

# OVERVIEW OF HAWAIIAN ISLAND HUMPBACK WHALE PROPOSED ACTION PLAN SUMMARIES

## As Part of the Management Plan Review Process

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### ***1. Understanding and Managing Ecological Resources***

The *Understanding and Managing Ecological Resources* action plan shifts the focus from single species to ecosystem-based management by outlining the activities the sanctuary will take to better understand and protect a range of species and habitats within the sanctuary. Sanctuary waters include unique features and support significant ecosystems that are in need of additional protection. Shallow and mesophotic coral reefs, along with native algal and seagrass beds are home to a variety of species that comprise marine ecosystems that have some of the highest endemism rates in tropical waters worldwide. Unsustainable human use, impacts to water quality, and existing and expected impacts from climate change, threaten the resilience and health of these ecosystems. By implementing measures to plan for, mitigate and regulate human use activities and associated impacts, the sanctuary, in partnership with co-managing agencies, communities and the broader public, can support the integrity and resilience of these special natural resources.

Given the limited capacity of staff and wide scope of research questions within the sanctuary, staff would actively seek to collaborate with key research partners to gather information on the status of species and habitats within the sanctuary and prioritize marine resources that require management actions. A cornerstone of research activities would be to identify threats to marine species and habitats, including but not limited to such issues as invasive species, entanglement, and vessel collisions. With this research, the sanctuary would seek to implement appropriate activities to address those threats. Within the expanded, ecosystem-wide scope of research and management, the sanctuary will continue to manage humpback whales, including continuing with ongoing humpback whale response efforts, and the expansion of those efforts to include other species.

The sanctuary is proposing to use a suite of management tools, including education and outreach, community-based management plans, research and monitoring, and development of best management practices to improve management of habitats and species. Sanctuary management will draw on both traditional Native Hawaiian concepts of management and western ecological knowledge to create an integrated management framework. This holistic approach to resource management creates more flexibility when identifying management priorities. In addition, the sanctuary can also play an important role as a coordinating body and participate in multi-agency initiatives to reduce stressors and address threats to the ecosystem such as marine debris and invasive species.

### ***2. Resilience to Climate Change Action Plan***

The *Resilience to Climate Change* action plan describes the steps the sanctuary will take to identify potential climate threats to marine resources and dependent communities, as well as the actions the sanctuary will take to plan for and mitigate potential impacts. In Hawai'i, the changing climate is predicted to increase sea level, change weather and precipitation patterns, and increase ocean

temperature (Alber, 1998; HRS 286 2012). The associated greenhouse gases (e.g., CO<sub>2</sub>) inducing climate change will also contribute to increased acidification of the ocean (Feely 2011). Increased sea level and extreme weather events are already accelerating coastal erosion and sediment runoff, which in turn impact water quality. Changes in precipitation and saltwater intrusion induced by sea level rise, will adversely affect species and habitats that are sensitive to salinity shifts, especially in estuarine and freshwater habitats. Increased ocean temperature may cause reef building coral to bleach, become stressed and eventually die. Ocean acidification may slow or halt the calcification of several calciferous species including coral, coralline algae and mollusks and dissolve calcium carbonate structures on the reef. At the same time, coastal communities contending with rising seas may pursue mitigation approaches such as shoreline alterations (e.g., hardening shoreline surfaces) that will have additional ecological impacts.

Sanctuary staff plan to engage with the well-coordinated network of climate change organizations and university departments currently evaluating and planning for climate threats to natural and cultural marine resources in Hawai'i. The sanctuary will follow the climate change planning model developed by Office of National Marine Sanctuaries for "Climate Smart Sanctuaries." This process outlines steps a sanctuary should take to engage key stakeholders and technical experts, identify threats, and plan for change. To promote a wider understanding of and preparedness for climate impacts beyond sanctuary boundaries, sanctuary staff will work to integrate climate messaging into outreach materials and communication messages.

A comprehensive effort to better understand the impacts of climate change to the ecosystems within the sanctuary, and effectively plan for adaptive management practices, is needed to manage sanctuary resources. This plan is consistent with and supports larger agency efforts towards NOAA's Climate Goal (*Understand climate variability and change to enhance society's ability to plan and respond*) as well as enhance compliance with Executive Order 13423 (*Strengthening Federal Environmental, Energy, and Transportation Management*) and Executive Order (*Preparing the United States for the Impacts of Climate Change*). This plan also supports Hawaii Revised Statutes § 226-109 Climate Change Adaptation Priority Guidelines that encourages "collaboration and cooperation among county, state, and federal agencies, policy makers, businesses, and other community partners to plan for the impacts of climate change and avoid, minimize, or mitigate loss of life, land and property for future generations." The plan also supports response strategies outlined in the 3<sup>rd</sup> U.S. National Climate Assessment released in 2014. The sanctuary will work with a range of partners to implement the activities in this action plan including the University of Hawaii Sea Grant program, the Pacific Islands Climate Change Cooperative, the Environmental Protection Agency, and other state and federal agencies.

### **3. Sustainable Use Action Plan**

The sustainable use of ocean ecosystems is an important component of an ecosystem-based management framework. Sustainable use of the marine environment ensures that the natural, cultural and historic resources found in sanctuary waters are not unnecessarily impacted, depleted or permanently damaged. The facilitation of the sustainable use of marine resources and habitats is compatible with resource protection, and is part of the purpose set forth in the National Marine

Sanctuaries Act. The National Ocean Policy and the Hawai'i State Constitution also call for the sustainable use of the ocean ecosystems in Hawai'i.

To promote sustainable use within the context of an ecosystem-based sanctuary, it is necessary to understand the types and patterns of use and how these uses may impact resources in the sanctuary, as well as the communities the sanctuary serves. Community input, indigenous science, cultural knowledge, socioeconomic values and biocultural connections have often been missing from natural resource management and need to be better incorporated (Watson 2012). New and different expertise and engagement with a broader range of stakeholder groups are needed by the sanctuary to engage in the reciprocal learning process needed to effectively promote sustainable use.

The sanctuary seeks to promote the sustainable use of marine resources in Hawai'i by supporting programs and businesses that prioritize sustainable use of the marine environment and resource protection. The sanctuary has already been engaged in a number of collaborations and initiatives to achieve this goal. Starting in 2013, the sanctuary engaged with the Hawai'i Tourism Authority (HTA) to expand ocean awareness training for business owners who operate within the sanctuary. The sanctuary also supports initiatives at Turtle Bay Resort on the north shore of O'ahu to conserve marine resources through public education and conservation initiatives. On Maui, sanctuary staff and volunteers support programs at Whalers Village and offer interpretive lectures at the Whalers Village Museum to enhance the visibility of the sanctuary programs and encourage resource protection.

The *Sustainable Use* action plan describes how the sanctuary will evaluate current use of sanctuary waters and promote sustainable actions in the future. By better understanding use of sanctuary resources, the sanctuary can more effectively develop strategies to minimize impacts to sanctuary resources. The sanctuary plans to work directly with ocean-based businesses and tour operators to increase awareness about marine resources within the sanctuary and encourage best management practices. The sanctuary will support existing voluntary recognition programs and explore opportunities to develop a sanctuary smart hotels initiative. Additionally, the sanctuary will offer customized trainings for ocean-based businesses and tour operators to encourage voluntary compliance. Other proposed activities include promotional videos and sanctuary apps to promote sustainable use of the marine environment by both residents and visitors.

#### **4. Perpetuating Cultural and Maritime Heritage**

The two components within the *Perpetuating Cultural Heritage* thematic area are *Living and Evolving Cultural Traditions* (CT) and *Maritime Heritage* (MH) action plans. These action plans describe how the sanctuary seeks to identify and effectively preserve cultural and historical traditions, knowledge, and resources. The *Living and Evolving Cultural Traditions* action plan promotes the understanding of both historical and contemporary local knowledge about marine environments, and perpetuates the use of customary environmental practices and principles within the sanctuary. Similarly, the *Maritime Heritage* action plan describes activities to identify maritime heritage resources in Hawai'i in order to effectively preserve these resources for the benefit of current and future generations.

The *Perpetuating Cultural Heritage* action plans describe the actions that the sanctuary will take to integrate cultural and maritime heritage resource conservation into sanctuary planning efforts. Cultural and maritime heritage preservation has special importance in Hawai'i, where the indigenous host culture exists side-by-side with modernization, globalization and cultural diversification. Hawai'i reflects strong local traditions, multicultural connections and major historic events, which have shaped the region. These resources, including cultural, historical and archaeological properties, and cultural landscapes all represent the physical legacy of this complex heritage.

The *Perpetuating Cultural Heritage* action plan proposes activities to understand and perpetuate both current and traditional Hawaiian cultural practices and knowledge in the management of the sanctuary. Sanctuary staff will improve their understanding of place-based knowledge and cultural practices, especially as they relate to traditional resource management in the sanctuary. The sanctuary will incorporate these traditional perspectives into current sanctuary management to more effectively protect the specific biocultural resources around the Hawaiian Islands. To promote the incorporation of traditional Hawaiian perspectives in general ocean use and resource management, the sanctuary will facilitate the communication of Hawaiian cultural heritage, including surfing, voyaging and ahupua'a management. To implement the activities in this action plan, the sanctuary will continue to coordinate and formalize partnerships with the Office of Hawaiian Affairs (OHA), the State Aha Moku committee, and the Native Hawaiian Civic Club Association.

#### *a. Living and Evolving Cultural Traditions Action Plan*

The Hawai'i State Constitution (Article XII, Section 7) protects indigenous and cultural gathering rights as a specific classification of rights in regards to coastal access and resources granted to Native Hawaiians. The State reaffirms and shall protect all rights, customarily and traditionally exercised for subsistence, cultural, and religious purposes and possessed by ahupua'a tenants who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778, subject to the right of the State to regulate such rights.

The sanctuary's commitment to ecosystem-based management provides an opportunity to integrate customary knowledge and practices along with contemporary science to inform management. In order to effectively manage the biocultural resources in Hawai'i, it is important to include cultural perspectives and place-based information and solutions that uniquely reflect each island and community. This approach embodies Hawaiian values that connect people to the environment, and these values ultimately inform and direct appropriate environmental management practices.

The sanctuary staff has unique relationships with communities and Native Hawaiian practitioners. These relationships are developed through a strong network of partners including the community-based sanctuary advisory council, and extensive public participation in education and outreach venues on different islands. The sanctuary learns from organizations and entities that are committed to perpetuating cultural heritage, and aligns sanctuary programs appropriately. Ultimately, the sanctuary will strive to serve as a coordinated link between communities and agencies, and create opportunities to integrate place-based knowledge into all aspects of marine resource management.

#### *b. Maritime Heritage Action Plan*

In the past, consideration of these maritime heritage resources has usually been on an individual site-by-site basis. Management agencies are now engaging in a more holistic and comprehensive appreciation of their significance, seeing these individual sites in the context of larger cultural landscapes. For instance, there may be Native Hawaiian navigation landscapes, cultural access and gathering landscapes, and aquaculture landscapes. There may also be historic period whaling landscapes, naval World War II landscapes, marine transportation landscapes, and ocean recreation landscapes to be considered. Maritime heritage resources associated with these themes contribute to our understanding of cultural landscapes and the value of the marine environment. However, the educational and socio-economic potential for these resources has not been realized.

The existing state and federal preservation laws intended to protect cultural, archaeological, and historical resources (the most relevant being Hawai'i Revised Statute Chapter 6-E, National Historic Preservation Act, Abandoned Shipwreck Act, and the Sunken Military Craft Act) are generally unfamiliar to the public and seldom followed. Multiple examples of illegal damage and removal of publicly-owned historic properties from sanctuary waters have been recorded. No federal or state agency has single-handedly addressed maritime cultural landscapes for the main Hawaiian Islands. The sanctuary aims to support existing state and federal preservation laws and seeks a better way of cooperating with communities to protect and preserve cultural and maritime heritage resources, as well as marine stewardship and preserving human ties to the marine environment.

The *Maritime Heritage* action plan outlines how the sanctuary seeks to characterize and preserve maritime heritage resources within sanctuary waters. Sanctuary staff plan to coordinate with local experts to create a maritime heritage resource inventory to inform priority management areas. The sanctuary will collaborate to monitor and assess these maritime heritage resources to determine change over time. The sanctuary will seek to increase awareness about these critical resources by targeting education at youth groups, university students, and ocean users (i.e. recreational divers). Staff will also continue to host trainings and workshops for ocean managers to enhance their knowledge of maritime heritage resources and related laws.

### **5. Ocean Literacy Action Plan**

Ocean literacy refers to “the understanding of the ocean’s influence on you, and your influence on the ocean” (NOAA NOS 2010). NOAA has collaborated with a consortium of partners in the Ocean Literacy Network to develop a series of ocean literacy essential principals and fundamental concepts to help guide education efforts and bring them in line with the National Science Education Standards. An Environmental Literacy Plan has been developed for the State of Hawaii by the Hawaii Environmental Education Alliance and the sanctuary will seek opportunities to incorporate these efforts in the curriculum of public schools in Hawaii. Effective local ocean literacy encourages public involvement in resource protection, increases knowledge about Hawai’i’s marine resources in Hawai’i, creates an informed public, and helps nurture future marine science and resource management professionals.

There are limited opportunities for students to learn about marine science in schools in Hawai’i. As such, the sanctuary offers formal education programs to help teachers integrate marine science lessons into their existing curriculum. Sanctuary staff also provide lectures and classroom visits to further engage

students. Outside of the classroom, the sanctuary provides place-based experiences where students can participate in afterschool and summer programs. Older students are also invited to apply for internships to learn more about careers in marine conservation and ocean science.

In addition, outreach to the general public is an important means to provide information about the sanctuary and how to protect and become stewards of natural marine resources. The sanctuary employs a number of methods to reach out to the public, including visitor centers, exhibits, interpretive signage, events, presentations, media outlets, brochures, websites and social media. The transition to ecosystem-based management will broaden the scope of the sanctuary's education and outreach programs. Sanctuary staff will work closely with volunteers, partners, and educators to develop programs that reflect a more holistic approach to management. Reaching out to new user groups and audiences requires establishing new partnerships and collaborations to engage in marine conservation education efforts across the state.

The *Ocean Literacy* action plan describes the education, outreach, and communications activities that the sanctuary plans to undertake to increase public awareness about the marine environment and ecosystem-based management. The sanctuary will integrate new key messages about marine ecosystems into existing outreach materials and activities and engage with partners to develop new displays and exhibits for public areas and visitor centers. Improvements to the existing website and increased presence on social media will serve to broaden awareness about the sanctuary. Sanctuary communications will leverage existing media resources and employ innovative media tools, including producing news segments and participating in film festivals, to engage new audiences. Sanctuary staff will continue to provide formal and informal education opportunities to students and teachers, including internship programs for students and a student-based Sanctuary Ocean Count program. The sanctuary will consider opportunities to expand Ocean Awareness Training (OAT) to additional islands and to offer trainings tailored for specific audiences.

## **6. Water Quality Protection Action Plan**

The *Water Quality Protection* action plan proposes activities to protect and enhance water quality within the sanctuary. Establishing and maintaining water quality standards is essential to the health of marine ecosystems, people and watersheds (mauka to makai). Coordinated management strategies and watershed-based management approaches are needed to reduce the threats and impacts to water quality in the marine environment. Marine pollution, such as discharge from vessels, can negatively impact water quality. Both point and non-point sources of land-based pollution, including wastewater and storm water runoff, can carry pollutants such as sediment, nutrients, pathogens, toxic substances (including heavy metals and pesticides), and suspended solids and debris from residential, urban, agricultural, and commercial sources. These inputs can negatively impact the health and resilience of marine resources such as coral reefs, and the communities that depend on them. Mauka and coastal best management practices can be implemented to help prevent or reduce pollution from the upland areas within a watershed that enter and impact the ocean environment.

While the authority of the sanctuary is limited to the marine environment, there are opportunities to raise awareness and fill management gaps, and support and provide synergies within the existing management efforts and authorities of other county, state and federal agencies. For instance, collaborative partnerships with county, state and federal agencies can contribute to the enhancement of water quality monitoring programs. Sanctuary staff will work with partners to identify appropriate roles to support sound watershed and coastal planning, along with other efforts to help protect water quality in targeted areas within the sanctuary. Additionally, the sanctuary has a strong contingency of active volunteers who will enhance current efforts of state and federal agencies in supporting citizen-base water quality monitoring, while raising community awareness of water quality through education and outreach programs. This plan supports efforts of the Clean Water Act (CWA) (33 U.S.C. §1251 et seq.), Marine Debris Act Amendments of 2012 (H.R. 1171), Hawaii Marine Debris Action Plan, and State of Hawaii Department of Health priorities. The perpetuation of healthy water quality is fundamental to the perpetuation of a healthy kai (ocean).

The Water Quality Protection Action Plan proposes activities to protect and enhance water quality within the sanctuary. In order to achieve this goal, the sanctuary will strengthen existing partnerships and formalize new partnerships with key agencies including the Hawai'i Department of Health. The sanctuary will engage technical experts in developing a formal monitoring plan to track changes in water quality over time and prioritize areas for management actions. In addition to calling on experts, the sanctuary will continue to build upon their successful volunteer initiatives by engaging the public in citizen science water quality monitoring. In considering native Hawaiian perspectives, the sanctuary will support community-based programs in and adjacent to the sanctuary, including fishpond restoration and operation, to address human impacts on watersheds. With the cultural and scientific knowledge on water quality gathered in these efforts, the sanctuary will collaborate to develop outreach materials.

## **7. Ecosystem Benefits and Values Action Plan**

*The Ecosystem Benefits and Values* action plan presents a framework for the sanctuary to assess and evaluate ecosystem services for use in education and planning. Economic, socio-cultural, and ecological benefits, including indigenous and traditional use and non-use, can inform ecosystem-based management.

Ecosystem benefits can include marine resources harvested for consumption or medicine, recreational opportunities, commercial uses, and regulating serves (i.e., storm protection). The sanctuary will engage with partners to apply existing studies and conduct ecosystem service valuation assessments as appropriate. Sanctuary staff will use these assessments to inform natural and cultural resource management decision-making, environmental damage assessments, and education and outreach materials.

The *Ecosystem Benefits and Value* action plan will seek to better understand, assess and evaluate ecosystem services to better inform natural and cultural resource management decision-making, environmental damage assessments, and education and outreach materials.

## **8. Community Partnerships Action Plan**

The *Community Partnerships* action plan describes how the sanctuary plans to engage with stakeholders and communities to achieve mutually beneficial outcomes. Oceans are integral to the lives, lifestyles, and livelihoods of the people of Hawai'i. The social climate in Hawaii is changing, leading to expanding interest and actions by stakeholders and community members to become actively involved in understanding, caring for, restoring, and stewarding coastal areas. As a place-based management agency, the sanctuary program strives to be integrated into the communities that are adjacent to the sanctuary boundaries and whose waters are part of these communities. The sanctuary program can be a partner with businesses and communities to effectuate change toward a collective vision for the future.

The transition of the sanctuary from a single-species focus to an ecosystem-based management approach presents a tremendous opportunity for a higher level of community engagement and an added responsibility to reach out to a more diverse set of stakeholders. This increased potential for enhanced collaboration can build local community capacity to effectively address areas of common interest. The sanctuary recognizes that each community and island is unique, where no single approach fits all, calling for the need for flexibility, transparency, open engagement, and ground-up collaboration. Community partnerships promote collaboration between sanctuary staff and the community to exchange and increase knowledge in a manner that is reciprocal and mutually beneficial. In addition, the sanctuary will engage in a participatory approach for community-based management that integrates traditional and western management perspectives.

The *Community Partnerships* action plan describes the different ways that the sanctuary will engage communities and stakeholders in Hawai'i. The sanctuary plans to work directly with communities located adjacent to the sanctuary to target programs and specific initiatives to meet community needs, enhance resiliency, and build replicable models of community-based ecosystem management. The sanctuary will continue to provide resources, such as moon and tide calendars, and support opportunities for traditional learning exchange. Volunteer programs will continue to be critical to sanctuary management and sanctuary staff will continue to identify and coordinate new and innovative opportunities to engage volunteers, as well as recognize their commitment to sanctuary programs. The community-based Sanctuary Advisory Council will continue to provide recommendations to sanctuary management on cultural and marine resource protection issues. Sanctuary staff will help facilitate council operations and working groups and provide avenues for council members to provide advice.

## **9. Compliance and Enforcement Action Plan**

Enforcement is a critical component of natural resource management in marine sanctuaries and helps to ensure that the natural and cultural marine resources in Hawai'i are protected. The sanctuary collaborates with enforcement agencies to enforce sanctuary regulations within sanctuary boundaries. The sanctuary currently works with NOAA's Office of Law Enforcement (OLE) and NOAA's General Counsel as the lead offices for enforcement within the sanctuary. The authority for the Hawai'i Department of Land and Natural Resources Division of Conservation and Resource Enforcement (DOCARE) to enforce federal laws under the National Marine Sanctuaries Act is through the Cooperative Enforcement Agreement and Joint Enforcement Agreement with NOAA. The United States Coast Guard

(USCG) also has responsibilities for enforcing sanctuary regulations. In order for there to be better coordination amongst law enforcement agencies responsible for enforcing sanctuary regulations, the *Sanctuary Interagency Law Enforcement Task Force* was formed at the direction of the Office of National Marine Sanctuaries. The task force is made up of the entities that are responsible for enforcing sanctuary regulations in Hawai'i: NOAA Office of Law Enforcement, NOAA Office of General Counsel, DOCARE, USCG, and sanctuary management.

In addition to law enforcement, the sanctuary promotes voluntary compliance through education programs that encourage responsible marine wildlife viewing, multiple uses of marine resources, and inspired ocean care. This voluntary compliance encourages the public to comply with regulations and guidelines, and practice appropriate behavior to protect marine resources provided they are educated with the proper information. For example, compliance assistance to protect humpback whales promotes behaviors that contribute to boater safety around whales and reduces whale-vessel interactions, while encouraging compliance with the 100-yard humpback whale approach regulation.

The sanctuary office is looking to support community based programs that facilitate community stewardship of marine and coastal resources by supporting education, monitoring and incident reporting in order to achieve better compliance with regulations and promote proper ocean use to protect marine resources. For instance, in Hawai'i, the Makai Watch program is in place in a number of communities in collaboration with the DLNR Division of Conservation and Resources Enforcement (DOCARE). As of 2014, seven communities have established Makai Watch Programs. At national marine sanctuaries in Florida and California, volunteer based programs called Team OCEAN, short for Ocean Conservation Education Action Network, promote safe and enjoyable use of the marine environment and advocate protection of its natural resources.

The *Compliance and Enforcement* action plan outlines activities to achieve a high level of compliance through the adherence to sanctuary regulations, guidelines, and best practices. The sanctuary seeks to support and enhance existing enforcement mechanisms by coordinating with the Law Enforcement Task Force, offering training opportunities, contributing to protocols, and entering into agreements with resource management agencies that have the capabilities to enforce sanctuary regulations, among other efforts. The sanctuary will also seek opportunities to enhance voluntary compliance with sanctuary regulations by developing best management practices, conducting trainings and distributing outreach materials to specific user groups. Sanctuary staff will continue to participate in ocean related events and support the development and implementation of community-based marine management programs that aim to strengthen voluntary compliance.

### **10. Sanctuary Focus Areas Action Plans**

The *Sanctuary Focus Areas* action plans describe actions that will be taken at specific sanctuary locations to assess and implement the appropriate place-based management approaches and improve the overall health of the marine environment. All national marine sanctuaries are unique places worthy of special protection. However, different physical locations within the sanctuary have differing degrees of ecosystem health, human use and community needs, and cultural settings. Therefore, the sanctuary is

proposing specific place-based management actions that best address the management needs of those individual areas.

The waters around Ni‘ihau island, and the waters off of Pila‘a on Kauai island, Mā‘alaea on Maui island, and Maunalua Bay off Oahu island, were selected for special place-based management actions because they each represent a unique environment within the sanctuary. Ni‘ihau island remains relatively undisturbed by outsiders and provides a unique example of a sentinel site for research within the sanctuary. The coral reef in front of Pila‘a has been exposed to runoff that has severely degraded the ecosystem. The sanctuary plans to explore how traditional management, coupled with western science informed management, can work to alleviate stress and contribute to recovery of the reef. The waters in and around Mā‘alaea Bay are vulnerable to pollution from wastewater and vessel discharge. Various efforts are in place to help reduce vessel discharge, but more information and action is needed. Sanctuary engagement in this effort will include monitoring water quality and promoting alternatives to vessels discharging wastewater within the sanctuary, such as the use of pump out stations. Communities that live adjacent to Maunalua Bay are actively engaged in a range of conservation and restoration efforts. The sanctuary can provide additional support for site-based learning initiatives to enhance community stewardship and increase overall protection of the Bay.

Each geographic component of the *Special Sanctuary Areas* action plan describes specific management actions that sanctuary staff, in collaboration with partners, will take to protect unique ecosystems and special places within the sanctuary. Many of these actions are pilot projects that could eventually be replicated elsewhere in the sanctuary. The *Ni‘ihau* action plan describes specific action that sanctuary management will take to preserve the unique environment and rich cultural history of Ni‘ihau. The *Pila‘a* action plan describes the application of both traditional Hawaiian and western science-based management practices to restore and maintain the nearshore ecosystems. The *Mā‘alaea* action plan describes actions to address vessel discharge and improve water quality in the Mā‘alaea area of Maui island. The *Maunalua Bay* action plan describes how the sanctuary seeks to conserve and restore marine resources in Maunalua Bay through strong community partnerships and cooperative place-based planning and education.

#### *a. Ni‘ihau Action Plan*

Early indications are that the coastal and marine waters surrounding Ni‘ihau and Lehua are unique, biologically rich, and a largely undisturbed ecosystem that may serve as important natural and cultural transition zone between the main Hawaiian Islands and the Northwest Hawaiian Islands. Though the special features of Ni‘ihau and Lehua have long been recognized by residents, the cultural and natural resources of Ni‘ihau have largely remained a mystery to outsiders and unexplored by western science. The efforts to further understand and protect coastal and marine resources at Ni‘ihau must be done in a way that respects, and is compatible with, the unique culture of the community at Ni‘ihau.

The *Ni‘ihau* action plan describes site-specific activities to assess and manage marine resources around Ni‘ihau and Lehua. It will be important to better understand the socioeconomic drivers and cultural practices and values on Ni‘ihau in order for conservation to enhance economic opportunities in a manner that is culturally sensitive and respectful of local traditions. The sanctuary will engage with local residents and scientists to assess marine habitats, species of concern, and cultural resources, through a process that integrates traditional knowledge and science-based management. The sanctuary will also

work with community members to monitor water quality around Ni‘ihau and Lehua to determine change over time. Among these efforts, an emphasis will be on place-based learning and opportunities to enhance local educational opportunities.

#### *b. Pila‘a Action Plan*

The Pila‘a ahupua‘a is located on the North Shore of Kaua‘i, east of Kīlauea Point. The marine area contains several small streams, a small estuary, and two coral reefs sheltering inner lagoons that are bisected by a deep channel fronting the stream mouth. The reefs are traditional and customary areas for Hawaiian’s to gather a variety of species of reef fish and crustaceans, and in particular from the east reef which is well-known for traditional harvesting of several edible seaweeds.

The *Pila‘a* action plan describes a focused sanctuary initiative to restore the nearshore ecosystem in the Pila‘a ahupua‘a. The sanctuary plans to work with partners, including the University of Hawaii and Kauai Community College, to gather and inventory scientific and cultural information, such as marine and cultural resource assessments, to characterize the current condition of Pila‘a. This information will inform restoration of the coral reef and lagoon habitats. The sanctuary and its partners will then develop and implement a framework for restoration that is consistent with traditional Hawaiian management and science-based resource management. The effectiveness of the restoration process will be evaluated by developing and monitoring indicators and thresholds of change. Using the results of this evaluation, the sanctuary plans to adapt these management practices to other locations within the sanctuary.

#### *c. Mā‘alaea Action Plan*

Mā‘alaea Bay is located off the southwest coast of Maui between the Kahului Airport and Lahaina Ka‘anapali area. Eighteen independent tour operators offer boat-based excursions (approximately 30 boats) out of Mā‘alaea boat harbor. Recreational activities that take place in the bay and adjacent areas include snorkeling, diving, whale watching, fishing, and dinner cruises. Mā‘alaea boat harbor offers a range of facilities including a U.S. Coast Guard station, shore-based pump-out facility, dry-dock, vessel repair, launch ramp, loading dock, and restrooms. During the public scoping process, community members in the Maui area expressed concerns about the potential adverse effects of vessel discharge in Mā‘alaea Bay. Vessel discharge can negatively impact biological resources and presents a potential threat to human health and safety for ocean-users.

The intent of the *Mā‘alaea* action plan is to improve water quality throughout Mā‘alaea Bay over time. In order to improve water quality, the sanctuary plans to engage water management agencies and local community stakeholders by conducting water quality research and monitoring to assess change and identify impacts to water quality. The results of these assessments will be used to inform specific and targeted management actions including opportunities for alternatives to vessel and land-based discharge. The sanctuary also hopes to increase awareness about the potential negative impacts of vessel discharge and other pollutants to encourage best management practices such as the increased use of pump-out stations.

#### *d. Maunalua Bay Action Plan*

Human activities, such as onshore development and ocean recreation, have contributed to the degradation of nearshore habitats in Maunalua Bay, O‘ahu. This degradation, in turn, has catalyzed

restoration and education efforts to improve the health of marine life in the bay. The sanctuary proposes to work in collaboration with these efforts to better manage resources in this area of the sanctuary.

Maunalua Bay is located on the southeast shore of the island of O‘ahu, between Lē‘ahi (Diamond Head) volcanic cone and Koko Head peak. The embayment itself is often delineated as the waters between Kūpikipiki‘ō Point (Black Point) near Lē‘ahi to Kawaihoa Point at Koko Head (approximately 6.6 square miles). The bay adjoins two ahupua‘a across seven watersheds, which are largely urban with impervious surfaces. At least four perennial streams and as many as 52 drainages, most of which have been channelized, feed into the bay. The characteristics of the watersheds and drainages facilitate the rapid movement of storm water, sediments, nutrients and other chemicals directly into the ocean. This runoff threatens the numerous nearshore and offshore coral reefs and sand flats within the bay that support a variety of native species, including endemic seagrass and limu. Invasive marine algae flourish in the nutrient-rich waters of Maunalua Bay and smother native coral reef habitat. Efforts are under way to mobilize volunteers to remove invasive habitat and restore near-shore habitats but additional actions are still needed.

Maunalua Bay hosts a variety of recreational ocean activities including boating, fishing, use of personal watercraft, outrigger canoe paddling, surfing, SCUBA diving, and snorkeling. Several human-induced impacts such as sedimentation, increased nutrients and spread of alien species have impacted parts of the bay over the years, which threaten both marine life and ocean recreation. This has brought community, NGO and management agencies together to support restoration and management efforts. These groups have organized restoration efforts, including invasive algae removal and watershed clean up, and education initiatives to teach the community and other ocean users about environmental impacts, responsible practices, and cultural heritage connections in the bay, especially traditional navigation techniques.

The *Maunalua Bay* action plan describes activities that the sanctuary proposes to implement alongside these ongoing initiatives to restore native habitat, increase and sustain marine life, and engage communities and businesses in long term sustainable planning in Maunalua Bay. The sanctuary will work with local agencies to address threats from land-based sources of pollution and invasive marine algae in Maunalua Bay. Sanctuary staff will collaborate with resource scientists to explore innovative opportunities to ensure a healthy coral reef ecosystem with a vibrant marine community. The sanctuary will also support ongoing community-based efforts to monitor and enforce compliance with sanctuary regulations. Community engagement has been critical to the management of Maunalua Bay, as such the sanctuary will partner with local community organizations to support ongoing efforts to educate residents and encourage marine stewardship. The activities in this action plan will be implemented in collaboration with Malama Maunalua, the Polynesian Voyaging Society, the University of Hawai‘i, local and national NGOs, and relevant state and federal agencies.