conservation and Coastal Lands in their sea level rise adaptation and beach resource management efforts. There is a wealth of engineering and scientific research that supports the measured design and careful implementation of beach restoration and stabilization projects. These projects have been successful in the past, locally and abroad, and can continue to provide key management options for the State during the coming decades of sea level rise.

Thank you for your consideration of these comments.

Sincerely,

Chris Conger
Coastal Geologist & Project Manager
Sea Engineering, Inc.



Figure 1. Waikīkī Beach, Oahu (May 2021)



Figure 2. Iroquois Point, Oahu (August 2013)