STATE OF HAWAI`I
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
Honolulu, Hawai`i

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Chairperson's Office
Department of Land and Natural Resources
State of Hawai`i
Honolulu, Hawai`i

REGARDING: Conservation District Use Application for Programmatic Statewide Small Scale Beach Restoration (SSBR) Program

APPLICANT: DLNR Office of Conservation and Coastal Lands

LANDOWNER: State of Hawai`i

LOCATION: Main Hawaiian Islands (i.e. the Islands of Hawai`i, Maui, Moloka'i, Lāna'i, O'ahu, and Kaua'i)

TMK: Main Hawaiian Islands (i.e. the Islands of Hawai`i, Maui, Moloka'i, Lāna'i, O'ahu, and Kaua'i)

AREA OF USE: Main Hawaiian Islands (i.e. the Islands of Hawai`i, Maui, Moloka'i, Lāna'i, O'ahu, and Kaua'i)

SUBZONE: Resource Subzone

BACKGROUND

In an effort to mitigate coastal erosion hazards, restore degraded beach environments, reduce impacts associated with climate change and sea level rise, and increase coastal community resiliency, the Office of Conservation and Coastal Lands is requesting that the Department of Land and Natural Resources (DLNR) re-authorize the Small Scale Beach Nourishment (SSBN) program and implement a streamlined and coordinated regulatory process, particularly among the DLNR, Office of Conservation and Coastal Lands (OCCL), State Historic Preservation Division (SHPD), U.S. Army Corps of Engineers (USACE), State of Hawai`i Coastal Zone Management Office (CZM), and the Department of Health (DOH), for small-scale beach restoration projects. As such, OCCL proposes that the DLNR re-authorize, revise, and extend the SSBN program to create a Small Scale Beach Restoration (SSBR) program that not only offers beach nourishment as a viable ecosystem-based management option to address coastal erosion, but provides additional alternatives for managing beaches to conserve this limited resource. The

purpose of the SSBR program is to provide a streamlined permitting approach that will allow for the implementation of beach and coastal erosion control projects that will result in ecosystem restoration and improved public beach access while maintaining Hawai`i's visitor-based economy. Beach restoration projects with properly planned and executed nourishment programs will assist in managing erosion threats to beachfront property and infrastructure, reduce impacts associated with climate change and sea level rise, and increase overall coastal resilience. Properly designed beach restoration projects can have other benefits within the broader coastal environment such as ensuring the continued provision of habitat for various threatened and endangered species, protecting cultural sites and burials in the backshore, and improving water quality by providing a natural buffer between waves and exposed soil deposits and on-site sewage disposal systems along eroded shorelines.

The goal of the program is to enable small-scale beach restoration projects to be implemented by private and government applicants through a cost-effective, timely, and environmentally-conscious permitting program. Actions identified to support the needs of stakeholders include the following: sand pushing, sand backpassing, sand bypassing, beach nourishment (initial restoration and repeat maintenance events), nearshore sand recovery, upland sand placement, beneficial reuse (stream mouth and harbor clearing), and sand stabilization structures. In addition to including the actions identified above, the proposed program should also be developed to support community and littoral cell based sand management operations.

Currently, the Department of Land and Natural Resources (DLNR) Coastal Erosion Management Plan promotes beach nourishment as a tool that can be used to manage erosion. The DLNR currently authorizes small-scale beach nourishment projects under its Small Scale Beach Nourishment (SSBN) program. The SSBN program consists of two relatively simple beach nourishment categories; Category 1 projects are limited to the placement of 500 cubic yards of sand, while the larger Category 2 projects are limited to the placement of 10,000 cubic yards of sand. However, due to regulatory issues, applicants are currently constrained to placing sand above the high water line. Proper restoration of a degraded beach system and management of coastal erosion requires placement of sand across the entire beach profile, both above and below the water line.

DESCRIPTION OF AREA

The Hawaiian shoreline is extremely diverse, consisting of rocky headlands, small pocket beaches, and long stretches of open coast. Although all of these coastal sites are impacted by sea level rise to some degree, it is the sandy coastline that is most vulnerable. The dynamic nature of sand and its ability to be transported alongshore and offshore by waves and currents renders beaches susceptible to erosion.

Sites identified for inclusion within the SSBR program include natural sandy beaches and preexisting engineered beaches. The proposed project areas include the coastal land areas, shoreline areas, and nearshore ocean waters within the State of Hawai`i. This includes the Main Hawaiian Islands (i.e. the Islands of Hawai`i, Maui, Moloka‘i, Lāna‘i, O‘ahu, and Kaua‘i), but does not include the Northwest Hawaiian Islands, Ni‘ihau, Kaho‘olawe, and smaller islets located offshore of the main islands. The specific geographic area of each individual project is defined by the project and littoral cell extents.

History of Hawaiian Beaches

The Main Hawaiian Islands are characterized as basalt shield volcanos that formed through volcanic activity originating from the Hawai`i hotspot. The geologically youngest islands are positioned near this hotspot, which is located just south of the Island of Hawai`i. As the islands shifted towards the northwest, away from the hotspot, they slowly eroded and subsided and fringing reefs developed around the islands. These reefs are primarily composed of scleractinian (stony) corals and calcareous algae, both of which deposit calcium carbonate onto the reef framework. Hawai`i's fringing reefs are a complicated patchwork of fossil reefs formed at various sea level stands over the past several hundred thousand years with the coming and going of ice ages. The reefs are incised by relict channels and depressions from meteoric erosion during lower sea level stands. Modern reef growth on Hawai`i's fringing reefs is typically limited to a thin veneer on the upper fossil reef platform with most growth occurring seaward of the reef crest in deeper waters (Fletcher et al., 2008). Fringing reefs, along with barrier reef and non-structural reef communities, and their associated marine organisms (foraminifera, mollusks, and echinoids), are the source of calcium carbonate sediment for Hawaiian beaches (Fletcher et al., 2012; USACE, 2018).

Over time, mechanical processes, such as wave and current action, and biological processes, such as bioerosion by parrotfish, erode the reef structures and create calcium carbonate sand. The mechanical processes also erode the volcanic headlands to create the less ubiquitous basalt-based sand. The combination of the basalt sand and alluvial volcanic sediment deposited by streams and eroded from headlands are the basis for black sand (Harney and Fletcher, 2003). Calcareous white sands make up approximately 95% of the beaches in Hawai`i and only 5% are composed of black sand (USACE, 2018). Overall, both sand types are very limited throughout the archipelago, especially compared to the availability of siliciclastic sand along continental shorelines.

Due to the relatively limited sediment supply, Hawai`i beaches are typically narrower than continental beaches. Sediment can be lost from a littoral system by seaward transport beyond the reef crest and through paleo stream channels. However, sand accumulations in channels and offshore reef surfaces may also be active components of beach sand and offshore sand exchanges (USACE, 2018). Radiocarbon dating has been used to better understand the geological timescale in which carbonate sands are produced, transported, and lost from the coastal system. A study conducted for Kailua Beach determined that beach and offshore sediments ranged from 500 to 2,000 years old (Fletcher et al., 2012; Harney et al., 2000). Kailua Beach is located on the island of O'ahu, in which the island holds more than one-fourth of all beach sand found in Hawai`i. O'ahu and Kaua'i hold 61.4% of the total beach sand found throughout the Hawaiian Islands (Fletcher et al., 2012)

Hawai`i Beach Resource Overview

The loss of Hawai`i's beaches is a major social, economic, and environmental problem. A 2012 study found that 70% of the beaches on Kaua`i, O`ahu, and Maui are chronically eroding (Fletcher et al., 2012). Climate change and sea level rise are increasing the extent and severity of

erosion and loss of beach environments, particularly in Hawai`i where these impacts are amplified due to its microtidal environment, limited sand supply, and degrading nearshore reefs (DLNR, 2017). Historically, the typical response to beach erosion in Hawai`i has been to harden shorelines with seawalls and revetments to protect backshore investments from erosion damage and inundation. However, this legacy of widespread shoreline hardening has contributed to the narrowing and loss of chronically eroding beaches in Hawai`i (Romine and Fletcher, 2012; Fletcher et al., 1997; Hwang and Fletcher, 1992). Over 13 miles of Hawai`i beaches were completely lost to erosion over the past century, nearly all of which fronted coastal armoring (Fletcher et al., 2012). When beaches erode, upland development is threatened, shoreline access is lost, recreation and cultural activities are limited, coastal habitat is impacted, and our visitor economy suffers. The State of Hawai`i must continue to facilitate alternatives to coastal armoring for beach erosion management if our community wishes to conserve beaches for this generation and generations to follow.

Importance of Hawai`i Beaches

Hawai`i beaches are a critical natural and public resource as they mitigate coastal hazards, provide coastal habitat, protect the quality of state waters, stimulate the visitor economy, and improve shoreline access while facilitating recreational, spiritual, and cultural activities and values. Beaches provide a natural buffer to coastal hazards by reducing wave run-up and associated inundation. Beaches provide coastal habitat for monk seals, sea turtles, shorebirds, and a variety of other species. Beaches in a "healthy" state protect the quality of state waters by providing a natural defense/barrier between waves and exposed soil deposits and on-site sewage disposal systems in the backshore. Hawai`i's world-class beaches are a key attraction for the State's visitor economy. Moreover, beaches improve shoreline access for recreational, spiritual, and cultural activities that connect us to the ocean and are critical components to the Hawaiian way of life and sense of place.

Under the public trust doctrine, the State of Hawai`i holds natural resources in trust for the public and is constitutionally bound to defend, preserve, protect, maintain, and perpetuate that resource (DLNR, 1999).

> *For the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawai`i's natural beauty and all resources ... and shall promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the State.*
> Hawai`i State Constitution, Article XI Section 1

The Hawai`i State Planning Act (Act 286, HRS Section 226-109) encourages the preservation and restoration of natural landscape features, such as beaches and dunes, which have the inherent capacity to avoid, minimize, or mitigate the impacts of climate change and sea level rise. In an effort to conserve beach resources for present and future generations, the Hawai`i Coastal Erosion Management Plan (COEMAP) was developed to address coastal erosion within a framework for beach protection. Major recommendations within the COEMAP promote beach nourishment and restoration as a viable alternative to shoreline armoring (DLNR, 1999). Considering shoreline armoring is either prohibited or heavily discouraged under the Hawai`i

Coastal Zone Management Act (HRS Section 205A) due to its impact on beaches, the most recent version of the Hawai`i Ocean Resources Management Plan (ORMP), which provides a framework for ocean and coastal resource management in Hawai`i, emphasizes DLNR's role in 1) developing programs for beach nourishment, 2) streamlining the beach nourishment regulatory process, and 3) providing public-private partnerships for beach restoration (CZM, 2013). Management Priority #1 for Appropriate Coastal Development within the ORMP seeks to enhance natural infrastructure to build coastal resilience by implementing cost-effective beach nourishment through streamlined permitting.

The recently completed Hawai`i Sea Level Rise Vulnerability and Adaptation Report (DLNR, 2017), developed through the Hawai`i Climate Mitigation and Adaptation Initiative (Act 32, Session Laws Hawai`i 2017; Chapter 225P, Hawai`i Revised Statutes), includes recommendations for planning, management, and adaptation to hazards associated with increasing sea level rise. This report states that beach nourishment could help extend the life of Hawai`i's beaches. Recommendations within the report that relate to beaches are summarized below:

- Recommendation 1: Sustainable and Resilient Land Use and Community Development. Recommended Action 1.6 suggests developing shoreline protection [coastal erosion control projects], conservation, and restoration priorities and guidelines; many of the examples provided acknowledge the importance of beaches and promote beach restoration and nourishment.
- Recommendation 4: Enable Legacy Beaches to Persist with Sea Level Rise. This recommendation in its entirety acknowledges and details the importance of beaches. Recommended Actions focus on the need to enable beaches in Hawai`i to persist with sea level rise. Recommended Actions also consider funding for land acquisition and beach restoration activities through public-private sector partnerships as well as explore other alternative actions to help protect beaches.

In summary, beaches are an essential component of the ecological, social, economic, and cultural fabric of Hawai`i and a key component in the Hawaiian ahupua'a system that connects the land with the sea. Without beaches, we would lose this vital connection and the numerous benefits they provide.

Present Condition of Hawai`i Beaches

As stated above, studies of historical shoreline change using aerial photographs and survey maps show that 70% of the beaches on Kaua`i, O`ahu, and Maui are chronically eroding (Fletcher et al., 2012). Long-term shoreline change rates detailed in this USGS report are summarized in Table 1.

Positive values in the table indicate shoreline advance (i.e. accretion) while negative values indicate shoreline retreat (i.e. erosion). These long-term shoreline change rates were calculated using available data between the early 1900s and 2008. Table 1 shows that shoreline change rates vary considerably, by both island and location around each island. As explained in the next few paragraphs, this demonstrates the dynamic nature of Hawai`i's beaches and why looking at just

average shoreline change can be misleading, especially when evaluating the need to restore or manage beach resources. For example, the average shoreline change rate along the windward coast (East Region) of O'ahu suggests stability (0.0 feet/year), but upon further inspection this region is subject to the largest erosion rates documented in the USGS study (5.9 feet/year).

Table 1. Long-Term Shoreline Change Rates

Location		Shoreline Change Rate (feet/year)		
Island	**Region**	**Average**	**Max Erosion**	**Max Accretion**
Kaua'i	North	-0.4	-2.3	2.3
Kaua'i	East	-0.5	-2.3	2.3
Kaua'i	South	0.0	-4.9	4.6
Kaua'i	West	-0.4	-4.6	5.2
Kaua'i	Total	-0.4	-4.9	5.2
O'ahu	North	-0.4	-4.3	2.6
O'ahu	East	0.0	-5.9	4.9
O'ahu	South	-0.1	-5.2	2.6
O'ahu	West	-0.8	-3.9	5.6
O'ahu	Total	-0.2	-5.9	5.6
Maui	North	-0.9	-4.9	4.9
Maui	Kihei	-0.4	-3.6	5.2
Maui	West	-0.5	-3.0	2.0
Maui	Total	-0.6	-4.9	5.2
Total	**Total**	**-0.4**	**-5.9**	**5.6**

These erosion/accretion variations can partially be attributed to Hawai`i's characteristic headland and embayment dominated coastlines. Rocky headlands typically divide the coast into small sandy embayments. As observed in a study of northeast O'ahu shoreline change, sand is typically transported from the headlands to the bay center, which results in erosion near the headlands and accretion within the embayment (Romine et al., 2016). Although this may not result in a net loss of sand within the littoral system, the chronic erosion at the headlands can lead to beach loss, especially in locations where seawalls are present.

In addition to the long-term spatial erosion and accretion variation discussed above, Hawai`i beaches are also subject to shorter-term (i.e. seasonal) erosion and accretion cycles. Beaches subject to seasonal erosion typically recover the following season (e.g. winter erosion recovers during summer accretion) unless there is an underlying trend of chronic erosion. Many beaches in Hawai`i are exposed to seasonally dependent alternating predominant wave directions. On these beaches, one end (or segment) of the beach typically erodes while the other end of the beach accretes, with the process reversing the following season. This "beach rotation phenomenon" is different from beach oscillation, which occurs when the entire beach erodes during storm wave events and recovers during calm periods. The beaches of West Maui provide a good example of this seasonal variability. During the summer months, the predominant southerly waves generated by distant storms in the South Pacific transport beach sand from south to north. Conversely, during the winter months, large waves from the North Pacific dominate and

beach sand is transported from north to south. If shoreline positions or beach surfaces are measured during the same time of year, data review may suggest that the beach is relatively stable, when in actuality the beach may be highly dynamic. Seasonal erosion along these dynamic beaches is amplified when there is an underlying trend of chronic shoreline retreat. For example, the problem of chronic shoreline retreat punctuated by seasonal beach erosion has been especially severe at Kahana in West Maui, where several multi-story condominium buildings are threatened by beach erosion during winter months. Although temporary erosion control structures built using heavy sand bags have been installed on a property-by-property basis to protect threatened investments, the beach in front of these structures has been largely lost. Kahana and many other similar examples show that Hawai`i beaches would benefit from a littoral cell based management approach, that is management focused on an entire beach system rather than individual properties, which is one of the SSBR program goals and has been recommended in numerous beach management plans (DLNR, 2010; County of Maui, 2008; DLNR, 1999; among others).

Storm and wave impacts are not just limited to erosion, as wave run-up and resultant inundation can significantly impact structures and infrastructure along the shoreline. Kahana in West Maui provides another example as the road at both the northern and southern extents of the bay is frequently overtopped during large wave events. According to Mase (1989), de Waal and van der Meer (1992), and Stockdon et al. (2006), wave run-up is a function of the offshore wave characteristics, bottom bathymetry, and beach topography. Moreover, wave runup may also be influenced by the width of an added beach berm (i.e. through beach nourishment). Beach restoration activities that serve to widen an existing beach often result in reducing the extent of wave run-up, which adds another level of coastal erosion control. Therefore, considering the beach that fronts Lower Honoapiilani Road at Kahana has nearly vanished, beach restoration may mitigate the effects of wave run-up in this area and other areas facing similar challenges.

As discussed above, shoreline protection measures in Hawai`i have historically been implemented on a property-by-property basis. This disparate response to coastal erosion has resulted in shoreline hardening (i.e. the construction of seawalls, bulkheads, revetments, etc.). The implementation of these shoreline hardening projects, also known as coastal armoring projects, has contributed to the narrowing and loss of chronically eroding beaches in Hawai`i (Romine and Fletcher, 2012; Fletcher et al., 1997; Hwang and Fletcher, 1992). For example, 9% or 13 miles of beaches on Kaua‘i, O‘ahu, and Maui have been completely lost to erosion over the past century, nearly all of which fronted coastal armoring (Fletcher et al., 2012). Table 2 summarizes the results of this study by detailing the length of historic beach studied, extent of beach that has been lost, and length of beach that remains. It should be noted that the referenced study did not document or analyze all beaches, such as beaches fronted primarily by emergent beach rock or reef rock, or beaches along the Nāpali Coast of Kaua‘i, Hāna and East Maui, or Kāne‘ohe on O‘ahu.

Table 2. Length of Beach Studied by Fletcher et al (2012)

	Length of Beach Studied (miles)		
Island	**Historic***	**Lost**	**Remaining**
O'ahu	66	5	61
Maui	56	4	52
Kaua'i	47	4	43
Combined	**169**	**13**	**156**

*beach studied by Fletcher et al. (2012)

Outlook for Hawai`i Beaches

Sea level rise will increase the frequency and severity of wave inundation, erosion, and flooding events (DLNR, 2017). Either hard (i.e. coastal armoring) or soft (i.e. beach restoration) solutions can be used to mitigate these coastal hazards (i.e. protect upland development). Presently, permitting beach restoration projects in Hawai`i is time-consuming and cost prohibitive. However, given the outlook of chronic beach loss throughout the Hawaiian Islands due to sea level rise and poorly sited coastal development, we must take big strides to make beach restoration projects more attractive. The purpose of this programmatic environmental assessment is to facilitate a more efficient and predictable regulatory environment for beach restoration. This must be done if our community wishes to conserve beaches for this generation and generations to follow.

Sea level rise is increasing the extent and severity of erosion and loss of beach environments in Hawai`i (Romine, 2013). Studies have shown that shoreline recession rates are expected to double by mid-century when considering the projected increase in the rate of sea level rise (Anderson et al., 2015). The distance over which waves run-up and wash across the shoreline will increase with sea level rise. As water levels increase, less wave energy will be dissipated through breaking on nearshore reefs and waves will impact the shoreline at a higher elevation, which increases erosion potential.

Observations of shoreline dynamics suggest that the influence of sea level rise on shoreline change is presently minor compared with the influence of sediment availability (sum of sources and sinks) related to human impacts and persistent physical processes such as cross-shore, longshore, and aeolian (wind) sediment transport (Anderson et al., 2015). However, future accelerated sea level rise is expected to have an increased effect on coastal morphology (Stive, 2004), with a vast majority of Hawai`i beaches in a state of chronic erosion by mid-century (Anderson et al., 2015). Sediment transport, and thus shoreline migration, is the result of multiple nonlinear processes that dynamically interact with existing morphology over a variety time and spatial scales (Stive et al., 2002; Hanson et al., 2003). Therefore, beaches will be further shaped by changes in sediment transport patterns as a result of higher water levels over fringing reefs.

Tidal-flood frequencies for minor (nuisance) impacts are rapidly increasing and accelerating (Thompson et al., 2019; Sweet et al., 2018; Ezer and Atkinson, 2014; Sweet et al., 2014; Sweet

and Park, 2014). These impacts were documented statewide by the Hawai`i and Pacific King Tide Project, which engaged citizen scientists in documenting tidal flooding during the spring and summer of 2017 (University of Hawai`i Sea Grant College Program, 2017). These elevated water levels provided a glimpse of Hawai`i's near future. The 2017 NOAA report, *Global and Regional Sea Level Rise Scenarios for the United States*, shows that Hawai`i is likely to be among the first states in the nation to experience chronic sea level rise related flooding. For example, assuming an intermediate sea level rise scenario, a flooding event that occurred once every 5 years at the beginning of the century is expected to occur 5 times a year sometime between 2020 and 2030 (an annual probability increase of 25). This sea level rise scenario assumes a 1.0 meter (3.28 feet) sea level increase by 2100, which is an intermediate (i.e. mid-range) scenario based on the latest global mean sea level rise projections from NOAA (Sweet et al., 2017).

Increased conservation and maintenance efforts are needed if beaches are to be sustained for current and future generations, particularly in the face of changing climate and sea level rise. In an effort to quantify future sea level rise impacts, and evaluate the need for mitigation measures, the Hawai`i Sea Level Rise and Vulnerability Adaption Report included modeling to determine the potential future exposure of each island to multiple coastal hazards. The report included analysis of coastal hazards considering: passive flooding, annual high wave flooding, and coastal erosion. The impact footprints of these three hazards were combined to define the projected extent of chronic flooding due to sea level rise, termed the sea level rise exposure area (SLR-XA). Not all hazards were analyzed for each island due to limited historical information and geospatial data; therefore, results presented below are only provided for locations where all hazards were modeled (i.e. O'ahu, Maui, and Kaua'i). The modeling approach, data inputs, assumptions and limitations, and results are detailed in the Hawai`i Sea Level Rise Vulnerability and Adaptation Report (DLNR, 2017).

Using these model results, University of Hawai`i Sea Grant assessed the potential for shoreline hardening and beach loss in the Hawai`i Sea Level Rise Vulnerability and Adaptation Report. The study looked at the potential for beach loss in the hypothetical scenario that widespread shoreline armoring is permitted fronting threatened buildings and roads. This preliminary assessment does not account for accelerated erosion adjacent to shoreline structures and does not include other adaptation measures (i.e. managed retreat, nourishment, etc.). Assuming widespread armoring, Table 3 identifies the length of beach potentially lost considering 1.0 feet of sea level rise, while Table 4 considers 3.2 feet of sea level rise (DLNR, 2017). Beach loss estimates are categorized by development type in the backshore, such as existing armored sites (i.e. hardened) and roads and buildings that would be sites for potential future armoring if permitted. All beach fronting coastal armoring will be impacted in both scenarios (i.e. potentially lost). However, the length of beach lost that fronts roads and buildings more than doubles when increasing from 1.0 to 3.2 feet of sea level rise.

Table 3. Length of Beach Potentially Lost Assuming Widespread Armoring is Allowed with 1.0 Feet of Sea Level Rise

	Length of Beach* Potentially Lost (miles) Fronting:			
Island	**Armoring**	**Roads**	**Buildings**	**Total**
O'ahu	18	2	5	25
Maui	11	4	4	19
Kaua'i	5	2	3	10
Combined	**34**	**8**	**12**	**54**

* studied by Fletcher et al. (2012) and DLNR (2017)

Table 4. Length of Beach Potentially Lost Assuming Widespread Armoring is Allowed with 3.2 Feet of Sea Level Rise

	Length of Beach* Potentially Lost (miles) Fronting:			
Island	**Armoring**	**Roads**	**Buildings**	**Total**
O'ahu	18	7	13	38
Maui	11	9	7	27
Kaua'i	5	4	8	17
Combined	**34**	**20**	**28**	**82**

* studied by Fletcher et al. (2012) and DLNR (2017)

The data underscores the likely loss of our beaches due to sea level rise and on-going coastal armoring. Thus, the purpose of this program is to provide the coastal community with an efficient, cost effective, and environmentally sustainable tool to combat beach loss and coastal erosion effects.

Table 5. Beach at Risk of Loss

	Length of Beach* at Risk (miles)		Percent of Beach* at Risk	
Island	**1.0 Feet SLR**	**3.2 Feet SLR**	**1.0 Feet SLR**	**3.2 Feet SLR**
O'ahu	20	33	33%	54%
Maui	15	23	29%	44%
Kaua'i	6	13	14%	30%
Combined	**41**	**69**	**26%**	**44%**

* studied by Fletcher et al. (2012) and DLNR (2017)

Table 5 identifies the length of beach studied that is at risk of being lost on O'ahu, Maui, and Kaua'i. Over the past century, these islands have lost 13 miles of beaches, in total. However, the Hawai`i Sea Level Rise Vulnerability and Adaptation Report (DLNR, 2017) suggests that an additional 69 miles of beaches could be lost this century if widespread armoring is allowed on eroding beaches. To better understand scale, this is nearly half (44%) of the studied beach length. Even with a sea level elevation increase of 1.0 feet, a third of the remaining beaches studied on O'ahu and Maui could be lost.

Hawai`i Beach Restoration History

The sections that follow discuss the history of beach restoration in Hawai`i. Included is a discussion of previous projects and steps that the State of Hawai`i has taken to preserve its

beaches using nature-based coastal hazard mitigation techniques. Beach restoration is not a new concept as it has been successfully used worldwide and throughout Hawai`i to preserve and restore this dynamic natural resource that is influenced by water levels, wave energy, and sand supply.

Beach restoration projects, for the purposes of this staff report and the associated PEA, are defined as projects that entail beach nourishment, sand pushing, sand backpassing, sand bypassing, and limited use of beach stabilization structures; Consideration of such structures would require clear demonstration of compatibility with the existing littoral system (i.e. for the existing natural and/or engineered shoreline environment) and avoidance of any negative effects on the beach or marine environment. Many of these beach restoration projects include the use of dredge plants to recover sandy material from marine-based deposits. As such, these "dredge projects", as they are often commonly referred, can also be termed "sand recovery" projects – both of these terms are used interchangeably within this document.

Historical Overview of Beach Restoration in Hawai`i

Beach restoration has been practiced in Hawai`i since at least 1939 when an experimental project pumped sand from a reef flat to fill a narrow beach fronting the Halekulani Hotel in Waikīkī. Beach nourishment in Hawai`i to restore pre-existing beaches and construct new beaches began in earnest in the 1950s during the post-WWII boom. In 1948, the Board of Harbor Commissioners of the Territory of Hawai`i commissioned a study focusing on beach erosion in Waikīkī (Wiegel, 2002). The study, which was completed in 1951, recommended a number of improvements to the shoreline at Waikīkī Beach. As a result of this study, the Waikīkī Beach Erosion Control Project was initiated; roughly 300,000 cubic yards of sand was placed on Waikīkī beaches between the late 1950s and late 1970s. However, little to no nourishment was completed following this period, which may be one of the reasons why this project gained a reputation of being "a 50-year series of uncoordinated attempts to restore Waikīkī Beach" (Miller and Fletcher, 2003). Elsewhere in Hawai`i, beach nourishment projects had not been constructed until the twenty-first century. Since the year 2000, projects have been implemented on the islands of Kaua`i, Maui, O`ahu, and Hawai`i due to the efforts of the OCCL.

Influence of Hawai`i Coastal Erosion Management Plan

The Hawai`i Coastal Erosion Management Plan (COEMAP) promotes beach nourishment and restoration as a viable alternative to coastal armoring (DLNR, 1999). Development of this strategic plan was initiated January 1996 by the DLNR to address coastal erosion within a framework of beach protection. With assistance from the University of Hawai`i, the COEMAP encourages science-based decisions in beach resource conservation and management. Coordinated efforts resulted in the development of the COEMAP that was adopted in 1999 by the Board of Land and Natural Resources (BLNR). Adoption of the COEMAP led to the establishment of the DLNR Coastal Lands Program (CLP), which is administered by the Office of Conservation and Coastal Lands (OCCL).

The COEMAP provides guidelines and planning approaches for beach protection, management, and restoration. Specifically, the following goals were identified within the plan to improve Hawai`i's erosion management system:

1. Promote consistent and uniform policy of erosion management at the state level.
2. Consider erosional trends and processes, and other coastal hazards, at the zoning and subdivision stages of land development.
3. Implement beach and dune restoration with beach nourishment as a viable management option in Hawai`i. Streamline and coordinate the permitting necessary to achieve this goal and improve interagency coordination and communication.
4. Implement a continuous source of scientific data and research products to support erosion hazard management decisions.
5. Create and maintain a continuous public education and awareness campaign.
6. Establish coastal land acquisition programs.
7. Develop a technical guidance manual for development, restoration, and redevelopment of the coastline.

Moreover, detailed recommendations and initial implementation steps were included in the plan to improve erosion management in the State of Hawai`i. COEMAP and its subsequent implementation established a new framework for the protection of beaches and coastal ecosystems and highlighted the importance of these natural treasures for our economy and culture.

Hawai`i's Existing Small Scale Beach Nourishment Program

The DLNR currently authorizes small-scale beach and dune nourishment projects under its Small Scale Beach Nourishment (SSBN) program. The SSBN program was introduced March 8, 2000 with the publication of a draft statewide Programmatic Environmental Assessment (PEA) in the Environmental Notice. The goal of the program was to reduce shoreline armoring while protecting upland development and enhancing public access with minimal negative environmental consequences. The permitting process was streamlined by consolidating permitting within DLNR, through agreements with the U.S. Army Corps of Engineers and the State Department of Health, Clean Water Branch, with the issuance of the State Programmatic General Permit (SPGP) on April 5, 2005. Projects permitted under the program are limited to the placement of 10,000 cubic yards of beach compatible sand. More than 10 projects (2 projects per year) were permitted and constructed under the program before the SPGP expired April 25, 2010. Since the SPGP expired, applicants have been prohibited from conducting any project activities below the high water line without additional permits. This restriction has deemed many of these small-scale projects unfeasible due to the time and cost involved in securing up to six additional permits. As a result, the number of projects permitted under the program since the expiration of the SPGP has decreased to less than one project per year. Moreover, restoration of a degraded beach system often requires placement of sand both above and below the water line to meet design and advanced fill volumetric requirements.

Hawai`i Beach Restoration Outlook

Nature-based techniques, such as beach nourishment and restoration, are being recognized federally and at the state level as effective methods for addressing coastal erosion without compromising natural resources and processes (USACE, 2018). The Hawai`i Shore and Beach Preservation Association (HSBPA) identified beach restoration as an economically and environmentally viable alternative for managing Hawai`i's eroding beaches for the purposes of environmental conservation and mitigation of coastal hazards (HSBPA, 2014). The number of SSBR projects is likely to increase with increasing public awareness of nature-based beach management and restoration alternatives through a streamlined SSBR program and its benefits and increasing need for coastal erosion control with climate change and sea level rise.

A statewide map that delineates Hawai`i's beaches is provided in Exhibit 1. Beaches shown on this map were defined by combining USDA and USGS data; USDA beaches were defined using the gridded USDA-NRCS Soil Survey Geographic (gSSURGO) database while USGS beaches were defined using the USGS Geologic Map of the State of Hawai`i (Sherrod et al., 2007). Although Exhibit 1 highlights locations where beach restoration projects could be constructed, it should not be used to define the limits of program applicability. For example, the map shows beaches on Kaho'olawe, which is not included within the SSBR program scope.

Hawai`i Beach Restoration Regulations

Hawai`i has been characterized as one of the most heavily regulated of all the 50 states (Callies, 2010). The regulatory system is largely borne from a centralized state land use system, the federal regulations to protect public health and the environment, increased public participation in the planning process, and Hawai`i's unique environmental and cultural qualities and challenges. Thus, because of the uncertainty of permitting beach restoration projects in Hawai`i, the entitlement process can be arduous, time consuming, and costly. As Callies notes, "clean water is particularly important to Hawai`i. Tourists are the consumers of the major state industry, and they flock to Hawai`i for the beaches, the waterfalls, the marine wildlife, and the diving and snorkeling. Hawai`i's regulators are aware of the importance of maintaining that experience for visitors." (Callies, 2010).

Current Regulatory Process

In Hawai`i, all submerged lands (i.e. lands generally located seaward of the shoreline as determined per HRS Chapter 205A) are zoned in the Conservation District and are regulated and owned by the State of Hawai`i Department of Land and Natural Resources (DLNR). Congress granted state ownership over submerged lands out to three nautical miles from the coastlines in 1953 under the Submerged Lands Act. A Conservation District Use Permit (CDUP) is required for beach nourishment because the activity occurs on submerged lands. The CDUP is a discretionary permit granted by the State of Hawai`i Board of Land and Natural Resources (BLNR). Issuance of the CDUP is contingent upon the project conforming to the following criteria (Hawai`i Administrative Rules, Section 13-5-30):

1. The proposed land use is consistent with the purpose of the conservation district;
2. The proposed land use is consistent with the objectives of the subzone of the land on which the use will occur;

3. The proposed land use complies with provisions and guidelines contained in Chapter 205A, HRS, entitled "Coastal Zone Management", where applicable;
4. The proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community, or region;
5. The proposed land use, including buildings, structures, and facilities, shall be compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels;
6. The existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon, whichever is applicable;
7. Subdivision of land will not be utilized to increase the intensity of land uses in the conservation district; and
8. The proposed land use will not be materially detrimental to the public health, safety, and welfare.

Of the criteria listed above, the most critical is that the proposed land use will not cause substantial adverse impacts to existing natural resources within the surrounding area, community, or region.

The CDUP may be issued after public hearings and acceptance of an Environmental Assessment (EA) or Environmental Impact Statement (EIS), which includes an assessment of potential impacts to cultural and archeological resources, unless exempt. At the federal level, there is one primary agency with regulatory authority for beach nourishment projects in Hawai`i. Projects taking place in navigable waters of the United States must comply with Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act which are administered through the U.S. Army Corps of Engineers (USACE), Regulatory Section. Beach nourishment projects also require a Section 404 Dredge and Fill permit, otherwise referred to in Hawai`i as a Department of the Army (DA) permit, which is issued by the USACE.

The USACE coordinates with the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS), the U.S. Fish and Wildlife Service (USFWS), and the Environmental Protection Agency (EPA) through an informal or formal consultation process to ensure that any given beach restoration project adheres to the federal guidelines and laws under each agency's purview in the regulatory process.

NMFS is responsible for the stewardship of the nation's living marine resources and their habitat within the United States Exclusive Economic Zone, which extends from 3 to 200 nautical miles offshore. Under the Marine Mammal Protection Act and the Endangered Species Act, NMFS covers protected species such as whales and turtles. In Hawai`i, NOAA has a variety of programs dedicated to the protection of endangered species including Humpback Whales, Hawaiian Monk Seals, and sea turtles. In addition, the Essential Fish Habitat (EFH) provisions under the Magnuson-Stevens Fishery Conservation Act direct NMFS to protect EFH throughout the range of federally-managed species. This includes state and federal waters.

The USFWS has natural resource stewardship responsibilities in the terrestrial, marine, estuarine, and freshwater ecosystems of the United States of America, and extends to U.S. territories and Compact nations. In Hawai`i, the USFWS has a variety of programs dedicated to the protection

of hundreds of endangered species, as well as trust resources such as coastal and coral reef ecosystems. For the USACE regulatory permitting process, the USFWS provides consultations and technical assistance under authorities such as the Endangered Species Act, Migratory Bird Treaty Act, the Clean Water Act, the Rivers and Harbors Act, the Fish and Wildlife Coordination Act (FWCA), and the National Environmental Policy Act. These consultations encompass federal trust resources in state and federal waters. The FWCA provides the basic authority for the Secretary of the Interior, through the USFWS, to assist and cooperate with federal, state, and public or private agencies and organizations in the conservation and rehabilitation of wildlife. The NMFS provides similar assistance and cooperation for wildlife species under the management responsibilities of the Department of Commerce. For water development projects, consultation under the FWCA is to be conducted with the USFWS, NMFS, and the agency administering the wildlife resources of the state in which the project is located.

The EPA is an agency of the United States federal government whose mission is to protect human and environmental health. Headquartered in Washington, D.C., the EPA is responsible for creating standards and laws that promote the health of individuals and the environment. The EPA seeks to protect and conserve the natural environment and improve the health of humans by researching the effects of and mandating limits on the use of pollutants. The agency regulates the manufacturing, processing, distribution, and use of chemicals and other pollutants. Accordingly, the EPA along with the USACE developed water quality guidelines governed under Section 401 and 404 of the Clean Water Act (CWA), which set forth procedures for determining if a beach restoration project is compliant.

Beach nourishment projects must also comply with the provisions of the federal Clean Water Act and Coastal Zone Management Act. Compliance review and permitting for these two laws has been delegated to state authorities in Hawai`i. The Hawai`i State Department of Health, Clean Water Branch (CWB) administers the Clean Water Act through their Section 401 Water Quality Certification (WQC) and National Pollution Discharge Elimination System (NPDES) permits.

The purpose of the Clean Water Act is to eliminate releases of high amounts of toxic substances into water, eliminate additional water pollution, and ensure that surface waters meet standards necessary for human sports and recreation. The Section 401 WQC is intimately tied to the federal DA permit, which must also address Clean Water Act provisions. Thus, issuance of the DA permit is contingent upon the issuance of the WQC by the Hawai`i CWB.

With respect to projects that require a federal permit, such as the DA permit, the State of Hawai`i Coastal Zone Management Office administers the provisions of the Coastal Zone Management Act through the issuance of a Coastal Zone Management (CZM) consistency determination.

According to Senate Bill 367, passed during the legislative session of 2021, the requirement for section 401 water quality certification has been waived for certain small-scale beach restoration projects authorized by the DLNR. Thus, with implementation of the SSBR program, DLNR OCCL will be responsible for enforcing permit conditions that are consistent with Section 401 of the Federal Clean Water Act pertaining to beach restoration and water quality protection. According to the legislation, The Department of Health shall not require a water quality certification pursuant to section 401 of the federal Clean Water Act under this chapter for any

applicant of the small-scale beach restoration program that has received notice of authorization to proceed from the DLNR OCCL.

The DLNR OCCL would essentially implement and enforce all water quality best management practices through the issuance of Small Scale Beach Restoration permits for the classes of beach restoration projects identified in the Programmatic Environmental Assessment, which contains in-depth discussions about water quality and necessary best management practices to protect water quality during sand placement activities. Any beach restoration project(s) falling outside the scope of the Programmatic Environmental Assessment and SSBR permit framework would be subject to an individual permit process including an individual 401 Water Quality Certification.

DESCRIPTION OF PROPOSED ACTION

In an effort to manage erosion stress, reduce impacts associated with climate change and sea level rise, increase coastal resiliency, and facilitate conservation and restoration of beach and dune ecosystems, OCCL wishes to enhance the SSBN program and implement a streamlined and coordinated regulatory process, particularly among the DLNR, USACE, and DOH, for small-scale beach restoration projects. As such, the OCCL proposes that the DLNR re-establish a streamlined SSBR permitting program that not only offers beach nourishment as a viable ecosystem-based management option to address coastal erosion but provides additional alternatives to managing beach sand to conserve this limited resource. Moreover, the program refines the definition of *small*, by limiting the sand placement area to the historically sandy area, to better avoid environmental impacts.

The purpose of the SSBR program is to provide a streamlined permitting approach that will allow for the implementation of coastal erosion control projects that will result in ecosystem restoration and improved public beach access while conserving Hawai`i's critical socio-cultural resource and a key attraction for Hawai`i's visitor-based economy. Beach restoration projects with properly planned and executed nourishment programs will assist in managing erosion threats to shoreline property and infrastructure, reduce impacts associated with climate change and sea level rise, and increase overall coastal resilience. Properly designed beach restoration projects can have other benefits within the broader coastal zone and ahupua'a such as ensuring the continued provision of habitat for various threatened and endangered species, protecting cultural sites and burials in the backshore, maintaining access to traditional fishing grounds and for other cultural and recreation practices such as diving and surfing, and improving water quality by providing a natural buffer between waves and exposed soil deposits and on-site sewage disposal systems along eroded shorelines. The goal of the program is to facilitate cost-effective and timely permitting of small scale beach restoration projects.

The proposed action includes the development of a streamlined regulatory process that facilitates the management, maintenance, and restoration of existing and historical (i.e. eroded, lost) beaches across the State of Hawai`i. In an effort to enhance public beaches with minimal negative environmental consequences, a programmatic goal is to provide an incentive for oceanfront property owners to seriously consider beach nourishment as an alternative to coastal armoring, which can be achieved through small-scale beach restoration project permit streamlining. This program would create a streamlined and simplified permitting process for

obtaining approval to undertake small-scale beach restoration activities. The process would provide homeowner associations, individual land owners, and governmental agencies the option to obtain federal and state approvals through the submittal of a single application to the DLNR OCCL. The program, if effectuated, would likely involve the development of an interagency programmatic agreement or memorandum of understanding, which will allow for a wide range of common beach restoration activities to be authorized through a single program. Although the program is not intended to include all permits, approvals, and/or concurrences required for the restoration and maintenance of beaches (e.g. County approvals, State Land easements), it will ideally include the more complex and burdensome permits in an effort to streamline the process for community organizations (e.g. Erosion Prevention Districts, Homeowner Associations, etc.), private land owners, and governmental agencies so that they may focus energy and resources on the restoration and maintenance tasks at hand.

This option would only be available for beach restoration activities that meet the criteria set forth in this report and the associated PEA, which excludes any activities that would cause significant negative impacts to any biological or cultural resources. Eligible activities for which BMPs and permit conditions will minimize and/or avoid negative impacts to the extent that they become insignificant can be permitted under the program and are detailed in this document and in the associated PEA.

This proposed program covers five (5) permits or authorizations and is in compliance with seventeen (17) different state and federal laws that currently govern elements of beach management, maintenance, and restoration (summarized in Table 6). The proposed program was carefully designed to save time and planning expenses. This program does not create any additional requirements for beach restoration. Although this proposed program describes the ideal permit streamlining scenario, this document evaluates the significance of potential environmental impacts that could result from SSBR projects statewide regardless of the permit streamlining method selected.

Table 6. Beach Restoration Permits, Authorizations, and Laws

Action	Agency	Authority	Notes
Coastal Zone Management Consistency Determination	State of Hawai'i Office of Planning, Coastal Zone Management Program	HRS § 205A-1 HRS § 205A-3 HRS § 225M-2	
Environmental Assessment / FONSI	Office of Environmental Quality Control	HRS § 343	
General Permit	U.S. Army Corps of Engineers	CWA § 404 CWA § 401 RHA § 10	Section 106 NHPA, Section 7 ESA, EFH, FWCA, MBTA, *NEPA compliance to be conducted by the USACE
Water Quality Certification	State of Hawai'i Department of Health Clean Water Branch	CWA § 401 HRS § 342D	
Conservation District Use Application	State of Hawai'i Department of Land and Natural Resources Office of Conservation and Coastal Lands	HRS § 183B HRS § 188-44	Board of Land and Natural Resources approval required
State Historic Preservation Review	State of Hawai'i Department of Land and Natural Resources State Historic Preservation	HRS § 6E	

This program is not intended to incorporate county permits that may be required during the course of beach management, maintenance, or restoration, such as those needed for staging operations on fast land. While most of the actions to restore Hawai`i beaches would involve the use of lands within the jurisdiction of state and federal agencies, this programmatic agreement may be used to support respective county actions, where applicable. Actions that are processed by the OCCL to manage, maintain, and restore beaches will continue to be reviewed by the respective county agencies through the active solicitation of their comments by OCCL. If the action to restore a Hawai`i beach involves the construction of beach stabilization structures on submerged land, the applicant, if not the state, will be required to obtain an easement from the DLNR. OCCL also acknowledges that HRS Section 174C, the State Water Code, may apply and require permits for some beach restoration activities that include beneficial reuse of beach compatible fill recovered from a stream mouth; it is not the intent of the program to include these permits at this time. Additionally, it is entirely reasonable to assume that a range of other permits may become applicable in different small-scale beach restoration projects, due to the range and diversity of beach systems across the state and design variability; individual projects are likely to have individual needs. Again, it is not the intent of the program to cover all potential and possible major permits that may be associated with small-scale beach restoration, only to cover those most commonly required for management, maintenance, and restoration activities and/or those considered to be the greatest hindrances to restoration efforts. In the event that an

individual project may require permits outside those covered under the program, the program, through the participating agencies and its community partners, will do its best to help individual applicants and projects navigate additional permits that may apply to an individual applicant's restoration activities.

Hawai`i beach restoration projects are governed by a complex range of federal, state, and local agencies. When fully implemented, the proposed program will create a process whereby small-scale beach restoration projects can obtain authorization under a series of laws and regulations using a single permit application. The program will be managed through DLNR OCCL. Upon receipt of a submitted permit application, OCCL will review the application for completeness and either acknowledge the submittal of a complete application or request additional information from the applicant. Once an applicant submits a complete application, OCCL will review the application and distribute it to additional resource agencies and advisory groups as stipulated within any programmatic agreement or memorandum of understanding. Activities eligible for authorization under the program will be sorted into permit categories, with Category I representing the lowest level of authorized activity (minor activities) and Category III representing the highest level (moderate activities). The permit categories and review process are outlined in Table 7. All authorized activities will be subject to conditions proposed in the associated PEA and restated in this report, any applicable Interagency Programmatic Agreement and/or Memorandum of Understanding, a Statewide Conservation District Use Permit, and additional site-specific conditions imposed based on the permit category and information provided during the application process.

The permit categories referenced above and outlined in Table 7 include beach restoration activities detailed in this report. Beach management activities are included within Category I but are separated into Category IA and Category IB to account for differences associated with conducting operations above and below mean high water. Beach maintenance activities are included within Category II and Category III. Category II projects are limited to local beach maintenance activities, while Category III projects include littoral cell based beach maintenance activities. Phased projects (i.e. temporary beach stabilization demonstration structure replaced with a permanent beach stabilization structure) and maintenance based on design triggers (i.e. when the restored beach erodes into the design template) will be allowed under one permit as long as the size and scope of the total project remains within program limitations. Although these activities may be used to restore beaches and mitigate erosion, they cannot be used to change ownership and use, which is consistent with the Hawai`i State Constitution, Article XI, Section 1.

A wide range of best management practices are listed to minimize negative effects to various coastal resources. In addition to standardized best management practices, every project (except Category IA) requires the development of location- and action-specific plans. These plans include sediment quality assurance/quality control, turbidity control, and construction quality assurance/quality control. Moreover, a project performance monitoring plan and a marine ecosystems monitoring plan may also be required for Category III projects. OCCL will review, approve, and enforce the implementation of these plans when required.

Table 7. Small Scale Beach Restoration Project Permit Categories and Review Process

Category	Avoidance and Minimization Measures	Scope	Review Process
Category IA	General Conditions and BMPs Site-Specific Conditions	Beach Management Operations (i.e. sand pushing, backpassing, bypassing) above mean high water. Beach quality sand meeting compatibility criteria may be moved within the littoral cell from an area of beach accretion to an area of beach erosion to manage chronic and seasonal erosion hazards. The equilibrium toe of the restored beach will remain within the historical extent of the beach.	Upon review of completed application, OCCL issues permit that includes project-specific avoidance and minimization measures. OCCL provides notice to cooperating agencies.
Category IB	General Conditions and BMPs Site-Specific Conditions Sediment QA/QC Plan Turbidity Control Plan Construction QA/QC Plan	Beach Management Operations (i.e. sand pushing, backpassing, bypassing, stream mouth clearing) above and below mean high water. Beach quality sand meeting compatibility criteria may be moved from an area of beach accretion to an area of beach erosion to manage chronic erosion and seasonal erosion hazards. The equilibrium toe of the restored beach will remain within the historical extent of the beach.	Upon receipt of completed application, OCCL forwards application to resource agencies as appropriate for 30-day review. Agencies can respond with one or more of the following: • Request additional information, and/or • Recommend additional site-specific conditions and BMPs Upon review of completed application and agency response, OCCL either requests additional information from the applicant or issues permit that includes project-specific avoidance and minimization measures OCCL provides notice to cooperating agencies of findings and/or issuance of permit
Category II	General Conditions and BMPs Site-Specific Conditions Sediment QA/QC Plan Turbidity Control Plan Construction QA/QC Plan	Beach Maintenance Operations (i.e. beach nourishment) limited to 1,000 cubic yards Beach quality fill meeting compatibility criteria for placement may come from nearshore and offshore waters, stream mouths, harbors, and upland sources to restore or nourish beaches and dunes. Recovery volume is limited to what can be placed in the beach fill template. The equilibrium toe of the restored beach will remain within the historical extent of the beach.	Upon receipt of completed application, OCCL forwards application to resource agencies as appropriate for 30-day review. Agencies can respond with one or more of the following: • Request additional information, and/or • Recommend additional site-specific conditions and BMPs Upon review of completed application and agency response, OCCL either requests additional information from the applicant or issues permit that includes project-specific avoidance and minimization measures. OCCL provides notice to cooperating agencies of findings and/or issuance of permit.
Category III	General Conditions and BMPs Site-Specific Conditions Sediment QA/QC Plan Turbidity Control Plan Construction QA/QC Plan Project Performance Monitoring Marine Ecosystems Monitoring	Beach Maintenance Operations (i.e. beach nourishment) limited to 25,000 cubic yards. Beach quality fill meeting compatibility criteria for placement may come from nearshore and offshore waters, stream mouths, harbors, and upland sources to restore or nourish beaches and dunes. Recovery volume is limited to what can be placed in the beach fill template. Beach Stabilization Structures. The equilibrium toe of the restored beach will remain within the historical extent of the beach.	Upon receipt of completed application, OCCL forwards application to resource agencies as appropriate for 30-day review. Agencies can respond with one or more of the following: • Request additional information; and/or • Recommend additional site-specific conditions and BMPs, and/or • Recommend additional project performance monitoring requirements • Recommend additional marine ecosystems monitoring requirements Notice is published in OEQC bulletin for 30-day public review which is to coincide with a public meeting in the project area. Upon review of completed application and agency response, OCCL either requests additional information from the applicant or issues permit that includes project-specific avoidance and minimization measures. OCCL provides notice to cooperating agencies of findings and/or issuance of permit.
Not Covered		Beach Maintenance Operations (i.e. beach nourishment) that exceed 25,000 cubic yards. Activities that are likely to have significant negative impacts on marine life, water quality, coastal processes, or shoreline access. Activities that are likely to result in the take of endangered, threatened, or otherwise protected species, or significant damage to special aquatic sites such as wetlands, vegetated shallows, mudflats, coral reefs, and seagrass beds, or long-term significant impairment of coastal waters. Activities which may cause significant adverse impacts to cultural resources.	Upon review of completed application, OCCL notifies applicant that activities are outside program scope and that individual permits must be pursued. No notice is provided to cooperating agencies.

Activities Eligible for Application Under the Program

Activities that will be eligible for application under the program are limited to beach management, maintenance, and restoration activities that meet the criteria set forth in this staff report and in the associated PEA, which excludes any activities that would cause significant negative impacts to environmental or cultural resources. Best management practices and other permit conditions were developed through the PEA process to minimize and avoid negative impacts to the extent that they can be permitted by the state under the program. Activities are limited such that the equilibrium toe of the restored beach remains within the historical extent of the beach. Activities include the following:

- **Beach Management Operations.** Beach management operations include sand pushing, backpassing, and bypassing. Sand may be moved within the littoral cell from an area of beach accretion to an area of beach erosion to manage chronic and seasonal erosion hazards (See example in Figure 1). Sand may be pushed from the lower to the upper profile to manage erosion and run-up impacts, redistributed to rebuild dunes, berms, and beach slopes, and occasionally from behind the shoreline back to the active beach to mitigate loss of sand due to wave overwash. Sand backpassing may be used as a recycling mechanism to move sand from a sink (e.g. stream mouth) back to its source. Moreover, sand bypassing may be used as a mechanism to redistribute sand around a natural or man-made littoral transport obstruction such as a stream mouth, channel, harbor, or groin to manage downdrift effects. Beach management operations will be

designed to include appropriate buffers around any significant biological or cultural resources and avoid any negative effects to coastal processes or recreational resources. The volume of sand that may be moved will be governed by permit categories (Table 7), engineering judgement, and best available data such as topographic and bathymetric survey data, LIDAR (Light Detection and Ranging) data, aerial photographs, and historical erosion studies. The equilibrium toe of the restored beach will remain within the historical extent of the beach. Sand may be moved using mechanical and hydraulic systems.

Figure 1. Sand pushing effort undertaken to restore a backshore berm at Pupukea, Oahu

- **Beach Maintenance Operations.** Beach maintenance operations include the recovery, transport, and placement of beach compatible fill to maintain the general character and functionality of the beach and the adjacent dune and coastal system (See example in Figure 2). Beach fill that meets compatibility criteria may be used to restore or nourish beaches and dunes to mitigate erosion and shoreline flooding impacts and improve public beach access and the beach environment. Beach fill may come from upland and stockpiled sources, stream mouths, harbors, and both nearshore and offshore waters. Nearshore and offshore deposits, although similar in character (i.e. both are marine-based), differ in that nearshore deposits are generally part of the active littoral system while offshore deposits are generally detached from the active littoral system due to bathymetry (i.e. in deeper water, seaward of the reef crest). All beach fill recovered from stream mouths and the nearshore will remain within the littoral cell, while beach fill recovered from harbors and offshore may be passed to an adjacent littoral cell. The design of the beach fill recovery, transport, and placement areas will be governed by sediment characteristics, appropriate buffers around any significant biological or cultural resources, and the avoidance of any negative effects to coastal processes or recreational resources. The volume of beach compatible fill that may be recovered, transported, and placed will be governed by permit categories (Table 7), engineering judgement, and best available data such as topographic and bathymetric survey data, LIDAR data, aerial photographs, and historical erosion studies. The equilibrium toe of the restored beach will remain within the historical extent of the beach. Beach fill may be recovered, transported, and placed using mechanical and hydraulic systems.

Figure 2. Placement of sand on Kuhio Beach in Waikiki, Oahu, in which sand was sourced from an adjacent area inside the Ewa swim basin.

- **Beach Stabilization Structures.** Beach stabilization structures (e.g. groins) may be used to stabilize placed sand within a littoral cell in certain cases (See example in Figure 3). These structures may be considered when it is clearly demonstrated that they are appropriate for the existing littoral system (i.e. for the existing natural and/or engineered shoreline environment) and will avoid any negative effects on the beach or marine environment. Beach stabilization structures should be combined with beach nourishment to offset historical losses and restore the beach. Beach stabilization structures may include, but are not limited to, the following components: sand filled geotextile bags or tubes, stone filled marine mattresses, geotextile filter fabric, core stone, armor stone, steel or vinyl sheet pile, timber piles, and concrete, among others. The design of beach stabilization structures will include appropriate buffers around any significant biological or cultural resources and avoid any negative effects to coastal processes or recreational resources; for example, beach stabilization structures will be appropriately sited and prefilled in an effort to avoid any negative effects to adjacent and downdrift beaches. The effects on coastal processes, marine organisms, abutting property, view plains, and public access will be negligible. The performance of beach stabilization structures will be monitored, analyzed, and documented. Any unintentional effects identified through monitoring will be addressed through structural modification, removal, or supplemental fill placement. The equilibrium toe of the restored and stabilized beach will remain within the historical extent of the beach. Structures may be constructed using mechanical systems.

Figure 3. Stabilized beach condition prior to (left) and following (right) completion of Stable Road groin field project on the island of Maui.

Secondary actions included within the program to support primary actions detailed above are listed below:

- Construction, installation, and removal of temporary construction-related erosion protection, including but not limited to silt containment devices and sand bag revetments.
- Construction of temporary shore-parallel or shore-perpendicular dikes of variable length using existing or recovered beach sediments along shore to control the discharge of hydraulic fill and turbidity.
- Construction of nearshore submerged berms for the purposes of retaining adjacent subaerial beach.
- Planting vegetation to stabilize the beach with special conditions for types of vegetation and maintenance (DLNR, 2004).

Activities Categorically Excluded from the Program

Activities that are likely to have significant negative impacts on marine life, water quality, coastal processes, or shoreline access are categorically excluded from the program. This includes activities that are likely to result in the take of endangered, threatened, or otherwise protected species or are likely to result in significant damage to special aquatic sites such as wetlands, vegetated shallows, mudflats, coral reefs, and seagrass beds. Specific identified activities that are excluded from authorization or consideration under the program are those that utilize any of the following:

- Increasing project size beyond program limitations, as defined in Table 7, by constructing multiple projects within the same littoral cell.
- Long-term beach fill stockpiling for future projects. Dredging is limited to recovering the volume of beach compatible fill that will be used to construct the project (i.e. no additional fill may be placed or stockpiled for subsequent nourishment).
- Placement of any non-beach quality or compatible fill including, but not limited to, pulverized coral.
- Construction of new shoreline armoring structures (e.g. seawalls, revetments).

- Actions determined for any reason to have a significant adverse environmental or cultural impact.
- Actions that would cause extreme turbidity, purposeful damage to live rock or coral, extreme eutrophication, or other long-term impairment to water quality.

Construction Methods

Either mechanical or hydraulic systems can be used to recover (dredge) beach fill from nearshore and offshore borrow areas (i.e. sand deposits used to nourish a beach). Mechanical systems could include the use of a barge-mounted excavator or crane and clamshell for beach fill recovery and a scow or deck barge for beach fill delivery. Hydraulic systems could include a suction pump with or without a slurry agitator, water jet, or cutterhead attachment for beach fill recovery and a pipeline for beach fill delivery. Moreover, considering the small-scale and opportunistic nature of these projects, it is anticipated that innovative hybrid systems (i.e. combined mechanical and hydraulic systems) could be used to recover and deliver beach fill; for example, an excavator could be used to recover sand that is delivered to the fill area via hydraulic pipeline. Dust pan and hopper (i.e. drag arm) type dredges are not anticipated due to surface irregularities, borrow area size, and distance between fill and borrow sites. The dredge type and sediment delivery system utilized will depend on many factors, including competition in the bid process, pumping or haul distance, wave conditions, bottom type, borrow site depth, and extent of dredging.

Once the material is delivered to the beach, onshore construction crews will shape the material into the desired construction template. The material is typically managed in a way that reduces turbidity by constructing temporary shore-parallel dikes along which the water from the slurry will run, allowing additional time for material to settle out of suspension before the seawater returns to the ocean. Temporary dewatering basins may be constructed to control turbidity, particularly for projects where temporary shore-parallel or shore-perpendicular dikes or other diversion measures cannot be constructed of sufficient length due to limited existing beach width or length to allow material to settle out of suspension before the seawater returns to the ocean. Equipment such as bulldozers and front-end-loaders are typically used to shape fill placed on the beach and move pipes as necessary. At the location where the submerged pipeline comes ashore, the slurry is typically diverted with a 90-degree elbow to direct the flow towards the project area. As portions of the project are constructed, the pipeline is extended to allow for the next section of beach to be constructed.

Beach stabilization structures are typically constructed using land-based operations, though marine-based operations are effective given suitable water depths and sheltered locations. Earth moving equipment necessary to prepare the foundation may include trucks, excavators, and bulldozers. Excavators, cranes, and clamshell buckets may be used to install marine mattress foundations, armor stone, place beach fill, and conduct ancillary operations necessary to construct and pre-fill beach stabilization structures. Temporary cofferdams and trestles may be used to support the construction of beach stabilization structures. Additional equipment would likely include fencing to enclose construction areas, survey equipment, and timber mats.

INTERAGENCY SCOPING MEETING MINUTES

An Interagency Scoping Meeting was held at DLNR's office in Honolulu on September 29, 2017 to discuss the development of the associated Programmatic Environmental Assessment (PEA) in support of the proposed Small Scale Beach Restoration (SSBR) Program. Attendees included representatives from federal and state resource agencies including the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, National Marine Fisheries Service, Environmental Protection Agency, Department of Health, Department of Land and Natural Resources, Office of Environmental Quality Control, and the Coastal Zone Management. Representatives from APTIM and Honua Consulting were also in attendance. The meeting's primary objective was to bring agency representatives together to discuss the proposed development of a statewide PEA that will serve as a mechanism to provide a streamlined permitting approach that will allow for the implementation of coastal erosion control projects that will result in ecosystem restoration and improved public shoreline access while maintaining Hawai`i's visitor-based economy.

SUMMARY OF COMMENTS

Through the release of the Draft PEA, agencies at both the state and federal level were consulted. Comments on the Draft PEA were accepted and incorporated into the Final PEA.

Four (4) letters were received in response to the Draft Programmatic Environmental Assessment, which was made available for 30-day public review and comment in the Office of Environmental and Quality Control (OEQC) Environmental Bulletin on July 13, 2019[1].

Comments on the Draft PEA were accepted and incorporated into the Final PEA. A listing of individuals, organizations, and agencies that submitted comments are listed below, while the comments and responses are provided in Appendix C.

- State of Hawai`i, Office of Planning
- U.S. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Pacific Islands Regional Office
- U.S. Fish and Wildlife Service, Aquatic Ecosystems Conservation
- Douglas Meller

Comments received and applicant responses are included below:

The **State Office of Planning (OP)** reviewed the Draft PEA and had the following comments to offer.

1. The OP suggests the Final PEA provide a statewide distribution map of beach nourishment projects and beach management projects, respectively, according to **Table 6. Hawai`i Beach Nourishment Project History,** and **Table 7. Hawai`i Beach Management Project History.** The beach nourishment and beach management project distribution maps will serve as a resource to illustrate and reflect where the previous beach nourishment projects and beach management projects were performed in the state.

[1] http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2019-07-23-ST-DEA-Statewide-Small-Scale-Beach-Restoration-Program.pdf

2. One programmatic goal of the proposed SSBR program is to provide an incentive for oceanfront property owners to seriously consider beach nourishment as an alternative to coastal armoring. According to the Draft PEA, page 17, the proposed project areas include the coastal land areas, shoreline areas, and nearshore ocean waters within the State of Hawai`i, including the islands of Hawai`i, Maui, Moloka`i, Lana`i, O`ahu and Kaua`i. The OP suggests that the Final PEA identify on a map where the 30 to 40 SSBR projects over the first 5-years of program implementation, as estimated by the Draft Programmatic EA, page 12, would be potentially conducted across the State.
3. Page 31, **Table 10. Small-Scale Beach Restoration Project Permit Categories and Review Process** states that the OCCL will forward complete SSBR project applications to resource agencies as appropriate for 30-day review. The OP recommends that the Final PEA provide further detail and list all resource agencies that would potentially receive review requests for SSBR project applications under permit Category IB, Category II and Category III.
4. **Section 5. Best Management Practices,** pages 108-116, the Draft PEA discusses a wide range of best management practices to minimize project-oriented impacts and their negative effects to various coastal resources. The OP concurs that a sediment quality assurance/quality control plan, a turbidity control plan, and a construction quality assurance/quality control plan should be prepared to ensure beach fill placed meets compatibility specifications for all permit categories except Category IA. The OP suggests that the Final PEA clarify which agency or agencies will review and approve these respective plans, and which agency will further enforce the implementation of all approved plans, including a project performance monitoring plan for permit Category III.
5. The Draft PEA explains that CZM Act federal consistency is a vital part of establishing the SSBR program. **Section 7.2.3 - Coastal Zone Management Consistency Determination,** alternatively, if the Army Corps of Engineers processes the SSBR under a Regional General Permit, then the federal consistency review will be conducted under the provisions of 15 CFR Part 930, Subpart C - Consistency for Federal Agency Activities. General permits proposed by a federal agency, i.e., Army Corps of Engineers, are subject to the procedures for review under 15 CFR Part 930, Section 930.3 l(d). Whether the federal consistency review will proceed under 15 CFR Part 930, Subpart C or Subpart D, will be determined by the Hawai`i CZM Program during the regulatory consultation for the SSBR program.

Applicant's Response

Thank you for your letter dated August 21, 2019 that contains comments on the Draft Programmatic Environmental Assessment (PEA) for the Statewide Small Scale Beach Restoration (SSBR) Program. As the consultant for the applicant, the Department of Land and Natural Resources Office of Conservation and Coastal Lands (DLNR-OCCL), we provide the following responses to your comments.

1. *A map that shows the statewide distribution of beach nourishment and beach management projects was added to the Final PEA per your recommendation.*
2. *Considering beach management and nourishment projects, collectively termed beach restoration projects within the PEA, are soft solutions, they are often periodically constructed at an interval that depends on the local rate of erosion and the volume of material managed or placed. It is anticipated that many of the beach nourishment and beach management projects already constructed will need to be maintained or nourished during the first 5-years of program implementation. Additional projects may be*

constructed near stream mouths or along our sandy coasts. Project locations are difficult to define, as they require a rare mixture of compatible sediment and project funding. Therefore, a statewide map that delineates our sandy shorelines was included within the Final PEA to highlight locations where beach restoration projects could be considered.

3. *Text was added to Section 2.2.5 of the Final PEA to clarify that distribution groups will be defined within any programmatic agreement or memorandum of understanding used to streamline the permitting process.*
4. *We acknowledge your concurrence that a sediment quality assurance/quality control plan, a turbidity control plan, and a construction quality assurance/quality control plan should be prepared to ensure beach fill placed meets compatibility specifications for all permit categories except Category IA. To address your comment, the Final PEA clarifies which agency will review and approve the respective plans, and which agency will further enforce the implementation of all approved plans, including the project performance and ecosystems monitoring plans for permit Category III; in an effort to quickly clarify within this letter response, the DLNR-OCCL will be the agency responsible for reviewing, approving, and enforcing the implementation of all referenced plans.*
5. *We acknowledge that federal consistency review will be determined by the Hawai`i Coastal Zone Management (CZM) Program during regulatory consultation for the SSBR program. It is understood that the Hawai`i CZM program will determine whether federal consistency review will proceed under 15 CRF Part 930, Subpart C or Subpart D.*

The **National Marine Fisheries Service, Pacific Islands Regional Office** reviewed the PEA and had the following comments to offer:

On July 23, 2019, NMFS, Pacific Islands Regional Office (PIRO) received your request for comments and technical assistance on the Draft Programmatic Environmental Assessment for the Statewide Small Scale Beach Restoration program (SSBR). Below is our technical assistance intended to help your permit-applicants comply with the essential fish habitat (EFH) provisions of the Magnuson-Stevens Fishery Conservation and Management Act (MSA; Section 305(b)(2) as described by 50 CFR 600.920) as well as the Fish and Wildlife Coordination Act (FWCA), which will be required as part of the U.S. Army Corps of Engineers (USACE), Honolulu District, Regulatory Branch's permitting process. NMFS is concerned that while certain aspects of the proposed permitting process may be streamlined through the SSBR program, there will likely still be a need for individual EFH consultations. In general, PIRO believes that based on the Draft EA, individual projects administered through the proposed SSBR would necessitate individual EFH consultation and in many cases compensation or offset for adverse effects to habitat. This outcome is of course highly dependent on the particular details of a project including scale, location, surrounding habitat, and type of action. We describe our concerns and provide preliminary recommendations intended to help you provide your clients with the best possible compliance package to PIRO. This technical assistance does not fulfill any federal responsibilities and does not constitute an EFH consultation as EFH consultations, which are mandatory for federal agencies (e.g, USACE) when the proposed activities could reduce the quality or quantity of designated EFH (50 CFR 600.920). Compliance with the EFH provisions of the MSA can be achieved through completing individual EFH consultations with NMFS or in conjunction with other regulatory compliance Processes such as the Fish and Wildlife Coordination Act (FWCA, 16 U.S.C. 661-666c).

PIRO Habitat Mandates

Magnuson Stevens Fishery Conservation and Management Act

A consultation with NMFS is required when a federal agency works in an area that will adversely affect EFH (i.e. the federal agency is directly conducting the work, funding work, or permitting work) {MSA; Section 305(b)(2) as described by 50 CFR 600.920). The EFH consultation process entails the federal action agency contacting NMFS and providing an EFH assessment, which contains key information: a description of the proposed action, a determination from the federal agency as to how the action will affect EFH, an assessment of those adverse effects, and proposed ways to mitigate for the adverse effects, if applicable. An adverse effect to EFH is anything that reduces the quality and or quality of EFH. It may include direct, indirect, and site specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of an action. NMFS will then review the assessment and may provide conservation recommendations to avoid, minimize, or offset the listed adverse effects to EFH.

EFH consultations are scalable and commensurate to the severity and type of adverse effects to EFH. The greater the adverse effect, the greater scrutiny is needed to make a determination. As the order of effect increases, qualitative, semi-quantitative, and quantitative EFH assessments are appropriate, sequentially. Often, when EFH resources need to be quantified, PIRO will provide notice as to why an "expanded" EFH consultation is necessary (50 CFR 600.920(h)(i)), unless preconsultation and/or sufficient avoidance and minimization has been presented along with quantification of unavoidable losses. Although we have provided you and your permit Applicants with our most recent EFH Draft Consultation Guidance document to assist with the EFH consultation process, below we provide detail specific to your proposal that should be included within an EFH assessment for beach nourishment consultations.

In the main Hawaiian Islands, EFH has been designated in the marine water column from the surface to a depth of 1,000 meters (m), from the shoreline to the outer boundary of the Exclusive Economic Zone (5,150 kilometers/200 nautical miles/230 miles), and the seafloor from the shoreline out to a depth of 700 m. These waters and submerged lands are designated as EFH because they support various life stages for the management unit species (MUS) identified under the Western Pacific Regional Fishery Management Council's, *Pelagic and Hawai`i Archipelago Fishery Ecosystem Plan* (hereafter, Hawai`i FEP). The MUS and life stages found in these waters include: eggs, larvae, juveniles, and adults of Bottomfish MUS; eggs, larvae, juveniles, and adults of Crustacean MUS; and eggs, larvae, juveniles, and adults of Pelagic MUS. Specific types of habitat considered as EFH include coral reefs, patch reefs, hard substrate, seagrass beds, soft substrate, artificial or man-made structures, mangrove, lagoon, estuarine, surge zone, deep slope terraces and pelagic/open ocean. In addition, the Hawai`i FEP has designated various areas within the Hawai`i Archipelago as Habitat Areas of Particular Concern 1 for providing functions of ecological importance and being a rare habitat type that is sensitive to human-induced environmental degradation and development activities.

Federal agencies may incorporate an EFH Assessment (EFHA) into documents prepared for other purposes, such as Endangered Species Act Biological Assessments, National Environmental Policy Act documents, or public notices. If an EFHA is contained in another document, it must still include all of the mandatory contents required by the EFH guidelines. It

must also be clearly identified in the table of contents and text of the document as an EFHA. Alternatively, an EFH Assessment may incorporate by reference other relevant environmental assessment documents that have already been completed. The referenced document must be provided to NMFS with the EFHA.

The EFHA process can also be combined with existing environmental consultation and review processes. The EFH guidelines at 50 CPR 600.920(t) enable Federal action agencies to use existing consultation or environmental review procedures to satisfy the MSA consultation requirements if the procedures meet the following criteria: 1) the existing process must provide NMFS with timely notification of actions that may adversely affect EFH; 2) notification must include an assessment of the proposed action's impacts on EFH that meet the requirements for EFHA discussed in section 600.920(e); and 3) NMFS must have made a finding pursuant to section 600.920(f)(3) that the existing process satisfies the requirements of section 305(b)(2) of the MSA. For the purposes of the beach nourishment programmatic process, the EFHA should be integrated with the Fish and Wildlife Coordination Act (FWCA; see below) coordination process. In situations where a Federal action may adversely designated EFH for Federally managed fisheries, EFH Conservation Recommendations can be considered within the FWCA reporting recommendations.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA, 16 U.S.C. 661-666c) mandates that wildlife, including fish, receive equal consideration and be coordinated with other aspects of water resource development. This is accomplished through consultation with NMFS, the U.S. Fish and Wildlife Service (USFWS), and appropriate state agencies whenever any body of water is proposed to be modified in any way and a Federal permit or license is required. These agencies determine the possible harm to fish and wildlife resources, the measures needed to both prevent the damage to and loss of these resources, and the measures needed to develop and improve the resources, in connection with water resource development. **NMFS,** the USFWS, and state agencies submit comments to Federal licensing and permitting agencies on the potential harm to living marine resources caused by the proposed water development project, and recommendations to prevent harm (NMFS 2004). In all, the FWCA compliance process includes the following four steps: consultation (notice of initiation); reporting (e.g., field surveys and summary reports) and recommendations to protect, mitigate, and restore natural resources; Action agency consideration of recommendations, and Action agency implementation of recommendations.

NMFS Concerns

NMFS is concerned that while certain aspects of the proposed permitting process may be streamlined through the SSBR program, there will likely still be a need for individual EFH consultations. Considering the anticipated increase in the number and frequency of beach restoration projects, the information needs for consultation could become a bottleneck if they are not adequately addressed before NMFS involvement. Specifically, NMFS is concerned that there are several technical aspects of beach restoration projects not currently being considered: 1) increase in the need for quantitative resource survey assessments and 2) consideration of the full suite of stressors that may cause adverse effects to EFH. Below we provide details related to these concerns and guidance on how these issues can be resolved through early coordination. In addition, we provide an Enclosure at the end of this letter with specific avoidance and minimization measures that would be applicable to permit applicants.

Quantitative Resource Survey Assessments
Project applicants are responsible for providing sufficient resource survey information or benthic habitat maps. Applicants should conduct preliminary, quantitative benthic marine survey assessments of the entire project footprint area within the littoral cell- hard and soft bottom, groin footprints, between groins, offshore of the groins, where sediment models predict deposition (see below), along or nearby sand pipeline pathways, and nearby the sand borrow areas-before an EFH consultation is initiated. The level of complexity of surveys will scale proportionally with the extent of habitat forming EFH resources (e .. g., corals and submerged aquatic vegetation) that may suffer adverse effects (i.e., direct, indirect, and cumulative). Surveys and modeling efforts should consider the impacts of climate change, for example increased storm activity and sea level rise, on beach restoration and on the resources.

Contingencies should be designed to accommodate analyses that utilize greater replication and higher statistical power to avoid the need to obtain higher resolution data. Post-action monitoring plans would reduce uncertainty during potential EFH offset determinations. Assessments should be commensurate with the scale of the potential adverse effects as increasing the specificity and resolution of the scientific and natural resources information available will reduce uncertainty of adverse effects and support to EFH determinations. NMFS can provide assistance to Applicants to further refine and clarify the types and complexity of survey information that will be needed.

Sediment Modeling: Depending on the extent of resources present within or near a beach nourishment footprint, modelling may be needed to predict how the proposed projects, including those with groins, will influence sediment transport and water motion. The modelling effort should include and consider the following areas: the groin footprints, between the groins, offshore of the groins, along or nearby sand pipeline pathways. and nearby the sand borrow areas. If there is a high probability that sediment deposition will occur over sensitive and hard-to-replace hardbottom habitat, corals, and seagrass, these areas should be prioritized survey areas both before and after construction. Completing these modelling efforts and including them in the EFH assessment would help reduce uncertainty and better inform EFH conservation recommendations and any offset determinations.

Sediment Testing: Information about sediment chemistry, nutrient content, and other chemical characterization would be needed both on bulk samples (i.e., all size fractions) and within each size fraction or sediment class (e.g., mud, silt, fine sand, sand, etc.). This is needed because smaller size fractions that include silt and mud classes typically retain higher organic carbon content and are more detrimental to habitat forming EFH than those sediment types with larger sizes. This information should also be included in the EFH assessment to inform conservation recommendations and potential offset determinations.

Water Quality Monitoring: Robust water quality monitoring (e.g., turbidity, sedimentation rates, nutrients, dissolved oxygen, etc.) is needed to assess conditions before (i.e., baseline), during, and after beach restoration activities. These activities should be informed by the sediment modeling and daily tide and current velocity predictions (https://www .pacioos.hawaii.edu/voyager) to select sampling. Special attention should be placed on collected turbidity and sedimentation rate information at areas where there are habitat forming EFH resources, including corals and submerged aquatic vegetation. For other criteria needed for beach restoration projects, NMFS would defer to the requirements of the Environmental Protection Agency (EPA) delegated through the state of Hawai`i, Department of Health, Clean Water Branch's (DOH), 401 Water Quality Certification (WQC), Applicable Monitoring and Assessment Plans (AMAP).

Stressor Effects

NMFS is concerned that there are a variety of adverse effects from stressors on EFH that have not been fully considered in the Draft EA. Short-term, long-term to permanent, and cumulative adverse effects to EFH are likely to occur from beach restoration projects due to physical damage, sedimentation and turbidity, and nutrients and chemical contamination.

Physical Damage: Direct contact to habitat forming EFH resources (e.g., corals and submerged aquatic vegetation) from construction equipment and materials, as well as from installation activities, can lead to permanent and lesser adverse effects. The level of these adverse effects (i.e., short-term, long-term to permanent, and cumulative) will vary on a case-by-case basis dependent on the density and extent of EFH resources present and the dredge and/or sediment retention design that are chosen. For example, the 2012 Waikiki Beach Nourishment and Dredging Project resulted in physical damage to the fossil limestone reef rock bordering sand borrow areas that were dredged *(Draft EA,* Section 4.2.2.3). In addition, recent projects in Waikiki have chosen to use a geotextile material to construct a sandbag groin. The long-term durability of this material is currently unknown and therefore carries a possibility of becoming compromised and potentially posing a risk to surrounding EFH. Due to this stressor, a variety of measures to avoid and minimize physical damage to EFH may be needed to reduce unavoidable losses.

Sedimentation and Turbidity: Short-term, long-term to permanent, and cumulative adverse effects to habitat forming EFH may occur due to sedimentation and turbidity during proposed beach nourishment projects. Sedimentation and turbidity from hopper dredging at borrow areas may occur due to disruption from drag arms and heads and unmitigated overdredge disposal of fine sediment classes; land-based beach filling activities, after-the-fact from micritic calcium carbonate leaching from beach fill, and resuspension from groins is they alter local hydrodynamics.

Nutrients and Chemical Contamination: Adverse effects may occur during dredging from borrow areas and after beach fill is placed due to release of sediment-bound nutrients and chemical contaminants; the latter may also occur from leaking construction equipment and introduction of treated materials into the marine environment, including lumber during multiple types of beach restoration projects.

Conclusion

We greatly appreciate your early EFH coordination and the opportunity to provide comments on your Draft EA. In summary, we expect that proposed beach nourishment projects will have short term, long-term to permanent, and cumulative adverse effects to EFH. Due to these anticipated effects, we anticipate some projects will entail compensation or offset through individual EFH consultation. NMFS is concerned that there are multiple aspects of the EFH consultation that are not currently addressed in the Draft EA. First that these individual EFH consultations will necessitate an increased level of information and monitoring data to be included in the EFH assessment and that there are potential stressors to EFH that have not been so far addressed. We have described the stressor impacts to EFH from your proposed activities; and provided guidance on the EFH consultation process, content to include in an EFHA, and avoidance and minimization recommendations by stressor-type.

Enclosure

Recommended Avoidance and Minimization Measures

Below is a list of avoidance and minimization measures that your permit-Applicant's could anticipate to include in their potential EFH Assessments during EFH consultation.

Physical Damage

1. Restrict all physical contact with the bottom to unconsolidated sediments devoid of coral and seagrass.
2. Work platforms should be selected based on the following preferential hierarchy:
    a. conduct all work from land;
    b. use a barge with auto-positioning systems where thrusters will not cause increased turbidity;
    c. anchor barges to (1) shoreline infrastructure; (2) nearby existing moorings; (3) anchors or spuds in/on sand only (as possible, have SCUBA divers lay anchors by hand in sand areas).
3. Prior to mobilizing, ensure all construction equipment, ballast, and vessel hulls do not pose a risk of introducing new invasive species and will not increase abundance of those invasive species present at the project location.
4. Minimize physical contact by divers and construction related tools, equipment, and materials with live benthic organisms, regardless of size, especially corals and seagrass.
5. Prevent trash and debris from entering the marine environment through the use of nets or barriers.
6. Relocate infrastructure materials (e.g., riprap, piles, boulders) that are colonized with benthic communities according to an approved relocation plan[2]. If infrastructure materials (e.g. riprap, piles, boulders) that are colonized with benthic communities will be removed or destroyed as part of permitted activities, relocate these materials to an appropriate receiving site.
7. Have a qualified marine biologist identify and relocate hard corals that would be otherwise lost to project activities and which can be logistically moved according to an approved relocation plan[3].
8. Ensure that new structures minimize shading impacts to marine habitats. Incorporate measures that increase the ambient light transmission under structures. Some of these measures include: maximizing the height of the structure and minimizing the width of the structure to decrease shade footprint; grated decking material; using the fewest number of pilings necessary to support the structures to allow light into under-pier areas and minimize impacts to the substrate; and aligning the boardwalk in a north-south orientation for the path of the sun to cross perpendicular to the length of the structure and reduce the duration of shading.
9. Perform pre-deployment reconnaissance (e.g., divers, drop cameras) to ensure that all anchors are set on hard or sandy bottom devoid of corals and seagrass and that chosen anchor locations take into consideration damage that could occur from the anchor chain if the vessel swings due to currents or tides.

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[2] Approved plans must ensure corals are moved to adjacent area{s) with similar habitat conditions. onto suitable substrates, using reliable attachment methods, in similar orientations. Monitoring is not required.

[3] Approved plans must ensure corals are moved to adjacent area(s) with similar habitat conditions, onto suitable substrates, using reliable attachment methods, in similar orientations; and corals must be monitored for success (more frequently at the beginning, and for a duration of no less than 2 years). To provide accountability reference corals or a reference reef site should also be monitored concurrently to compare observed changes.

10. Require a long-term maintenance plan for gear, instrumentation, and equipment to prevent failures that lead to permanent adverse effects to EFH (e.g., vessel groundings).
11. Ensure structures are properly weighted to prevent movement from currents or waves and implement a maintenance plan to ensure integrity over time.
12. Lower utility lines or cables and maneuver the placement in a controlled manner using SCUBA in order to avoid all coral resources, when practicable.
13. Develop a Wave and Storm Contingency Plan for construction materials and equipment.
14. Develop a monitoring plan to consistently assess the condition of groin materials as well as a contingency plan if the condition is endangering EFH.

Sedimentation and Turbidity

1. Conduct intertidal work at low and or slack tide.
2. Conduct work during calm sea states; stop work during high surf, winds, and currents.
3. Perform work outside of the main coral spawning period in summer (May to August) to minimize sedimentation and turbidity effects to coral eggs and larvae in the area. Peak spawning periods vary by species and geography and are based on best available science.
4. If appropriate, consider using cofferdams to dewater the project impact site.
5. Install sediment, turbidity, and/or pneumatic curtains, and use real-time monitoring (automated or manual) for barges and dredge vessels to detect fai lure and implement stop-work processes if pre-determined project thresholds are reached (use standards from Clean Water Act 401 water quality certification). In areas of soft sediment, consider partial length turbidity curtains in order to reduce resuspension of sediment during high winds and currents.
6. Use soft and/or natural engineering solutions to maintain/restore natural flow volumes and velocity.
7. Minimize disturbances to stream banks, and place abutments outside of the floodplain whenever possible. Seek to maintain baseline water flow volume and velocity within the system.
8. Utilize environmental clamshell buckets for mechanical dredging.
9. Design the nourishment activities to maintain or replicate natural stream channel and flow conditions to the greatest extent practicable.
10. Revegetate shoreline areas with appropriate native species and fully stabilize disturbed upland areas prior to removing silt fences and erosion prevention measures.

Chemical Contamination

1. Conduct work during the dry season when possible; stop work during storms or heavy rains. Neutralize or treat contaminated sediments and/or waters prior to release from the project site.
2. Inspect all equipment prior to beginning work each day to ensure the equipment is in good working condition, and there are no contaminant (oil, fuel, etc.) leaks.
3. All equipment found to be leaking contaminants must be removed from service until repaired.
4. All fueling or repairs to equipment must be done in a location with the appropriate controls that prevents the introduction of contaminants to marine environment.
5. Prevent discharges of chemicals and other fluids dissimilar from seawater into the water column.
6. Use materials that are nontoxic to aquatic organisms, such as untreated wood, concrete, or steel (avoid pressure treated lumber).
7. Use diffusers on the end of subtidal discharge pipes to minimize impacts from discharges.

8. Prevent bentonite drilling fluid from contacting live benthic organisms.

Applicant's Response

Thank you for your letter dated August 20, 2019 that contains comments on the Draft Programmatic Environmental Assessment (PEA) for the Statewide Small Scale Beach Restoration (SSBR) Program. As the consultant for the applicant, the Department of Land and Natural Resources Office of Conservation and Coastal Lands (DLNR-OCCL), we provide the following responses to your comments.

Comment #1: NMFS is concerned that while certain aspects of the proposed permitting process may be streamlined through the SSBR program, there will likely still be a need for individual [Essential Fish Habitat] EFH consultations.

Response: As stated in the Draft PEA, the purpose of the SSBR program is to provide statewide environmental guidelines and a streamlined permitting approach that will allow for the implementation of coastal erosion control projects that will result in habitat restoration along with improved public beach access and enhanced community resilience while maintaining Hawai`i's visitor-based economy. The goal of the program is to enable small-scale beach restoration projects to be implemented by private and government applicants through a cost-effective, timely, and environmentally-conscious permitting program. In order to meet the purpose and goals of the program, it is the State's objective to implement a programmatic permitting process at both State and Federal levels.

As stated in your letter, a requirement to conduct individual EFH consultations could become a bottleneck in streamlining the SSBR permit process. Our intention is to address informational needs for NMFS through this PEA. The DLNR-OCCL is planning to coordinate with the U.S. Army Corps of Engineers (USACE) to help facilitate the development of a Regional General Permit (RGP). Therefore, it is a programmatic goal to have the USACE coordinate with NMFS through its federal consultation process.

Should the USACE move forward with the development of a RGP for SSBR projects, it is anticipated that they will enter into formal consultation with NMFS. During this consultation, the USACE will determine if the existing level of information regarding EFH, as presented in Sections 3.2.2 (pages 62-72), 4.2.2.2 (pages 98-100), and 5.7 (pages 114-115) within the Draft PEA contains adequate information to satisfy the needs of the Magnuson-Stevens Fishery Conservation and Management Act (Public Law 94-265) (16 U.S.C. 1801-1882, April 13, 1976, as amended). Furthermore, additional Avoidance and Minimization requirements were integrated into the Final PEA (see responses to Comment #2 below) and will be included, as agreed to, within any future Interagency Programmatic Agreement and conditions to a Regional General Permit, if the USACE agrees to develop these agreements and streamlined permits. It is possible that, during their consultation, the USACE could determine the need for the development of a stand-alone Programmatic Essential Fish Habitat Assessment (PEFHA) which would then support any SSBR project that is permitted via a RGP. In the spirit of adhering to the goal of creating a "streamlined" and "cost-effective" permitting approach for future SSBR

projects, the State does not support the recommendation of individual EFH consultations for each individual project as it defeats the purpose of the program.

Comment #2: NMFS is concerned that there are several technical aspects of small-scale beach restoration projects not currently being considered: 1) increase in the need for quantitative resource survey assessments and 2) consideration of the full suite of stressors that may cause adverse effects to EFH.

In regards to quantitative resource surveys, NMFS commented that applicants should conduct preliminary, quantitative benthic marine survey assessments of the entire project footprint area within the littoral cell - hard and soft bottom, groin footprints, between groins, offshore of the groins, where sediment models predict deposition, along or nearby sand pipeline pathways, and nearby the sand borrow areas - before an EFH consultation is initiated. In addition, NMFS has requested sediment modeling, sediment testing, and water quality monitoring.

In regards to stressor effects, NMFS is concerned that there are a variety of adverse effects from stressors on EFH that have not been fully considered in the Draft EA. Short-term, long-term to permanent, and cumulative adverse effects to EFH are likely to occur from beach restoration projects due to physical damage, sedimentation and turbidity, and nutrients and chemical contamination.

Response: We disagree that long-term adverse effects to EFH are likely to occur with SSBR projects given the detailed assessment of potential environmental consequences documented in the Draft PEA and the program limitations and Best Management Practices (BMPs) outlined in the Draft PEA, including limiting sand placement to a historical footprint of the beach. We also do not anticipate that there will be significant short-term effects on surrounding EFH. Beaches and nearshore submerged areas are, by their nature, highly dynamic environments. Sedimentation and turbidity are part of the natural processes in the surf zone driven by changing wave conditions and storms. Sedimentation and turbidity beyond natural background levels and potential physical damage to EFH will be avoided by adhering to BMPs described in Section 5 of the Draft PEA.

The BMPs listed in Section 5 of the Draft PEA include a number of quantitative resource surveys and are designed to prevent any adverse effects to EFH. Considering the potential formal consultation between the USACE and the NMFS during the formulation of a RGP that would greatly benefit the SSBR program, an additional BMP was added to all BMP subsections (Section 5.1 through Section 5.8) that reads "Other measures as agreed to in any future permits or agreements". Furthermore, the following additional condition was added to Section 5.7 of the Final PEA:

- *For Permit Category III, an appropriate marine ecosystems monitoring plan should be prepared to monitor, analyze, and document project related effects upon significant biological resources within and adjacent to the project area. This plan should outline the responsibilities of each stakeholder in the project as they relate to monitoring marine ecosystem effects. The plan should specify the minimum control, baseline (preconstruction), and post-construction monitoring, surveying, analysis, and reporting*

requirements to be undertaken to evaluate marine ecosystem effects. The plan should describe the methods and means to monitor significant biological resources within and adjacent to the project area.

NMFS recommended that BMPs regarding "Sediment Modeling" be included as a part of quantitative resource surveys. Considering the goal of the program is to streamline the permitting of small-scale beach restoration projects (defined in terms of project size, effects, and cost), it is anticipated that project design and effects will generally be evaluated using existing information such as historical erosion and sediment transport trends from the UH Coastal Geology Group, USACE, and others. However, additional field measurements and numerical modeling may be requested for Category III projects where insufficient data is available to understand sediment transport processes and/or where beach stabilization structures (e.g. groins) are proposed.

If the BMPs do not provide protection to EFH as expected and adverse effects cannot be immediately remedied through adaptive management, then the DLNR would require an assessment be undertaken to quantify the adverse effects on the environment, including EFH. If there were identifiable adverse impacts to EFH as a result of the Permittee's action or inaction, then the DLNR would pursue resolution of those impacts through the department's permit noncompliance procedures.

It is important to point out that SSBR projects may have a number of beneficial effects for habitat. Beaches, which are being lost at alarming rates to erosion and seawall construction in Hawai`i, are essential habitat for endangered monk seal and green sea turtles as well as shorebirds. In many areas, such as along West Maui, erosion and loss of carbonate beaches is leading to increased erosion of volcanic clay and landscaping soil that has become exposed in the backshore, which is negatively impacting nearshore water quality by increasing turbidity and sedimentation. Restored beaches can provide a buffer between these backshore soil and clay deposits and help to protect water quality. It is estimated that the number of on-site sewage disposal systems (OSDS) in the State of Hawai`i exceeds 110,000. The majority (80%) of the OSDS are cesspools, in which sewage effluent receives no treatment prior to being released into the environment. OSDS are undoubtedly a major contributor of nutrient contamination to our coastal waters. The DLNR-OCCL has documented instances where these systems have become exposed on eroding beachfront properties. Restored beaches and dunes can provide an improved buffer fronting properties with OSDS to help protect water quality. As described in Section 5.7. of the Draft PEA, applicants will be required to demonstrate that beach fill is compatible and free of contaminants of any kind including excessive silt, sludge, anoxic or decaying organic matter, or any other pollutant that would produce an undesirable condition to the beach or water quality.

Ultimately, the work conducted under the PEA and SSBR program is intended to further the mission of both the DLNR and NOAA. The PEA demonstrates that these projects can be completed with little negative effects, especially considering the rigorous BMPs included to avoid project-related impacts and minimize negative effects to the various resources found within project areas. As discussed above and detailed within the PEA, it is likely that positive effects will be realized through the creation of habitat and the reduction of threats to water

quality. Resources that will likely benefit include a number of threatened and endangered species and their associated critical habitat, essential fish habitat, and a wide range of functional groups including corals, algae, fish, and birds.

An email response was received from the U.S. Fish and Wildlife Service which stated that the agency had no additional comments regarding the Final Environmental Assessment for the project.

The following comments were received from a member of the public, **Douglas Meller**:

Contrary to some statements in the Draft Programmatic EA, the makai boundary of shoreline property sometimes differs from the regulatory shoreline certified by the BLNR under Section 205A-42, Hawai`i Revised Statutes. Hawaiian beaches are privately owned in places where the makai boundary of Land Court property is seaward of the regulatory shoreline. And contrary to other statements in the Draft Programmatic EA, the state does not always have jurisdiction over public beaches. Federal military agencies claim jurisdiction over some public beaches. And state Executive Orders and revocable permits have transferred jurisdiction for some public beaches to the counties.

The general public and shoreline property owners often have different concerns. That's why, for all small-scale beach restoration projects, I strongly recommend both mailed notice to abutting property owners and publication of early/timely notice and contact information in the state's Environmental Notice. I also suggest that the Final Programmatic EA specifically mention public notice as a part of the proposed "action".

I also recommend that if private property abuts a proposed small-scale beach restoration project, before any person or agency undertakes the project, there needs to be an appropriately worded contract to:

- ensure that the owner(s) of the project area consent to the project.
- protect both the State and the affected county from liability after the project ceases to stabilize the beach and the regulatory shoreline.
- ensure that the State and the affected county have the right but not the obligation to undertake future beach restoration/stabilization in the project area.
- ensure that the property owner (and successors and lessees) won't apply for BLNR certification of the regulatory shoreline further makai than the location of the regulatory shoreline prior to the project.
- ensure that the property owner (and successors and lessees) won't claim ownership of property makai of their private property boundary prior to the project.
- ensure that private structures which lack any required government agency permits and approvals will be removed from the project area.
- ensure that abutting private property will not be used for a business which stores unrented commercial recreational equipment on a publicly owned beach.

Thank you for your email dated August 1, 2019 that contains comments on the Draft Programmatic Environmental Assessment (PEA) for the Statewide Small Scale Beach Restoration (SSBR) Program. As the consultant for the applicant, the Department of Land and Natural Resources Office of Conservation and Coastal Lands (DLNR-OCCL), we provide the following responses to your comments.

1. *We acknowledge that the makai boundary of shoreline property sometimes differs from the regulatory shoreline certified by the Board of Land and Natural Resources (BLNR) under Section 205A-42, Hawai`i Revised Statutes. Considering information provided was intended to describe general conditions, language was added to clarify this generalization.*
2. *We agree that the general public and shoreline property owners have different concerns. This is why moderate activities require that notice be published in the Office of Environmental Quality Control (OEQC) bulletin for 30-day public review which is to coincide with a public meeting in the project area. Notice is not required for minor maintenance and management activities, which is consistent with Hawai`i Administrative Rules Chapter 13-5.*
3. *We appreciate the recommendations that you provided to address project consent, liability, obligations, ownership, and use. Activities that are eligible for application under the program are limited to beach management, maintenance, and restoration activities that meet specific criteria, which excludes any activities that would cause significant negative impacts to environmental or cultural resources. Although these activities may be used to restore beaches and mitigate erosion, they cannot be used to change ownership and use, which is consistent with the Hawai`i State Constitution, Article XI, Section 1.*

ANALYSIS

Following preparation of the PEA, the OCCL finds that:

1. The proposed activities are identified land uses within the Conservation District, according to Hawai`i Administrative Rules (HAR) §13-5-22 (P-16) *Beach Restoration*;

2. The project is consistent with the purpose of the Conservation District and consistent with the goals and objectives of the Hawai`i Coastal Erosion Management Plan (COEMAP) adopted by the Board of Land and Natural Resources in 1999. It is a major goal of COEMAP to promote appropriate erosion control and beach restoration efforts such as this.

3. The beach restoration program has been designed such that it effects the smallest environmental and community "footprint" possible and follows COEMAP guidelines and policies.

4. In July 2020, the Department of Land and Natural Resources issued a Finding of No Significant Impact (FONSI) to the environment was for the Final Programmatic Environmental Assessment (FPEA) supporting the Statewide CDUP and Statewide Small Scale Beach Restoration. The FPEA was published in the August 8, 2020 edition of the Environmental Notice. *http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2020-08-08-ST-FEA-Statewide-Small-Scale-Beach-Restoration-Program.pdf*

DISCUSSION:

In an effort to manage erosion stress, reduce impacts associated with climate change and sea level rise, increase coastal resiliency, and facilitate conservation and restoration of beach and dune ecosystems, OCCL wishes to enhance the SSBN program and implement a streamlined and coordinated regulatory process. The proposed action includes the re-authorization, revision, and extension of a streamlined regulatory process that facilitates the management, maintenance, and restoration of existing and historical beach systems across Hawai`i. Projects eligible under this program would entail beach management operations (sand pushing, bypassing, and backpassing), beach maintenance operations (i.e. recovery, transport, and placement of beach compatible fill), and the construction of beach stabilization structures.

Management, maintenance, and restoration of the existing beach resource will contribute to the preservation and continuation of this very valuable natural resource. The purpose of implementing the Proposed Action is to enhance natural resources (beaches) and provide beachfront property owners and government entities with a cost effective and time sensitive alternative to coastal armoring. No project will include the restoration of a beach shoreline beyond the historical extent. Projects that do not comport to the classes of small scale beach restoration projects that may be authorized under the program will be required to go through individual permitting (e.g., major CDUA, Water Quality Certification, etc.).

A wide range of BMPs will be implemented to reduce the potential for damage of natural and cultural resources. The associated PEA provides a thorough overview of the potential for loss or damage of natural and/or cultural resources and concludes that due to its scope (small-scale, use of native sediment, and mitigation measures) there is no potential for an irrevocable commitment to loss or destruction of any natural or cultural resource.

Small-scale beach restoration projects will enhance the beneficial use of the environment by replacing sections of lost beaches and providing enhanced opportunities for recreation (beach use and access to the sea), cultural expression, and ecological processes. Restoration of beaches will serve to provide an increase of habitat extent for a range of biological resources including nesting sea turtles and resting monk seals. Furthermore, the restoration of eroding shorelines will serve to reduce erosion-induced nearshore turbidity. No adverse long-term impacts to the environment are anticipated to result from this project. There may be temporary short-term effects during construction, however, these are not anticipated to be significant. Any effects incurred will be mitigated to the maximum extent practicable using best management practices and site specific monitoring procedures.

The proposed project is consistent with Hawai`i's State Environmental Policy as established in Chapter 343(4)(A), HRS, to establish, preserve, and maintain recreation areas, including the shoreline, for public recreational use. Beaches have been called the backbone or engine of the State's economy. Beaches are essential for our livelihood and to maintain a competitive edge over other visitor destinations. Beaches are an inextricable part of Hawai`i's history and culture. Small-scale beach restoration activities will, therefore, improve and contribute to the economic

and social welfare of the community and State. A comprehensive Programmatic Environmental Assessment (PEA) was completed to support a Programmatic Statewide Small Scale Beach Restoration Permit - *http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2020-08-08-ST-FEA-Statewide-Small-Scale-Beach-Restoration-Program.pdf.* Substantial input was received from the National Marine Fisheries Service (NMFS). Staff believes that it addressed NMFS's concerns in the Final PEA and has included their comments and OCCL's response in this report. Further supporting the implementation of this program the Hawaii State Legislature recently passed SB-367 which stated as follows, "The department shall not require a water quality certification pursuant to section 401 of the federal Clean Water Act under this chapter for any applicant of the small-scale beach restoration program that has received notice of authorization to proceed from the department of land and natural resources' office of conservation and coastal lands." The OCCL is also working with the U.S. Army Corps of Engineers to streamline permitting at the federal level by the development of a Regional General Permit for Small Scale Beach Restoration projects.

Small-scale beach restoration projects will serve to restore and maintain existing beach resources and not expand their extent beyond their historical position. It is possible that several small-scale beach restoration projects could be constructed within the same area and at the same time could result in cumulative effects. However, the cumulative volume of these small-scale beach restoration projects would be limited to 25,000 cubic yards of fill and therefore any cumulative effects would be minimal. The OCCL will prohibit multiple projects being proposed in a single littoral cell if the total amount of fill exceeds 25,000 cubic yards.

Threatened and endangered species and their habitat would be present within some project areas associated with actions taken under the SSBR program. Each application for small-scale beach restoration will include a description of the marine biological communities in the immediate project areas and identification of any endangered or threatened species and their habitat (e.g. EFH). All projects will follow best management practices and pre-determined terms and conditions to avoid any affects to threatened and endangered species and their habitat. In addition, special conditions, restrictions, and even prohibitions can be imposed where specific circumstances necessitate it. The Department will continue to maintain discretionary authority over all actions.

In many cases, the proposed small-scale beach restoration projects will provide beneficial effects by extending the shoreline seaward, increasing the space between the water and the backshore infrastructure. This will increase the wave energy dissipating properties of the beach, decrease wave run-up and flooding of the backshore area, and thus reduce susceptibility to natural ocean hazards providing substantial benefits to landward development and facilities. These proposed projects will often increase the shoreline elevation and therefore may reduce the existing tsunami flood hazard risk. However, beach restoration projects may not be executed in such a manner to extend private property boundaries seaward.

Although some minor, short-term effects are expected to occur from the operations associated with the Proposed Action, overall, small-scale beach restoration is expected to enhance beach resources which are vital to our economy, our environment, and our culture, while reducing the

demand for coastal armoring (which will accelerate beach loss) and increasing the sand volume within degraded beach cells.

It is understood that extensive care has been taken in designing the program to minimize user conflicts and environmental impacts, including impacts on water quality and local flora and fauna including coral reefs.

As such, Staff recommends the following:

RECOMMENDATION

Based on the preceding analysis, Staff recommends that the Board of Land and Natural Resources **re-authorize, revise, and extend** the preexisting Small Scale Beach Nourishment (SSBN) program to create a Small Scale Beach Restoration (SSBR) program through a streamlined and coordinated state regulatory process. The purpose of the SSBR program is to provide an approach that will allow for the implementation of coastal erosion control projects that will result in ecosystem restoration and improved public beach access while maintaining Hawai`i's visitor-based economy. The program will provide for streamlining of permits or authorizations in the permit process including those from the Office of Conservation and Coastal Lands (OCCL), State Historic Preservation Division (SHPD), U.S. Army Corps of Engineers (USACE), State of Hawai`i Coastal Zone Management Office (CZM), and the Department of Health (DOH).

TERMS AND CONDITIONS

If approved, the program will be subject to the following Terms and Conditions and Best Management Practices in addition to additional site-specific conditions imposed based on the permit category and information provided during the application process. Applicability of site-specific conditions will be determined by the OCCL and through coordination with cooperating resource agencies when determining appropriate mitigation measures.

- **General Construction Practices**
  The following measures will be employed to avoid impacts and minimize negative effects caused by general construction activities:
  1. The construction contractor should perform daily inspections of equipment for conditions that could cause spills or leaks; clean equipment prior to operation near the water; determine appropriate refueling and servicing sites; implement adequate spill response procedures; develop stormy weather preparation plans; and implement adequate turbidity control measures.
  2. In the event of any petroleum spill on the beach or in the water, the operator must take immediate steps to contain and remove the contaminant.
  3. Projects must abide by all applicable regulations concerning environmental pollution control.
  4. In order to avoid impacts and minimize negative effects associated with the transport of material to the fill site, the applicant should negotiate with the dredging contractor to monitor and assess the pipeline or any other dredge fill conveyance system used during construction. This will serve to avoid leaking of sediment from the pipeline couplings or other equipment, or other leaks that may result in sediment plumes, siltation, and/or elevated turbidity levels. The applicant must coordinate with the dredgers and have in

place a mechanism to cease dredge and fill activities in the event that a substantial leak is detected (leaks resulting in turbidity that exceed state water quality standards or sedimentation). Operations may resume upon appropriate repair of affected couplings or other equipment.

5. Any construction related debris that may pose an entanglement hazard to marine protected species must be removed from the project site if not actively being used and/or at the conclusion of the construction work.
6. Beach compatible sand should not be removed from the littoral cell (either above or below mean high water) during construction activity.
7. All areas to be excavated should be surveyed and "ground-truthed" as necessary to identify any potential features of concern such as reef, rock, fisheries habitat, cultural resources, infrastructure, or debris. Land-based methods may include hand-held magnetometer and probing surveys, while marine-based methods may include fathometer, magnetometer, side-scan sonar, and probing surveys. The survey method, layout, and data collection frequency should be sufficient to clear the excavation area of any features that would affect future excavations.
8. The project area (i.e. both fill area and borrow area) should be surveyed before and after construction. The survey method, layout, and data collection frequency should be sufficient to adequately map topographic, bathymetric, and constructed features.
9. Other measures as agreed to in any future permits or agreements.

- **Public Safety**

The following measures will be employed to avoid impacts and minimize negative effects to public safety:

1. Public access along the shoreline during construction should be maintained so far as practicable and within the limitations necessary to ensure safety.
2. Project area should be cordoned off and marked with posted signs during construction.
3. Other measures as agreed to in any future permits or agreements.

- **Cultural Resources**

The following measures will be employed to avoid impacts and minimize negative effects to cultural resources:

1. No activity will be authorized in or immediately adjacent to properties listed or eligible for listing in the National Register of Historic Places without the written consent of the SHPD.
2. Contractors must use best practices to not negatively affect or destroy any existing surface historic or cultural sites which may be near or within a project area. A minimum protective buffer of 10 feet should be maintained around surface sites, where no construction operations will be allowed, including storing or stock piling of materials or vehicular traffic. If these practices are not deemed feasible or are overly burdensome, then the SHPD should be notified to determine proper treatment and mitigation, which may include an archeological assessment.
3. If proposed activities include the repair and/or removal of potentially-historic infrastructure such as seawalls, any historic infrastructure would need to be evaluated for National Register eligibility. If deemed to have integrity and significance, in coordination

with the SHPD, repairs and replacement of the historic infrastructure should be completed using Secretary of the Interiors Standards for Historic Replacement.

4. Should proposed activities include excavations, any excavations must proceed under approved applicable plans and permits. In the event that, during the course of the project, it becomes necessary for land-based excavation to extend beyond the historic extent of beach erosion and/or substantial excavation becomes warranted for unplanned activities, such as the creation of dewatering basins due to loss of subaerial beach, then the SHPD should be notified to determine proper mitigation procedures, which may include archaeological monitoring.
5. Contractors must use best practices to not negatively affect or destroy any existing submerged historic or cultural sites which may be near or within a project area. A minimum protective buffer of 500 feet should be maintained around submerged sites, where no beach fill recovery operations will be allowed. If these practices are not deemed feasible or are overly burdensome, then the SHPD should be notified to determine proper treatment and mitigation, which may include an archeological assessment.
6. Permit holders should suspend all work if historic properties, including sub-surface cultural deposits and burials, are uncovered during a project and proceed in coordination with the SHPD. The DLNR will also direct a permit holder to suspend all work if the DLNR is notified by the public or another agency that historic properties or burials are being adversely affected by the project. If historic properties or burials are being affected, work must be suspended or modified to the extent necessary to mitigate any adverse effects. If human remains are discovered, the permit holder must contact the SHPD immediately.
7. The Department has the right to require the presence of an on-site archaeological monitor during sand excavation and sand placement.
8. Other measures as agreed to in any future permits or agreements.

- **Air Quality**

  The following measures will be employed to avoid impacts and minimize negative effects to air quality:

  1. Dust should be prevented from becoming airborne at all times including non-working hours, weekends, and holidays. Typical dust-preventing measures include sprinkling.
  2. Construction vehicles should use emission control devices.
  3. Beach nourishment activities using hydraulic dredges should employ direct fill placement procedures when possible to avoid excessive emissions created when mechanically transporting dewatered fill.
  4. Other measures as agreed to in any future permits or agreements.

- **Noise**

  The following measures will be employed to avoid impacts and minimize negative effects to noise:

  1. Noise should be kept within acceptable levels at all times in conformance with HAR Title 11 § 46 Community Noise Control, State Department of Health, Public Health Regulations. Construction equipment should be equipped with suitable mufflers to maintain noise within levels complying with applicable regulations. Starting of construction equipment meeting allowable noise limits should not be done prior to 7:00

a.m. without prior approval. Equipment exceeding allowable noise limits should not be started prior to 7:30 a.m.

2. Other measures as agreed to in any future permits or agreements.

- **Water Quality**

The following measures will be employed to avoid impacts and minimize negative effects to water quality:

1. Only beach compatible fill should be placed on the beach or in any associated dune system. Beach compatible fill should maintain the general character and functionality of the beach and the adjacent dune and coastal system. Beach fill should be similar in composition, grain size distribution (sand grain frequency, mean and median grain size, and sorting coefficient), color, and texture, and should not contain:
    - Greater than two percent (2%), by weight, silt, clay, or colloids passing the #230 sieve (4.0φ);
    - Greater than fifty percent (50%), by weight, very fine sand passing the #120 sieve (3.0φ);
    - Greater than ten percent (10%), by weight, fine gravel retained on the #4 sieve (-2.25φ);
    - Coarse gravel, cobbles, or material retained on the ¾ inch sieve (-4.25φ) in a percentage or size greater than that found on the native or existing beach;
    - Construction debris, toxic material, or other foreign matter; and,
    - Material that results in cementation of the beach.

   If the native or existing beach exceeds any of the limiting parameters listed above, then the beach fill should not exceed the measured level for that parameter. More restrictive values for the sediment parameters may be considered on a project specific basis to ensure that the placed beach fill is similar in composition, grain size distribution, color, and texture to the sediment in the coastal system at the placement site. Beach fill that falls outside of these limits should be considered unacceptable and may be subject to remediation.
2. Drainage outlets at the shoreline should be maintained to minimize erosion and pollution of waterways during construction. Surface runoff should be controlled to minimize silt and other contaminants entering the water. Should excessive siltation or turbidity result from the contractor's method of operation, the contractor must implement turbidity control measures as necessary to correct the problem.
3. Visual monitoring should be conducted during construction and include ongoing inspections for turbidity outside the project area, which is to be identified in the project permit application. In the event that excessive turbidity is observed outside the project area, work should be suspended or modified to the extent necessary to mitigate any adverse effects.
4. The applicant should demonstrate that the beach fill was obtained from an approved source.
5. All placed beach fill should be free of contaminants of any kind including: excessive silt, sludge, anoxic or decaying organic matter, turbidity, temperature or abnormal water chemistry, clay, dirt, organic material, oil, floating debris, grease or foam or any other pollutant that would produce an undesirable condition to the beach or water quality.

Should the OCCL determine the beach fill quality inferior, the applicant may be asked to provide better quality fill or screen the existing fill for contaminants at their own expense.

6. For all Permit Categories except IA, geotechnical investigations that provide adequate data to define the character of the native or existing (if native sand is not available) and fill sediments should be conducted. An analysis of the native or existing beach sediment and the sediment within the proposed fill source must demonstrate compatibility. Beach fill compatibility should be determined as follows:
    - Grain size distributions of proposed and constructed projects should be analyzed by a standard laboratory wet sieve technique (ASTM D-1140-92) and tested at a qualified facility. Grain size distributions of proposed projects should include an analysis of fill source (i.e. borrow area) and native beach, when available, or existing beach (i.e. if the beach has been previously nourished) to define beach fill compatibility specifications. Grain size distributions of constructed projects should include an analysis of placed beach fill to document as-built conditions and confirm placed beach fill complies with compatibility specifications. The survey method, layout, and sampling distribution should be sufficient to adequately describe and map the character of the existing beach, fill source, and restored/nourished beach sediments.
        i. Nearshore borrow areas and offshore borrow areas with a shallow cut depth may be characterized using surface grab samples and jet probes, while offshore borrow areas with a deep cut depth should be characterized using an appropriate sub-bottom profiler and rigid vibracores. Sub-bottom profile surveys may be necessary for nearshore borrow areas and offshore borrow areas with a shallow cut depth that are located near headlands, hardground areas, or bottom structures. The survey method, layout, and sampling distribution should be sufficient to adequately map the character of the sediment within the borrow area and design the borrow area cuts so the beach fill meets compatibility specifications.
        ii. Fill area sediment samples of the existing (i.e. pre-construction) and restored/nourished (i.e. post-construction) beach should be spaced uniformly alongshore, though tighter spaced samples may be necessary to appropriately characterize smaller stretches of beach or beaches that are cellularized by natural or man-made features. The existing beach composite sediment samples should be surface grab samples collected along the active profile at the following cross-shore morphodynamic zones when present: dry beach (i.e. berm crest – 1 foot below surface), beach face (i.e. swash zone), and beach toe (i.e. base of foreshore near the low tide level). The restored/nourished beach sediment samples should be surface grab samples collected along the constructed beach (i.e. berm crest – 1 foot below surface). The survey method, layout, and sampling distribution should be sufficient to adequately map the character of the sediment within the fill area to appropriately define beach fill compatibility specifications and verify compliance.
    - All samples should be evaluated visually for color, composition, and texture and sieved in accordance with the applicable sections of ASTM D422-63 (Standard Test Method for Particle-Size Analysis of Soils), ASTM D1140-54 (Standard Test

Method for Amount of Material in Soils Finer than No. 230 Sieve), and ASTM D2487-17 (Classification of Soils for Engineering Purposes). The samples should be sieved using the following U.S. Standard Sieve Numbers: 3/4", 5/8", 7/16", 5/16", 3.5, 4, 5, 7, 10, 14, 18, 25, 35, 45, 60, 80, 120, 170, 200, and 230. The range of sieve openings must span the range of sediment sizes to be sieved. All sediment statistics should be calculated using the moment method as detailed in Folk (1974).

- Beach fill compatibility specifications should take into account the variability of the sediment on the native or existing beach. Compatibility may be demonstrated when the grain size distribution of the proposed beach fill is within twenty percent (20%) of the native or existing beach sediment, as measured by a percent finer than or coarser than value. For example, if 45% of the existing beach sediment is finer than the #100 sieve, the proposed beach fill could contain between 25% and 65% sediment finer than the #120 sieve.

7. For all Permit Categories except IA, an appropriate sediment quality assurance/quality control (QA/QC) plan should be prepared to ensure beach fill placed meets compatibility specifications. This plan should outline the responsibilities of each stakeholder in the project as they relate to the placement of beach fill. The plan should specify the minimum construction oversight, inspection, and reporting requirements to be undertaken to observe, sample, and test the placed fill to verify that it meets compliance specifications. The plan should describe the methods and means to monitor and control the quality and characteristics of the fill material.
8. For all Permit Categories except IA, an appropriate turbidity control plan, which includes turbidity control measures and monitoring methods, should be prepared to ensure turbidity is controlled and limited during construction. This plan should outline the responsibilities of each stakeholder in the project as they relate to the control of turbidity within and outside the project area. The plan should specify the minimum construction oversight, inspection, and reporting requirements to be undertaken to observe, sample, and test turbidity to verify turbidity remains within acceptable limits. The plan should describe the methods and means to monitor and control turbidity.
9. Other measures as agreed to in any future permits or agreements.

- **Essential Fish Habitat**

The following measures will be employed to avoid impacts and minimize negative effects to essential fish habitat:

1. For all Permit Categories, except IA, the spatial extent of marine, benthic, and terrestrial habitat types within the project area should be delineated utilizing high-resolution aerial photography, existing data, and/or habitat maps provided by NOAA or others.
2. The design of the beach fill placement and recovery areas should be governed by sediment characteristics, appropriate buffers around any significant biological or cultural resources, and the avoidance of any unmitigated effects to coastal processes or recreational resources.
3. The equilibrium toe of the restored beach should remain within the historical extent of the beach.

4. All dredging in recovery areas should be designed to ensure that dredging will not occur within a pre-determined buffer to protect any significant hardground areas or bottom structures.
5. For projects that include dredging, a navigation and positioning system should be used by the contractor to track the dredge location in relation to a predetermined recovery area considering reef, hardbottom, and/or cultural resources and any designated buffer protection zones. The dredge contractor should be required to track and log dredge and anchor locations whenever dredging is conducted. Dredging must not occur, and anchors must not be placed within any designated buffer protection zone.
6. Contractors must use best practices to not negatively affect or destroy any existing essential fish habitat which may be near or within a project area.
7. Project designs should be evaluated using existing information such as historical erosion and sediment transport trends from the University of Hawai`i Coastal Geology Group, the USACE, and others. However, additional field measurements and numerical modeling may be required for Category III projects where insufficient data is available to understand sediment transport processes and/or where beach stabilization structures (e.g. groins) are proposed.
8. For all Permit Categories except IA, an appropriate construction quality assurance/quality control (QA/QC) plan should be prepared to ensure the project template is constructed as designed to minimize negative effects to essential fish habitat. This plan should outline the responsibilities of each stakeholder in the project as they relate to the control of beach fill recovery and placement. The plan should specify the minimum construction oversight, inspection, surveying, analysis, and reporting requirements to be undertaken to verify the project is constructed per design and permit specifications. The plan should describe the methods and means to monitor and control project construction.
9. For Permit Category III, an appropriate project performance monitoring plan should be prepared to monitor, analyze, and document shoreline and volume changes within and adjacent to the project area. This plan should outline the responsibilities of each stakeholder in the project as they relate to monitoring project performance. The plan should specify the minimum post construction monitoring, surveying, analysis, and reporting requirements to be undertaken to evaluate project performance. The plan should describe the methods and means to monitor beach fill placed and document its transport.
10. For Permit Category III, an appropriate marine ecosystems monitoring plan should be prepared to monitor, analyze, and document project related effects upon significant biological resources within and adjacent to the project area. This plan should outline the responsibilities of each stakeholder in the project as they relate to monitoring marine ecosystem effects. The plan should specify the minimum control, baseline (preconstruction), and post-construction monitoring, surveying, analysis, and reporting requirements to be undertaken to evaluate marine ecosystem effects. The plan should describe the methods and means to monitor significant biological resources within and adjacent to the project area.
11. Other measures as agreed to in any future permits or agreements.

- **Threatened and Endangered Species**
  The following measures will be employed to avoid impacts and minimize negative effects to threatened and endangered species:

1. A competent observer should be designated to survey the marine areas adjacent to the proposed action for ESA-listed marine species, including but not limited to the green sea turtle, hawksbill sea turtle, and Hawaiian monk seal.
2. Visual surveys for ESA-listed marine species should be made prior to the start of work each day, and prior to resumption of work following any break of more than one half hour, to ensure that no protected species are in the area (typically within 50 yards of the proposed work).
3. Upon sighting of a monk seal or turtle within the safety zone during project activity, activity should be immediately halted until the animal has left the zone.
4. No construction should occur at night to reduce the possibility of disrupting and disorienting nesting and hatching sea turtles and fledgling seabirds.
5. Predator-proof trash receptacles should be installed and maintained at all beach access points used for the project construction to minimize the potential for attracting predators of sea turtles.
6. Escarpment formation and sand compaction should be monitored and beach maintenance (e.g. grading, tilling) should be conducted if needed to reduce the likelihood of affecting nesting and hatchling sea turtles.
7. If a hopper dredge is used, special conditions should be developed to ensure proper monitoring of dredging equipment to prevent any effects to sea turtles or other protected species.
8. Contractors must use best practices to not harm or take threatened and endangered species.
9. Other measures as agreed to in any future permits or agreements.

- **Other Standard Conditions**

1. The permittee shall comply with all applicable statutes, ordinances, rules, and regulations of the federal, state, and county governments, and applicable parts of this chapter.
2. The permittee, its successors and assigns, shall indemnify and hold the State of Hawai'i harmless from and against any loss, liability, claim, or demand for property damage, personal injury, and death arising out of any act or omission of the applicant, its successors, assigns, officers, employees, contractors, and agents under this permit or relating to or connected with the granting of this permit.
3. The permittee shall comply with all applicable Department of Health administrative rules, where applicable.
4. Before proceeding with any work authorized by the department or the board, the permittee shall submit four copies of the construction plans and specifications to the chairperson or an authorized representative for approval for consistency with the conditions of the permit and the declarations set forth in the permit application. Three of the copies will be returned to the permittee. Plan approval by the chairperson does not constitute approval required from other agencies.
5. Unless otherwise authorized, any work or construction to be done on the land shall be initiated within one year of the approval of such use, in accordance with construction plans that have been signed by the chairperson, and shall be completed within three years

of the approval of such use. The permittee shall notify the department in writing when construction activity is initiated and when it is completed.

6. All representations relative to mitigation set forth in the accepted application and for the proposed use are incorporated as conditions of the permit.
7. The permittee shall notify the Office of Conservation and Coastal Lands (OCCL) in writing prior to the initiation and upon completion of the project.
8. Should historic remains such as artifacts, burials or concentration of charcoal be encountered during construction activities, work shall cease immediately in the vicinity of the find, and the find shall be protected from further damage. The contractor shall immediately contact SHPD (692-8015), which will assess the significance of the find and recommend an appropriate mitigation measure, if necessary.
9. The permittee understands and agrees that the permit does not convey any vested right(s) or exclusive privilege.
10. In issuing the permit, the department and board have relied on the information and data that the permittee has provided in connection with the permit application. If, subsequent to the issuance of the permit such information and data prove to be false, incomplete, or inaccurate, this permit may be modified, suspended, or revoked, in whole or in part, and the department may, in addition, institute appropriate legal proceedings.
11. When provided or required, potable water supply and sanitation facilities shall have the approval of the department of health and the county department of water supply.
12. Where any interference, nuisance, or harm may be caused, or hazard established by the use, the permittee shall be required to take measures to minimize or eliminate the interference, nuisance, harm, or hazard.
13. Obstruction of public roads, trails, and pathways shall be avoided or minimized. If obstruction is unavoidable, the permittee shall provide alternative roads, trails, or pathways acceptable to the department.
14. During construction, appropriate mitigation measures shall be implemented to minimize impacts to off-site roadways, utilities, and public facilities.
15. Artificial light from exterior lighting fixtures, including but not limited to floodlights, uplights, or spotlights used for decorative or aesthetic purposes, shall be prohibited if the light directly illuminates or is directed to project across property boundaries toward the shoreline and ocean waters, except as may be permitted pursuant to section 205A-71, HRS. All exterior lighting shall be shielded to protect the night sky.
16. The permittee acknowledges that the approved work shall not hamper, impede, or otherwise limit the exercise of traditional, customary, or religious practices of native Hawaiians in the immediate area, to the extent the practices are provided for by the Constitution of the State of Hawai'i, and by Hawai'i statutory and case law.
17. Any landscaping will shall be appropriate to the site location and shall give preference to plant materials that are endemic or indigenous to Hawai'i. The introduction of invasive plant species is prohibited.
18. Other terms and conditions as may be prescribed by the Chairperson.
19. Failure to comply with any of these conditions shall render this Conservation District Use Permit void under Chapter 13-5, as determined by the chairperson or board.

Respectfully submitted,

SAMUEL J. LEMMO, Administrator
Office of Conservation and Coastal Lands (OCCL).

Approved for submittal:

SUZANNE D. CASE, Chairperson
Board of Land and Natural Resources

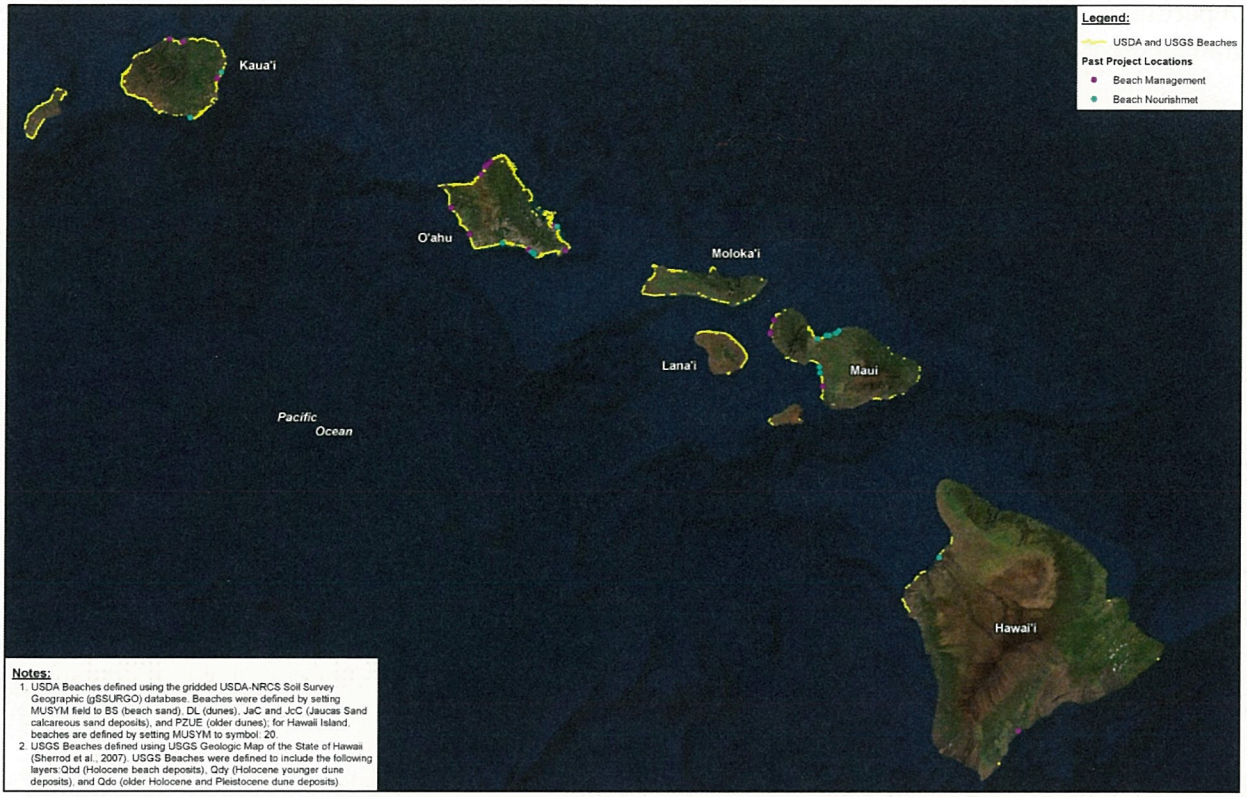

EXHIBIT 1: Hawai`i Beach Nourishment and Beach Management Project Location Map

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