FINAL DRAFT

Honolua to Honokōhau Management Plan

A Management Plan

for the Makai Lands of Honolua and Honokōhau Ahupua‘a

Photo by the State of Hawai‘i Department of Land and Natural Resources

‘A‘ohe hana nui ke alu ‘ia.

No task is too big when done together by all.

-Mary Kawena Pukui

Photo by Hawaiian Paddle Sports

CONTENTS

Photo: *Informal signage along the Līpoa Point Access Driveway.*

Acknowledgements

This management plan is the culmination of much time and effort by many individuals and organizations. Mahalo to those who shared your time, support, and input during the planning process, including:

Senator Roz Baker, Representative Angus McKelvey, Councilmember Tamara Paltin, Former Councilmember Elle Cochran, Felimon Sadang, DeAnn Kaina, Drusilla Kaina, Orpha Kaina, Bernie Kaina, Kennard Kekona, Les Potts, Emily Fielding, Scott Fisher, Tova Callender, Chris Brosius, Lopaka Wilson, Kainoa Wilson, Pomaikai Wilson, John Carty, Mark Deakos, Ph.D., David Stoops, Mihaela Stoops, Kai Nishiki, Riley Coon, Dave Weiss, Aldo Tassara, Andrew O'Riordan, Ananda Stone, Manu Akana, Kristie Wrigglesworth, Gunars Valkirs, Glenn Kamaka, Damian "Dooma" Antioco, and the Save Honolua Coalition.

Thank you to the dedicated staff of the State of Hawai'i Department of Land and Natural Resources (DLNR) who assisted in the planning process: Chairperson Suzanne D. Case, First Deputy Robert K. Masuda, Russell Kumabe, Renee Kamisugi, Larry Pacheco, Sean Newsome, Daniel Ornellas, Leimana Damate, Ian Hirokawa, Russell Sparks, Howard Rodrigues, Hinano Rodrigues, Gayson Ching, Steve Ozua, Scott Fretz, Paul Sensano, Jeffrey Kinores, Alan Matsuda, Skippy Hau, and Matthew Fariss.

Photo: *Coastal view from Kulaoka'e'a to the Pailolo Channell and on to Moloka'i.*

Executive Summary

Project Background and Purpose

The Honolua to Honokōhau Management Plan Area (HHMP Area) is the home to abundant marine life, terrestrial plants, wildlife, cultural resources, and ocean recreation. The HHMP Area's nearly four-mile coastline is one of the last remaining undeveloped expanses of its kind on Maui. Between Līpoa Point and Punalau the coastline is dominated by unique volcanic rock formations and sheer sea cliffs that plunge into the ocean. There are numerous significant views from this coastline to the Pailolo channel and on to Molokai. Threatened with development, the State of Hawai'i purchased this area from Maui Land & Pineapple Inc. (MLP) in 2014.

The purpose of the Honolua to Honokōhau Management Plan (HHMP) is to provide a comprehensive strategy for the stewardship of this uniquely significant coastal resource. The property is located makai of Honoapi'ilani Highway and includes Honolua Bay, Kulaoka'e'a (the headland and coastal areas between Līpoa Point and Punalau), Keonehelele'i Beach, and portions of Honokōhau Bay. For the purpose of this management plan this collective area is referred to as the "HHMP Area."

In 1969 MLP acquired the property from Baldwin Packers and continued to focus on pineapple cultivation. After its acquisition in 2014, DLNR acted to preserve the environmental, cultural, and recreational resources in the HHMP Area through a management plan. The HHMP addresses critical planning issues, such as public access, environmental protection, and facility needs in the context of climate change.

The HHMP was prepared concurrent with the Honolua-Mokulēi'a Marine Life Conservation District Conservation Action Plan (CAP). The CAP provides a robust, science-based approach for managing the 45-acre Honolua-Mokulēi'a Marine Life Conservation District. Since the HHMP does not focus specifically on the MLCD, this HHMP and the CAP are expected to complement one another. The CAP is attached as Appendix A.4.

The 2020 Covid-19 pandemic has led to a rapid deterioration in the State's short- and medium-term fiscal outlook. Between 2021 and 2025, the financial consequences resulting from the Covid-19 pandemic may constrain State funding available for HHMP plan implementation. As a result, HHMP managers will need to adapt, and where appropriate, look to alternative financial and management structures to facilitate HHMP implementation.

The Planning Process

Preparing the HHMP consisted of five phases over four years from December 2016 to December 2020.

Phase 1 - Research

Document the HHMP Area's mo'olelo, history, existing conditions, and issues within the context of the Honolua and Honokōhau ahupua'a.

Phase 2 – Community Outreach

Identify community concerns and shared values and objectives for the future use, preservation, and management of the HHMP Area.

Phase 3 – Stakeholder Vetting of the Draft Recommendations

Prepare conceptual draft recommendations for vetting by a diverse working group of community stakeholders.

Phase 4 – Prepare and Review the Draft Plan

Prepare the draft management plan using information generated through the first three phases. Hold an open house to gather additional input on the draft plan.

Phase 5 – Prepare the Final Plan

Update and finalize the draft plan using input collected through phase four.

Issues and Challenges

The HHMP Area faces an unusual number of challenges in the future because of its size, shoreline location, environmental attributes, sizable popularity, and the range of users it attracts. Among the most important challenges facing the area are the following:

- Climate Change
- High Human Use
- Stormwater Runoff and Coastal Water Quality
- Protecting and Restoring Natural Resources
- Upland development
- Resource Constraints and Fragmented Management

Key Recommendations for the HHMP Area

The HHMP describes the community's desire for how the HHMP Area will look, feel, function, and be used in the future. The vision is the community's expression of this future, in collaboration with the DLNR, and should guide the actions of decision-makers throughout the Plan's life (Exhibit ES-1).

HHMP Area Vision:

The HHMP Area is known for its natural beauty. The area is sacred to native Hawaiians who maintain their traditional and customary practices and find the area to be a source of spiritual and physical sustenance. The HHMP Area is resilient to the effects of climate change and coastal erosion, it is protected from overuse, and its resources are well-managed. Its coastal waters are rich in marine life, and its coral reefs are healthy and diverse. The area's coastline supports rare and endangered flora and is an important nesting site for native seabirds. The HHMP Area is cherished and respected by the Maui community for its cultural, natural, and recreational resources; open space; and healthy ecosystems.

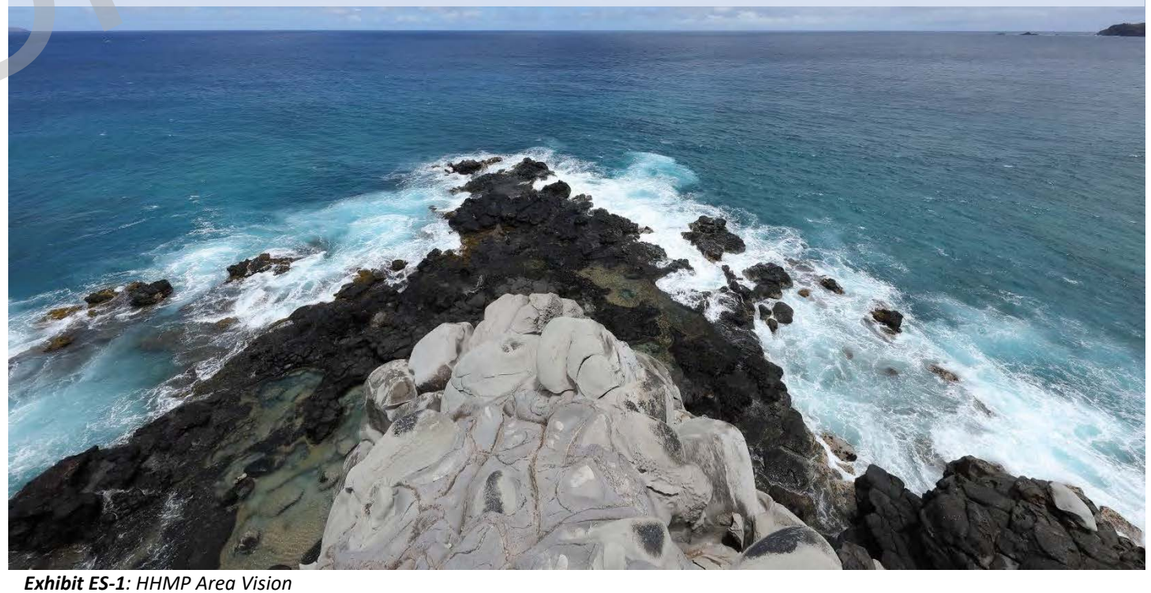


***Exhibit ES-1**: HHMP Area Vision*

CORE STRATEGIES	Action Highlights[1]
Build and maintain management capacity.	• Hire a full-time HHMP Area Manager, preferably with local expertise and an understanding of the Hawaiian culture. • Develop and maintain staff capacity to meet HHMP Area needs. • Develop and implement a financial plan to support HHMP implementation. • Issue an executive order for set asides of State land within the HHMP Area to DLNR divisions for jurisdictional and management disposition. • Establish a fee for non-resident visitors to access Honolua Bay from land via the Honolua Bay Access Trail. Use revenues generated from the fee for HHMP implementation.
Protect the area's sense of place.	• Foster and maintain wild and scenic character. • Minimize improvements, construction, and development. • Discourage upland land uses that may threaten the HHMP Area's cultural, natural, or aesthetic resources. • Develop a comprehensive signage plan to ensure that signs are installed in a coordinated way and are designed to be respectful of the area's sense-of-place.
Create a safer environment.	• Develop a trail maintenance program to keep trails safe, and to discourage hikers from wandering off trails and into hazardous as well as culturally sensitive areas. • Provide a helipad for emergency evacuations in the vicinity of the upper third of the Līpoa Point Access Driveway.
Manage the impact of human activities.	• Establish a daily cap on the number of non-resident visitors accessing Honolua Bay from land via the Honolua Bay Access Trail. • Provide on-site management to discourage property theft, trespassing, squatting, and other undesirable activities. • Continue to support programs for regular trash removal and disposal of bulky items.
Protect and restore cultural resources.	• Restore and perpetuate the generational knowledge of the native Hawaiian starting with outreach to and education of Hawai'i's local keiki. • Prepare an archaeological monitoring plan for Honolua Bay, and have it reviewed by the SHPD, prior to any subsurface work in the Honolua Bay area.
Protect and restore natural resources.	• Support the implementation of the 2020 CAP plan. • Minimize sources of land-based pollution into the Honolua - Mokulē'ia Marine Life Conservation District (MLCD) and other coastal waters. • Restore and protect native plant and wildlife communities along the coastal fringe from Pōhakupule to Punalau, at Punalau Point, and at Kamane. • Establish seabird restoration areas to protect and restore native seabird colonies along the coastal fringe.

[1] This table includes a sample of the HHMP's highlighted actions. A complete list of the Plan's actions is in Section 5.

***Table ES-1**: Highlighted Actions.*

The following six core strategies seek to implement the Plan's vision.

- Build and maintain management capacity.
- Protect the area's sense of place.
- Create a safer environment.
- Manage the impact of human activities.
- Protect and restore cultural resources.
- Protect and restore natural resources.

Each strategy is further implemented through related actions. Table ES-1 highlights key HHMP actions.

Next Steps

During the first phase of plan implementation the DLNR will create a management structure for the HHMP Area. Through this effort DLNR Divisions will be formally assigned specific roles and responsibilities for future management. DLNR management may be complimented by partnerships with community/stakeholder organizations, a private land trust(s), public-private partnerships, or concessionaires and lessees.

The DLNR will also prepare an Environmental Assessment in accordance with Chapter 343, Hawai'i Revised Statutes (HRS), to support HHMP implementation. Subject to available funding, the DLNR will also:

1. Pursue Special Management Area (SMA) and other State, County, and Federal permits required for HHMP implementation; and

2. Develop more detailed plans for signage, seabird habitat restoration, and vegetation management to include native plant restoration.

Plan Organization

Section 1.0 provides an overview of the HHMP Area's physical setting, land use entitlements, history, and significant resources. Section 2.0 provides a more detailed description of the natural and cultural conditions, utilities and infrastructure, and natural hazards in the Honolua Bay, Kulaoka'e'a, and Keonehelele'i Beach subareas. Section 3.0 describes the HHMP's planning process. Section 4.0 uses the information collected through the planning process to identify major planning issues and challenges. Section 5.0 lays out the HHMP's recommendations including a vision, guiding principles, strategies, and implementing actions. Section 6.0 provides an estimated budget (operational and capital costs), and schedule for plan implementation. Section 7.0 identifies critical indicators to measure plan implementation and the overall health and well-being of the HHMP Area.

***Photo:** Rock formations along the coastal fringe between Līpoa Point and Punalau.*

1.0 BACKGROUND AND PURPOSE

Located on Maui's remote northwestern coast, the stretch of land spanning from Honolua Bay to Honokōhau Bay possesses some of Hawai'i's most unique cultural, archaeological, and natural resources. Only a few miles from the urbanized towns and resorts of Lāhainā, Kapalua, and Kā'anapali, this unique area includes pristine bays, jagged cliffs, and open vistas. Glassy surf surges into the bays, and beneath the water an extensive structural coral reef protects a plethora of marine life. Many cultural sites sacred to the native Hawaiians can be found along the cliffs, which provide stunning views of Lāna'i and Moloka'i. These distinguishing features make this area one of Maui's most beloved natural sites. Locals and visitors alike gather here to reconnect with nature, participate in cultural practices, and engage in some of Maui's best recreational activities.

Throughout the years this area has grown in popularity and use, which presents complex challenges for future management and protection of the natural resources. In 2014, following a major effort by the community and political leaders, the State of Hawai'i purchased 244.12 acres of land encompassing the coastline between Honolua Bay and Honokōhau Bay, including Līpoa Point.

The purpose of the HHMP is to provide a comprehensive strategy for the stewardship of the land acquired by the State of Hawai'i in 2014. The HHMP addresses critical management issues, such as coastal resilience, overuse, public safety, environmental protection, and facility needs in the context of climate change.

About this Plan

What is the HHMP Plan?

The HHMP is a non-regulatory management plan that reflects a robust and inclusive public outreach process. It presents a framework for understanding the wide range of issues and challenges confronting the HHMP Area. It offers a set of strategies for achieving the future vision of the planning area as identified by stakeholders, agencies, and the broader community.

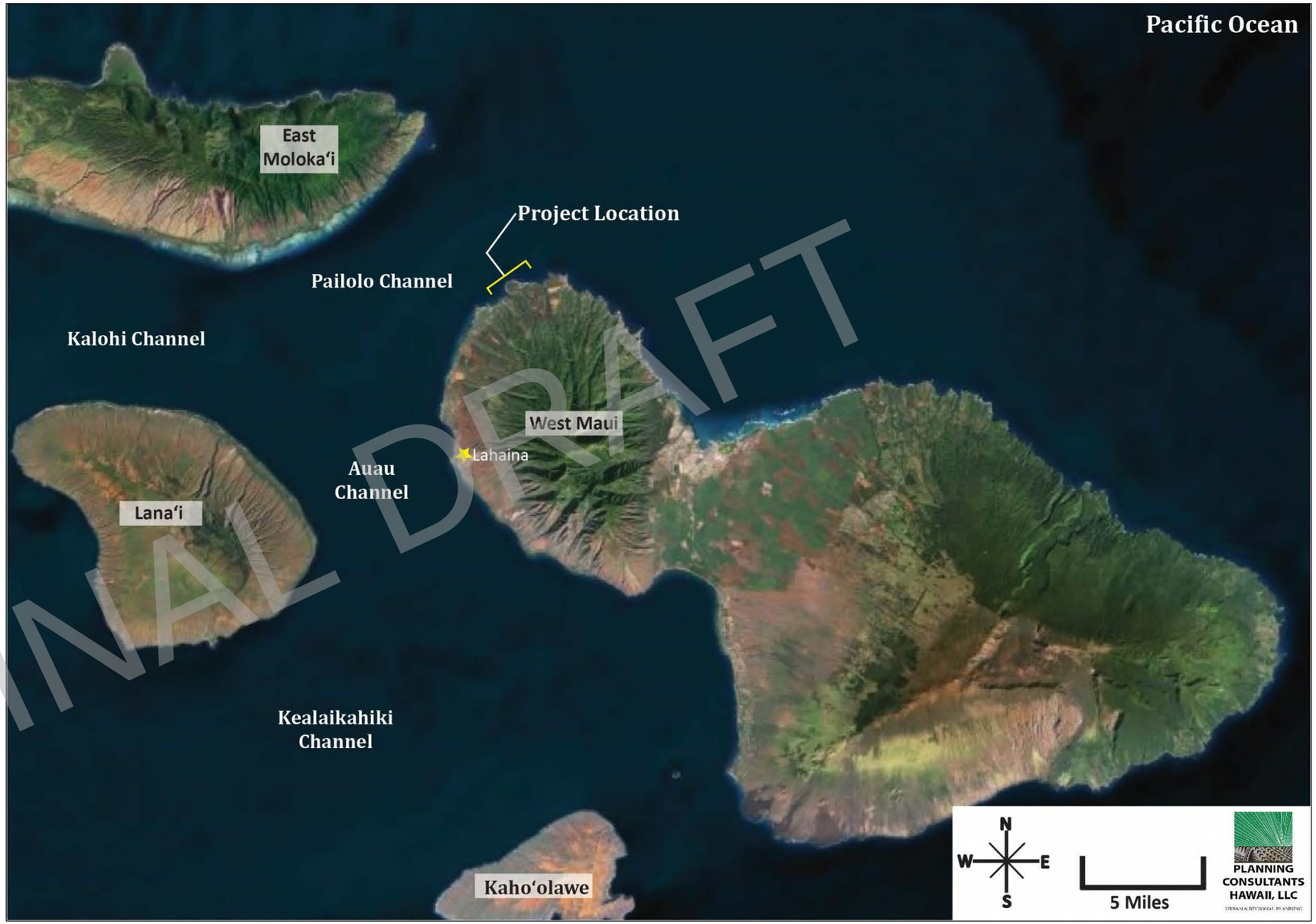


***Figure 1.1**: The HHMP Area's location in West Maui, Hawai'i.*

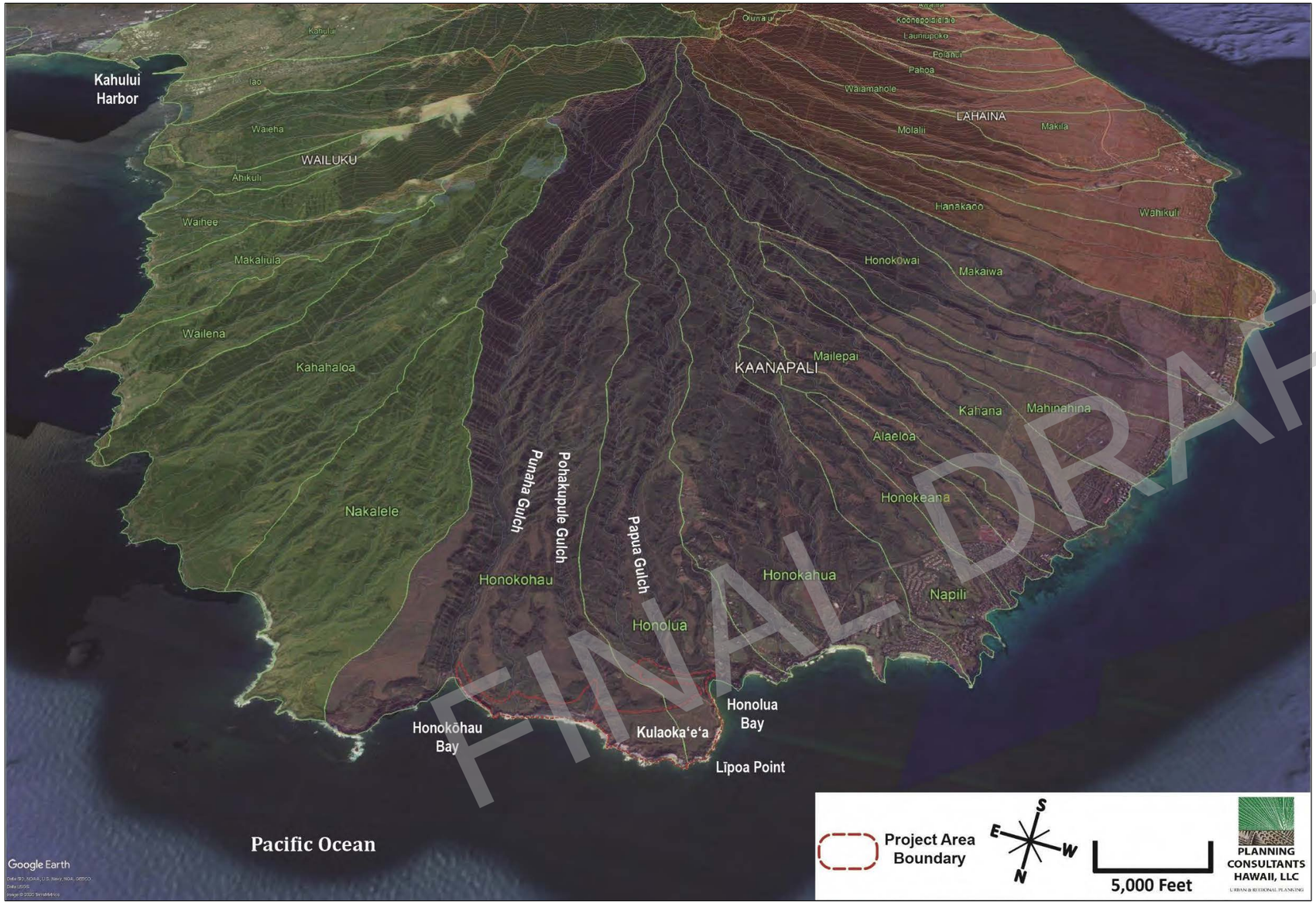


***Figure 1.2**: The HHMP Area's location within the Kaanapali Moku and the ahupua'a's of Honokōhau and Honolua.*

The HHMP's recommendations provide an ambitious approach to managing and improving the HHMP Area to 2040. This Plan is intended to:

- Articulate a compelling vision for the HHMP Area that inspires future action.
- Provide sound guidance for decision-making by public officials and agencies.
- Provide a road map for plan implementation.
- Provide a foundation for on-going environmental stewardship; and
- Together with the CAP plan (Appendix A.4) provide a comprehensive management strategy for both the HHMP Area and the Honolua-Mokulēi'a Marine Life Conservation District.

Implementation of some of the HHMP's recommendations will require public agencies to conduct environmental review under Hawai'i Revised Statutes (HRS) Chapter 343. Permit approvals will also be required pursuant to the Hawai'i Coastal Zone Management Act, HRS 205A, and other relevant governmental rules and regulations.

Location and Context

The HHMP Area is located within the moku of Kā'anapali, on the west coast of Maui, approximately ten miles north of Lahaina (Figure 1.1). Located on the northwest slopes of Mauna Kahalawai (West Maui Mountains), the moku of Kā'anapali is comprised of eleven ahupua'a, which, from west to east, include: Honokōwai, Mahinahina, Kahana, Mailepai, Alaeloa, Honokeana, Nāpili, Honokahua, Honolua, Honokōhau, and Kahakuloa. The HHMP Area straddles the coastal lands of Honolua and Honokōhau Ahupua'a (Figure 1.2), two of five well-watered valleys of Nā Hono-a-Pi'ilani and Ka'anapali Moku (Lee-Greig, 2019).

Mauna Kahalawai provides a dramatic backdrop to the HHMP Area. Its broad ridges, deep gulches, and alluvial fans built out the area's shoreline as a result of the once perennial streams depositing debris in greater volume than is removed by waves and ocean currents (Macdonald et al. 1983, 387).

The HHMP Area is identified as TMK (2) 4-1-001:010. It incorporates most of the lands makai of the four-mile stretch of Honoapiʻilani Highway between Honolua Bay and Honokōhau Bay. The HHMP Area includes three embayments (Honolua, Keonehelele'i, Honokōhau); two popular beaches (Honolua, Keonehelele'i); three gulches (Honolua, Pōhakupule and Punaha); a rugged volcanic cliff line; a large, wide, flat, formerly cultivated tableland on the Kulaokaʻeʻa plateau; and the mouth of both the Honokōhau Stream and the Honolua Stream (Figures 1.2 and 1.5).

Honolua has been described briefly in early narratives as being "beautifully nestled in the bottom of a grassy valley through which runs a clear stream of water" (Lee-Greig, 2019).

Makai of the Project Area

Marine waters in Honolua Bay and to the west of Līpoa Point are within the 45-acre Honolua-Mokulēʻia Bay Marine Life Conservation District (Honolua-Mokulēʻia MLCD) established by the DLNR in 1978 (Figure 1.3).

Marine waters offshore to Molokaʻi are within the Hawaiian Islands Humpback Whale National Marine Sanctuary. The sanctuary is co-managed by the Federal National Marine Fisheries Service (FNMFS) and the State DLNR. The sanctuary's boundary stretches from Līpoa Point across the Pailolo Channel to Cape Halawa on the eastern tip of Molokaʻi (NOAA, 2017). As such, marine waters to the east of Līpoa Point, such as offshore of the Keonehelele'i coastline, are not within the whale sanctuary.

Mauka of the Project Area

Substantially mauka from Honolua Bay is the Plantation Estates, an upscale agricultural home development surrounding the private Kapalua Golf Course (Figure 1.4). Discharges of fertilizer, pesticides, and other chemical treatments associated with landscape grounds-keeping and fairway maintenance may be adversely impacting water quality and coral reef vitality within Honolua Bay. Mauka views from the bay's waters, and from the Līpoa Point Access Driveway, are compromised by several large homes that overlook the bay and diminish the naturalness of the setting.

Several privately-owned properties are located mauka of the highway and upslope of the bay in the valley formed by the Honolua Stream. Some of the properties are developed with single-family homes.

MLP owns a 2,750-acre tract of land on the opposite side of Honoapiʻilani Highway from Honolua Bay at Honolua Stream. This single area follows the stream and its gulches more than seven miles inland and up the slopes of the West Maui Mountains. The area is predominantly within the State Conservation District, Resource subzone. However, it is not within the County Special Management Area (SMA) and portions of the area are in the State Agricultural District and are zoned Agriculture (AG) or Interim by the County (Figure 1.4). Subdivision and development of land with these types of land use entitlements may be challenging; but are not impossible depending on the end desired.

Mauka of the highway bordering Kulaokaʻeʻa and extending past the Nākālele Blow Hole is an extremely large parcel owned by MLP. The parcel, TMK (2) 4-1-001:009, is nearly 5,375 acres. It extends upland over three miles, and much of it is County zoned agricultural (AG). Honokōhau Stream nearly splits the parcel in two equal halves with many small land commission awards located near the stream.

The western half of the parcel is located across the highway from the fallow fields on the plateau of Kulaokaʻeʻa. This mauka portion of the MLP parcel has an irrigation reservoir next to a series of large flat agricultural fields. Both the State and County designate this parcel for agricultural (AG) use, and it is not within the SMA or Conservation District (Figure 1.4).

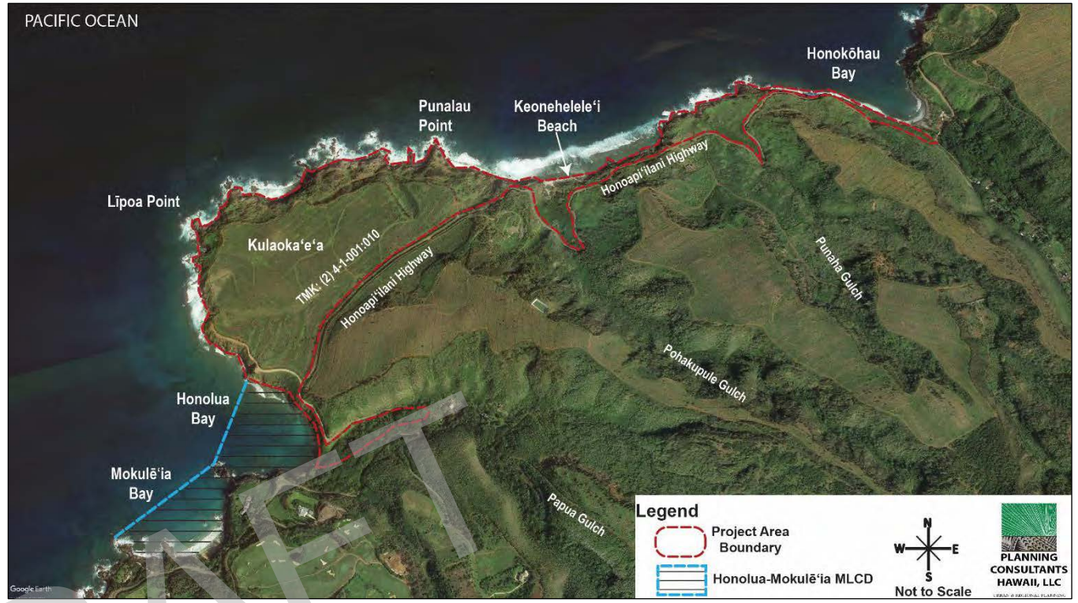


Figure 1.3: *The HHMP Area in relation to the Honolua-Mokulēʻia MLCD.*

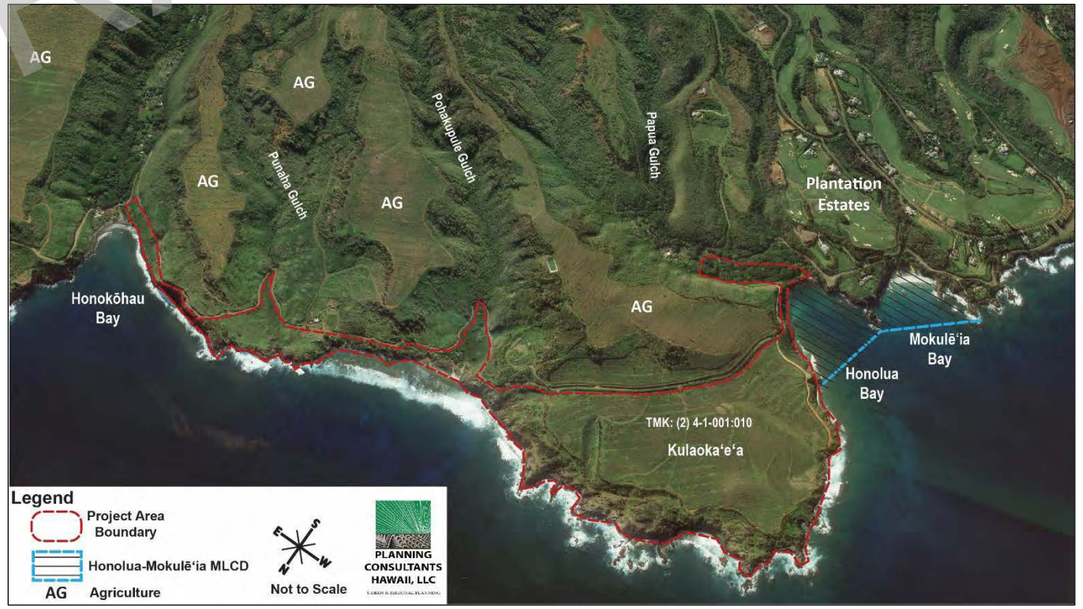


Figure 1.4: *The HHMP Area in relation to the Plantation Estates and Undeveloped AG Lands.*

***Figure 1.5**: HHMP Area by the numbers.*

Entitlements

The HHMP Area's (TMK: (2) 4-1-001:010) land use entitlements are 1. State Land Use Designation of Conservation (resource, general, and limited subzones) and Agricultural; and 2. West Maui Community Plan Designation of Conservation along the shoreline and Agriculture in the area previously in agricultural use. The former agricultural fields are also County-zoned for agricultural use. The project area is located outside of the Maui Island Plan's growth boundaries, while the coastline is within a planned protected area – preservation designation (Table 1.1).

Conservation areas are regulated under HRS 183C and HAR 13-5-13. The State of Hawai'i categorizes conservation areas into seven resource subzones. These subzones range from more permissive to very restrictive, depending on the topography and ecological resources being conserved. Portions of the project area are within the general, resource, and limited subzones (Figure 1.6). Areas seaward of the shoreline are within the State Conservation District Resource Subzone unless otherwise noted, such as the Honolua-Mokulē'ia MLCD, which is in the protected subzone to recognize and protect the MLCD's valuable natural and marine resources.

Lands mauka along Honolua Stream, and adjacent to the Honolua-Mokulē'ia MLCD, are in the resource subzone to ensure sustainable management of these areas. Examples of uses identified by HAR 13-5-13 for areas within the resource subzone include park and outdoor recreation, limited agriculture, and kuleana land uses. Lands makai of the agricultural fields of Kulaoka'e'a and between Honolua Bay and Honokōhau Bay are in the limited and general subzones.

Areas within the limited subzone tend to include steep cliffs, rocky outcrops and areas susceptable to erosion, flooding, and storm surge. These areas are highly regulated to protect unique and sensitive resources and public health and safety. The western edge of Kulaoka'e'a is in the general subzone to, in part, to protect the area's open space resources. There are also areas in the general subzone that lie between Kulaoka'e'a's agriculturally designated lands and those areas in the limited subzone. These areas are located on Kulaoka'e'a's northwestern flank, and have significant open space, natural, and cultural resource values. They also serve as a buffer between the project area's agricultural lands and sensitive coastal areas.

The project area is also within the County SMA and will require an SMA permit, or request for exemption, depending on the type of development proposed.

HHMP Area	
TMK:	**(2) 4-1-001:010**
Ownership:	**State of Hawai'i**
Parcel Area:	**244.12 Acres**
Entitlements:	
State Land Use:	**Conservation** **Resource Subzone** **General Subzone** **Limited Subzone** **Agricultural**
Maui Island Plan:	**Outside of the Urban Growth Boundary** **Protected Area - Preservation**
Community Plan:	**State Conservation** **Open Space**
County Zoning:	**Agriculture (Kulaoka'e'a Ag Field)**

***Table 1.1**: HHMP Area's land use entitlements.*

Government regulations to address environmental, cultural, and hazard issues include the shoreline setback rules of the Maui Planning Commission, which address beach erosion and preservation issues; flood inundation areas as noted in the Flood Insurance Rate Maps (FIRM) issued by the Federal Emergency Management Administration; wetland designations regulated by the federal government through the Army Corps of Engineers; native and endangered fauna and flora overseen by the U.S. Fish and Wildlife Service; and archaeologically significant sites (such as burials and cultural deposits) that are regulated by the DLNR.

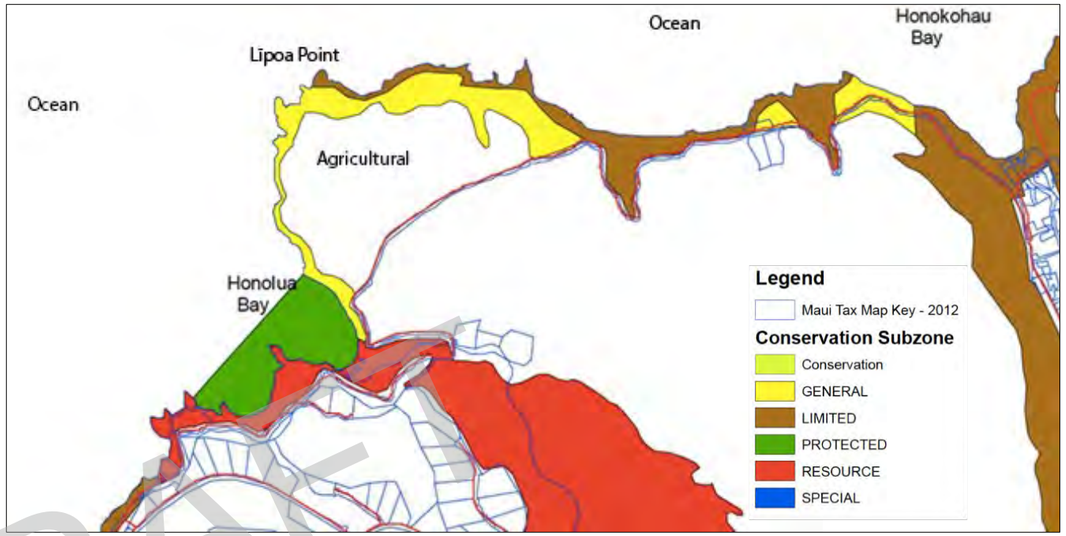


***Figure 1.6**: Conservation district subzone designations.*

History and Place Names

The HHMP Area's lineal and generational descendants share that place names in Hawai'i often have mo'olelo that reveal the significant features and uses of their 'āina; their place they are akin to. They note an understanding of Hawaiian place names is an essential part of maintaining a spiritual connection to the land. The place names within the HHMP Area "may yield some insight into the stories, patterns of life and land use within Honolua and Honokōhau Ahupua'a" (Lee-Greig, 2019).

According to recent historical and cultural research by 'Āina Archaeology, "many of the place names include species of plants that may have been gathered for household or supplementary subsistence purposes such as Huakukui, Kahauiki, Kamani/Kamane, Kaohe, and Kiula. References to the abundance of the ocean and nearshore environments are also reflected in names that incorporate species of limu like Līpoa and Lipu/Lipu'u, types of fish like Kalaepiha, or characteristics of the shoreline like Keawalua, Kepuhi, Honolua, and Honokōhau. The agricultural abundance and variety of cultigens of the area may also be noted in the place name of Ohiapoko/'Ōhi'apoko and Pu'u Kā'eo, as well as a particularly interesting tree species that could either be poisonous or a type of pepper plant (Pānīoi)" (ibid). Please see Appendix A.3 for a description of the HHMP Area's place names.

Of special note to the area, Hono-a-Pi'ilani collectively refers to the six bays[1] of Kā'anapali Moku whose names begin with Hono, or bay, as well as the islands that were seen from them and ruled by Pi'ilani, the ali'i (chief) who unified Maui Komohana (West Maui) and Maui Hikina (East Maui). The bays Honolua and Honokōhau frame the project area to the west and east respectively. Honolua Bay's English translation is 'two bays', which offers insight into the physical characteristics of the bay. The Hawaiians referred to the large plateau overlooking Honolua Bay as "Kulaoka'e'a" which means "dusty plain or plain of dust." The area's lineal and generational descendants share that in ancient times this area was a hill and the location of a hōlua slide. The hill was later graded to make way for industrial pineapple cultivation.

Līpoa Point, a headland of Kulaoka'e'a, is named for the limu līpoa found along the shoreline. Limu līpoa was frequently gathered by the kānaka maoli as an important food.

From Līpoa Point, there is a clear view of Moloka'i. Maui and Moloka'i have a special connection through the views afforded from Līpoa Point and the ocean currents that separate them.

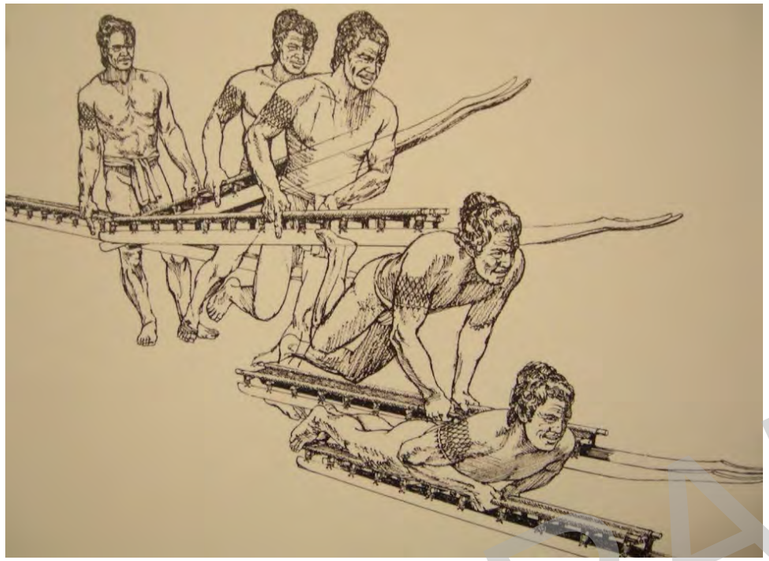


Illustration: *Native Hawaiian of ancient Hawai'i enjoying a traditional Hōlua slide.*

In the embayment region of Kulaoka'e'a is Keonehelele'i Beach, which means "the scattered sand". Northwest of Keonehelele'i Beach is Honokōhau Bay, which translates in Hawaiian to "the bay drawing dew" or "the bay where waters congregate." This most likely refers to the freshwater that flows down from the valley and enters the bay. Due to its plentiful supply of water, Honokōhau Valley has historically been one of the largest areas for kalo cultivation on Maui.

Prior to human contact the geology, pattern of rainfall, and underlying soils characterstic of the Honolua and Honokohau Ahupua'a likely sustained a lowland dry and mesic forest, woodland, and shrubland native ecosystem (Pratt and Gon III, 1998). Vegetation along the lower elevation plains, dry ridge tops like that of the HHMP Area, and cliffs would have supported grasslands of pili or kāwelu. The dry or mesic shrubs that may have occurred could have included a'ali'i, 'ākia, ko'oko'olau, ūlei, and others (Lee-Greig, 2019).

According to Carpenter and Dega, "Hawaiians in the area developed extensive irrigated taro terraces (lo'i) and drainage systems ('auwai) that supported a large population" (Carpenter and Dega, 2019). The area is known for "extensive lo'i lands in tier valley bottoms, where terraces rose tier on tier in symmetrical stone-face lo'i…Honokahau in particular…had the most extensive lo'i along this coast" (Handy & Handy 1972:494).

According to recent research from 'Āina Archaeology "kuleana claims and awards also show that kula 'uala (potato lands) was also an important crop of the area. Kula (pasture), and kauwahi hoi (places of a little bitter yam) that were processed and eaten in times of famine were also included in the claims of native tenants. When looking at the content of kuleana claims within and nearest to the HHMP Area, the makai section of Honolua appears to have been more suited to kula type endeavors (dryland agriculture or pasturage) while the makai sections of Honokōhau were agriculturally diverse with claims for lo'i kalo, kula, and combinations of both. Claims for pahale (house lots), or areas of long-term residency, also appears to have been focused nearer to the coastline" (Lee-Greig, 2019.

Archaeological surveys of the HHMP Area and nearby lands have documented cultural resources including "heiau, human burials, petroglyphs, monumental architectural agricultural complexes, ancient trails, a hōlua slide, as well as a number of permanent and temporary habitation sites. The presence of these remaining archaeological sites is indicative that Honolua Valley supported a substantial and presumably elite traditional Hawaiian population" (Carpenter and Dega, 2019).

Photo: *Archaeological resources characteristic of the HHMP Area. From Pickett B.A., and Dega, Ph.D., (2007).*

[1] From Honokōwai, driving towards Kahakuloa on Hono-a-Pi'ilani Highway, the six bays are Honokōwai (bay drawing fresh water), Honokeana (cave bay), Honokahua (sites bay), Honolua (two bays), Honokōhau (bay drawing dew), and Hononana (animated bay).

The project area has seen much change over the course of time. King Kamehameha I, who had conquered Maui in 1790, bestowed the ahupuaʻa of Honolua and Honokahua to King Kamehameha II. King Kamehameha II maintained power over the ahupuaʻa of Honolua and Honokahua until he and his wife, Queen Kamamalu, died of measles while on a trip to England.

In 1836 an American missionary and physician named Dr. Dwight Baldwin moved to Maui. Dr. Baldwin's son, Henry Perrine Baldwin, founded Honolua Ranch in 1890. The ranch grew to 24,000 acres by 1902 and would encompass the ahupuaʻa of Honolua and extend to Honokōhau Bay ("Our Plantation Heritage"). The first manager of Honolua Ranch was Richard Searle, an ex-sea captain from England. He had a Hawaiian wife who had inherited lands from the ancestors of Kamehameha, Konia, Lunalilo, Davis, and the Young families. As the Honolua Ranch grew, it supported several Hawaiian families. At this time, the Honolua Ranch was used to raise cattle and horses, grow coffee and taro, and for fishing. According to Clark, "Honolua Bay was once the site of the original headquarters of Honolua Ranch" (Clark, 1989). Inland of the bay there was "the main ranch house, several other homes, a machine shop, a saddle shop, a nursery, a coffee warehouse, and a company store" (Clark, 1989). At this time steamers stopped at Honolua Bay to offload supplies and pick-up cattle and other ranch products.

Henry Perrine Baldwin continued to explore the potential to grow other agricultural crops on Honolua Ranch. In this endeavor he received help from a horticulturist named David Thomas Fleming, who would be hired as the manager of Honolua Ranch (Anderson, 2016).

With the advice of Fleming, the Honolua Ranch began to grow pineapple, and the industry proved to be lucrative. The headquarters of the Honolua Ranch was moved from Honolua Bay to Honokahua. The Honolua Ranch then changed its name to the Baldwin Packers Ltd. By the 1930's there were over 9,000 acres of pineapple in cultivation ("Our Plantation Heritage").

At that time Kulaokaʻeʻa, the large plateau overlooking Honolua Bay, was grassy and open. According to Clark, "during the early 1920s David Fleming built a rugged nine-hole golf course on Kulaokaʻeʻa, which was then in cattle pasture. The course was named the West Maui Golf Course and remained in use until World War II" (Clark, 1989). Remnants of the clubhouse are visible today. During World War II, portions of the course were used as an aircraft landing strip. Following the War, Kulaokaʻeʻa was used for pineapple cultivation.

With the increasing popularity of surfing in the 1960s, Honolua Bay became recognized internationally as one of the world's best right-hand surf breaks. For the last half-century, Honolua Bay has drawn surfers from throughout the world to ply its waves.

On May 1, 1976, the double-hulled Polynesian voyaging canoe Hōkūleʻa set sail on its maiden voyage from Honolua Bay to Tahiti. As of June 26, 2018, the Polynesian Voyaging Society's website cites that the Hōkūleʻa "began as a dream of reviving the legacy of exploration, courage, and ingenuity that brought the first Polynesians to the archipelago of Hawaiʻi" (Polynesian Voyaging Society website: http://www.hokulea.com/voyages/our-story/). The 1976 launch of the Hōkūleʻa was a significant event in the renaissance of Hawaiian culture that continues to present day.

Photo: *Hōkūleʻa maiden voyage from Honolua Bay. Photo by Dr. Ben Young.*

In 1969, Baldwin Packers became part of the Maui Land and Pineapple Company, Inc. (MLP). Colin Campbell Cameron, the great-grandson of Henry Perrine Baldwin, ran the MLP. In March 1978, Colin Cameron realized a vision he had for the bay. With Cameron's steadfast support, the State Board of Land and Natural Resources established the Honolua-Mokulēʻia MLCD. The purpose of the MLCD was to "preserve, protect, and conserve marine resources and geological features, and to foster recreational, non-consumptive public use of the area" (Clark, Pg. 68).

In 2006, the Save Honolua Coalition (SHC) was formed as a response to proposed residential and commercial development in the Honolua Bay Area. The SHC advocated for the protection of the area from innapropriate development. In 2014, the State of Hawaiʻi purchased 244.12 acres of land encompassing the coastline from Honolua Bay to Honokōhau Bay following a tremendous effort by the community, guided by the SHC and the State's political leaders to protect the area from development and to preserve the area's cultural, archaeological, and natural resources.

Illustration: *Taro Plant. A staple food source cultivated in the Honokōhau and Honolua Valleys since ancient times.*

2.0 PLANNING SUBAREAS

For planning purposes, the HHMP Area was analyzed as both a whole, integrated site, and as a series of three component subareas (Honolua Bay, Kulaokaʻeʻa and the headland of Līpoa Point, and Keonehelele'i Beach to Honokōhau Bay) defined by location, geography, and land use. Please see Figure 1.5 for an illustration of the geographic extent of each subarea.

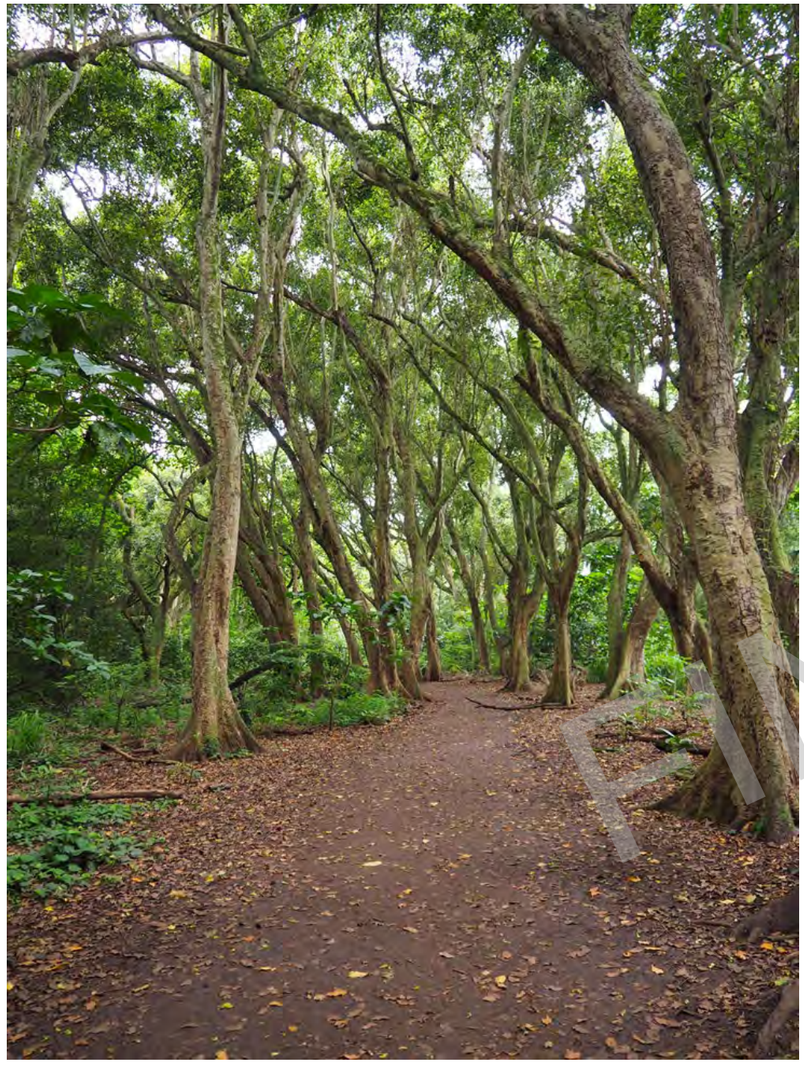


Photo: *The Honolua Bay Access Trail.*

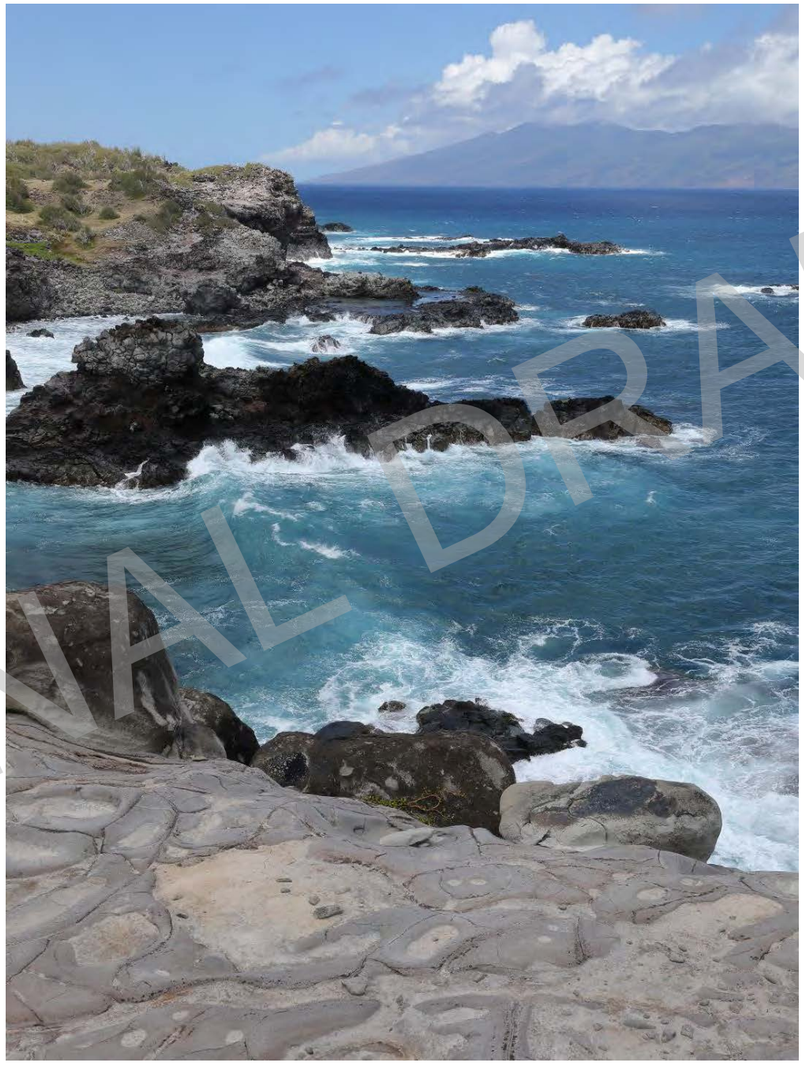


Photo: *Seascape along the coastal fringe between Līpoa Point and Punalau.*

Photo: *Looking east and west from Keonehelele'i Beach.*

Honolua Bay is located at the southwestern end of the HHMP Area. The bay contains two vibrant reefs and numerous fish assemblages, making it one of the most popular snorkeling locations on Maui.

Marine waters in Honolua Bay and to the west of Līpoa Point are within the Honolua-Mokulē'ia MLCD, which was established by the DLNR in 1978. No fishing or taking of marine life, sand, or coral is permitted in the MLCD. The boundary of the MLCD extends from the high-water mark seaward to a line from ʻAlaelae Point at Mokulē'ia to Kalaepiha Point on the southwestern edge of Honolua Bay to Puiwa Point at the northwestern corner of Honolua Bay, below the Līpoa Point Access Driveway (DLNR DAR, 2017).

Honolua Bay is popular with snorkelers who access the bay by using one of the licensed commercial tour boats or the footpaths that connect the bay to Honoapiʻilani Highway. Other popular activities at the bay include surfing, diving, swimming, fishing (outside of the MLCD), native Hawaiian gathering, cultural practices, and sunbathing.

Key usage statistics

1. Peak use: 700-800 visitors arriving during six-hour timeframes. (Komoto, 2009)
2. Average daily use (Summer Months)

Land Based Access	Sea-based Access	Total
359	176	535

(Tetra Tech EM Inc., 2007)

3. Peak hourly vehicle count (Summer 2019): Approx. 80 vehicles

Natural and Cultural Conditions

Geology and Soils

The coastline around the bay is mostly volcanic rocks and boulders backed by steep cliffs. A small patch of sandy cobble beach persists at the back of the bay, adjacent to the mouth of Honolua Stream. Stony Alluvial Land Series (rSM) can be found along the streams and gulches. These soils consist of stones, boulders, and sediment deposited by streams along the bottom of gulches and alluvial fans.

Streams and Gulches

The Honolua watershed includes Honolua Stream, Papua Gulch, which drains to Honolua Stream, and surface runoff from the western side of Līpoa Point and the western half of the former pineapple fields on the plateau above the bay. Honolua Stream meanders through a riparian forest into Honolua Bay.

Vegetation and Wildlife

The riparian forest towards "the bottom of Honolua Valley is moist and has a large canopy of introduced trees, some festooned with draping vines. The understory is a mix of aggressive non-native grasses, shrubs, and vines. Scattered about this heavily trafficked area are numerous plantings of edible and ornamental plants" (Star, F and Starr K, 2018). Dominant trees here include monkeypod and java plum, both of which soar over the Honolua Bay Access Trail. Milo trees are common along Honolua Stream and near the coast.

Marine Life and Corals

Reef formations are present offshore on both sides of the bay. Dense coral growth formations can be observed in waters ranging from 10 to 40 feet deep in both locations. Lobe coral are more abundant and diverse along the northeastern shoreline, whereas rice coral, which are more tolerant of sediment, predominate on the southern shoreline. The middle of the bay is a sand channel, sloping gradually to a depth of about 60 feet at the bay's mouth (Sparks, et. al., 2015).

The coral cover within the reef flats of Honolua Bay substantially declined over the last 15 years according to CRAMP reports (ibid). This decline was, in part, the result of large, periodic, heavy sedimentation events. A significant example was the heavy rainfall event that occurred in January 2005, which resulted in a large sediment plume within the bay. That year coral cover on the bay's south reef declined by more than half per CRAMP findings.

Archaeological features

In 1974 Kenneth Moore prepared an archaeological survey of approximately 90 acres in Honolua Valley including the floor, walls, and embayment arms of Honolua Valley. During the survey 13 archaeological sites were located, described, and mapped (Moore, 1974). "Of the 13 sites, eleven sites appear to be prehistoric (pre-European contact) and two sites date to historic times" (ibid). In 2007 Dega and Pickett conducted survey sweeps in Honolua Bay proper to locate archaeological features that were previously identified by Moore (Dega and Pickett, 2007). According to Dega and Pickett's 2007 AIS, "all of the required sites were identified intact and in relatively good condition" (ibid).

Views

From the parking area along Honoapiʻilani Higway the mauka views are limited as the topography of the site is relatively flat and large trees block most of the views towards the mauna Kahalawai. From the bay there are unobstructed views to the Pailolo channel.

Utilities and Infrastructure

There are few facilities at Honolua Bay. Those accessing the bay from land do so via the narrow and winding Honoapiʻilani Highway. The Honolua Bay Access Trail is located adjacent to the gravel parking area on the makai side of the Highway. At the trailhead, an informal gravel parking lot can accommodate roughly thirteen cars. On the Lahaina side of the one-lane bridge, on the makai side of the highway, there is an unpaved parking area that will accommodate roughly fourteen cars. During peak use up to fifty-four vehicles are parked along the highway across from, or to the east of the Honolua Bay Access Trail. These cars can pose a safety hazard as occupants are unloading gear and entering and exiting vehicles.

There is no potable water at the bay. There are three portable toilets and a wire trash receptacle at the edge of the larger graveled parking lot next to the trailhead leading to Honolua Bay. The portable toilets are pumped out three times per week.

There are several formal and informal signs in the gravel parking lot, along the trail from the parking lot to the bay, and at the bay. A second set of trash receptacles are located just inland of the bay's shoreline next to two picnic tables.

Natural Hazards

Sea Level Rise

Black volcanic rocks and boulders fringe the coastline of the bay. From the boat ramp to the mouth of Honolua Stream, rocks are interspersed with smoother cobbled stone, river rock, and some intermittent black sand. Sea level rise will tend to immerse this area with seawater more frequently. Rising seawater will tend to inundate the stream mouth and raise the groundwater table thereby impacting access routes across the stream and into the bay's waters. However, these changes will occur slowly, and adaptations can be readily made.

With rising sea temperatures coral reef vitality could decline and corals could experience more frequent bleaching events and incidents of disease. Warmer sea temperature reduces the pH in the water making it more acidic (ocean acidification).

Tsunami

The low-lying area of Honolua Bay is at a high risk of being inundated by a tsunami because of the area's low elevation and gulch-like topography. A tsunami could easily accumulate waters and push them well into the valley. Several houses and residences are located within the gulch inland of the roadway and are susceptible to damage. Any structures proposed to be located makai of the Honoapiʻilani Highway would be at high risk of damage. The roadway is susceptible to damage from inundation or could be blocked by debris dislodged by the force of a tsunami, especially at the one-lane Honolua Bridge.

Flooding

Some areas of Honolua Bay are within the V or VE zone which involve flooding with wave action and velocity hazard. The embayment has flood risks from both upcountry storm water and incoming wave action. Coastal flooding ranges from 19 feet deep at the mouth of the bay to 16 feet deep near the back of the project area where it meets Honoapiʻilani Highway.

Photos: *Counterclockwise from top: 1. Aerial view of Honolua Bay (photo by DLNR); 2. Overlooking Honolua Bay from Honoapi'ilani Highway; 3. View of the Pailolo Channel from Honolua Bay; 4. Corals of Honolua Bay; 5. The trail to Honolua Bay; 6. Families enjoying a day of snorkeling.*

Kulaokaʻeʻa and the coastal fringe between Līpoa Point and Punalau make up the central area and largest portion of the parcel. This area includes rugged volcanic coastal cliffs, gulches, streams, beaches, several bays, and a relatively large, flat, tableland. The tableland consists of approximately 150 acres of gently sloping plateau that rises from 135 feet in elevation at Līpoa Point to 188 feet where the HHMP Area abuts Honoapiʻilani Highway. Following World War II, this central portion of the HHMP Area area was used for industrial pineapple cultivation.

The prevailing uses tend to focus on the coastline and ocean recreation. The area provides the primary access point for surfers accessing Honolua Bay and the surf breaks between Līpoa Point and Punalau. Other popular activities include fishing (outside of the Honolua-Mokulēʻia MLCD), Native Hawaiian gathering and cultural practices, hiking, playing in tide pools, sightseeing, and informal camping.

Natural and Cultural Conditions

Geology and Soils

The area's fallow agricultural land consists primarily of Alaeloa silty clay (USDA, NRCS, web soil survey). This type of soil is characterized by well-drained soil with a moderately-low to moderately-high water transmitting capacity. MLP did use pesticides and herbicides on the former pineapple fields during cultivation. There is no site-specific evidence suggesting contamination is present, such as the presence of underground storage tanks or chemical mixing or storage on the project area. However, these lands are littered with remnant plastic mulch and plastic drip irrigation lines that were used for cultivating pineapple.

To the east of Līpoa Point following along the coastal fringe above the submerged tide pools are a varied and interesting grouping of rock formations. Most of these headlands and windswept spaces are indicative of the Honolua lava flows in form and color.

Watersheds

The table lands inland of the coastal fringe are split between the Honolua and Honokōhau watersheds. Areas to the east of the coastal fringe flow towards the ocean and/or Pōhakupule Gulch. Areas to the west of the coastal fringe flow towards the ocean and/or Honolua Bay.

Vegetation and Wildlife

The bulk of Kulaokaʻeʻa below Honoapiʻilani Highway is a large, open, moderately-sloped area that most recently was in pineapple cultivation. The pineapple fields have been abandoned, and today the fields are revegetating with a mix of mostly non-native grasses, shrubs, and trees (Star, F and Starr K, 2018).

The coastal fringe is located makai of the abandoned pineapple fields where the land steepens, eventually becoming cliffs along the ocean. The area of greatest native plant diversity is the seaward edge of the coastal fringe (ibid). Though dwindling, this area has more native plant species than any similar length stretch of coastline on Maui (ibid). Farther from the ocean, the native plants quickly become less abundant. At the top of the coastal fringe, where it meets the fallow pineapple fields, the vegetation is virtually all non-native (ibid).

The coastal fringe and tableland of Kulaokaʻeʻa likely used to be a breeding area for seabirds. However, there are few seabirds breeding in the area despite ample habitat. This is likely because they are killed by non-native predators, such as cats, dogs, mongooses, and rats when they try to breed. However, they do fly by the area, and with protection and restoration, seabirds could once again become abundant along the coastal fringe (ibid).

Archaeological Features

The Dega and Picket 2007 Archaeological Inventory Survey identified nearly two dozen archaeological sites. No surface or sub-surface features were discovered in the fallow agricultural fields makai of Honoapiʻilani Highway. Most of the identified sites were located along the rugged coastline and all the documented sites were historically significant under Criterion D (Dega and Picket, 2007).

Views

The coastline between Līpoa Point to Punalau is dominated by unique volcanic rock formations and sheer sea cliffs that plunge into the ocean. There are numerous significant views from this coastline to the Pailolo channel and on to Molokai. The Lipoa Point Access Driveway also offers views of Honolua Bay, Molokai, and Lānaʻi. From the Kulaokaʻeʻa tableland, looking mauka, there are pleasant views of the mauna Kahalawai.

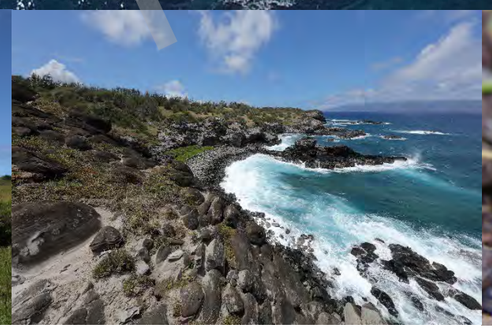
Utilities and Infrastructure

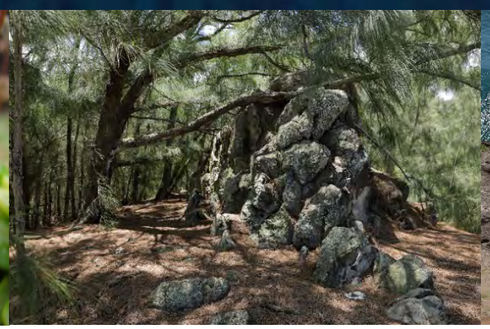
There is minimal infrastructure within the plateau and the coastal fringe between Līpoa Point and Punalau. The area isn't served by electrical, water, or wastewater service. There are no restrooms, portable toilets, or trash cans.

Vehicle access is provided by a rugged gravel and dirt driveway that descends from Honoapiʻilani Highway on the western side of the plateau along the top of the cliff line above Honolua Bay. The driveway has several turnouts and parking areas and terminates near Līpoa Point at a parking and turn-around area. A clay embankment and metal gate prevent further vehicle access. The driveway can accommodate roughly 129 vehicles parked haphazardly in a parallel fashion along both sides of the driveway. Parking capacity is often exceeded during excellent surfing conditions in Honolua Bay.

At various places along the driveway, foot trails lead down the cliff to surf spots below and offer several good lookouts. There are several "hazardous cliff" signs at the top of the trails leading from the driveway to Honolua Bay. Limited additional signage is in this area.

Photo: *A Niu tree overlooking along the coastal fringe.*




Photos: *Counterclockwise from top: 1. Aerial view of Kulaoka‘e‘a (photo by DLNR); 2. Looking north accross Kulaoka‘e‘a; 3. Coastline between Līpoa Point and Punalau; 4. Rare pamakani to the east of Līpoa Point; 5. Archaeological resources; 6. Spectators enjoying the sun and surf.*

Keonehelele'i Beach to Honokōhau Bay. Keonehelele'i Beach comprises the northeastern part of the HHMP Area and includes some of its narrowest portions. This part of the HHMP Area includes the cliff line, low-lying embayments, streams, and beaches. Pōhakupule Gulch meets the ocean at the western end of Keonehelele'i Beach where it abuts a high sea cliff. The coastline consists of a series of steep, rugged volcanic cliffs interrupted by the Pōhakupule and Punaha gulches. Offshore is an extensive fringing reef. Keonehelele'i Beach is located along the western portion of this coastline. Popular activities at Keonehelele'i Beach include native Hawaiian gathering and cultural practices, sunbathing, surfing, camping, and fishing.

Punaha Gulch lies further to the northeast of Keonehelele'i Beach and is the last portion of the planning area that offers accessible terrain. The balance of the area to the east consists of very steep cliffs or hillsides. The rolling slopes of this gulch make up some of the largest, relatively flat terrain fringed by sea cliffs on the northeastern section of the HHMP Area.

Honokōhau Bay is located at the very northeastern end of the HHMP Area. The area is only a small sliver of land that exists between the roadway and the stream and bay. This end of the project area includes a steep cliff that is inaccessible.

Natural and Cultural Conditions

Streams and Gulches

The Honokōhau watershed includes the Pōhakupule and Punaha gulches, which are ephemeral streams, and the Honokōhau stream, which is perennial and runs all year long. They form three distinct sub-basins that discharge to the ocean separately. The eastern half of the Kulaoka'e'a tableland drains into the Pōhakupule Gulch which extends upland and inland of Keonehelele'i Beach. Further to the east, the Punaha Gulch discharges into the ocean and extends inland towards Pu'u Kilea. Honokōhau is a much larger watershed extending well inland and upland for several miles, but it represents a small portion of the HHMP Area.

Geology and Soils

The coastline between Pōhakupule and Honokōhau consists of rock land, rough broken land, stony alluvial land, and a beach (AMEC, 2014). Badland soils can be found along most of the cliff lines and palis between Līpoa Point and Honokōhau. These soils are colorful (red, yellow, and purple), but are easily eroded. The soils are nutrient poor allowing ironwood trees and other weedy species to thrive.

Vegetation

Keonehelele'i Beach is host to pockets of native plants including the endangered awiwi and the sprawling ulei. Other native plants found along this stretch of coast include the sedge Cyperus phleoides and some clumps of konakona grass. Patches of ilima grow amongst the pockets of native plants. However, guinea grass and ironwood dominate the bulk of the area (Star, F and Starr K, 2018).

Punaha has a small gulch filled with haole koa, Guinea grass, and a host of weedy vines (ibid). The shoreline here is sheer and few plants grow on the unstable cliffs except ironwood. At Honokohau Bay pohinahina sprawls over boulders to the ocean and patches of konakona grass persist in small pockets on the cliffs (ibid). However, the bulk of the area is dominated by ironwood, haole koa, and guinea grass (ibid).

Archaeological features

In 2019 Scientific Consultant Services (SCS) conducted an archaeological inventory survey of the lands makai of Honoapi'ilani Highway between the eastern edge of the Pohakupule Gulch and the western edge of the Punaha Gulch. The survey identified eight new archaeological sites. Based on proximity and function, SCS deemed the features to be separate and distinctive sites. Based on feature type, location, and construction materials and methods, SCS interpreted the sites as associated with traditional (pre-Contact Period) agriculture and historic activities including agriculture, ranching, and human interment (Carpenter and Dega, 2019). The use of the agricultural sites and burial sites may have initially occurred during the pre-Contact Period and continued through the Historic Period. The families in the area continue to maintain the burial sites (ibid).

Views

From Keonehelele'i Beach there are views of the Pailolo channel and Molokai. Looking east from the beach, there are also sweeping coastal views.

Utilities and Infrastructure

Keonehelele'i Beach is accessed from a curve on Honoapi'ilani Highway where there is a paved turnout and wide paved shoulder along the makai side of the highway. An unimproved 4-wheel drive dirt driveway leads from the paved turnout down to the beach and campsite area. During heavy rainstorms, the dirt road can be very muddy and impassible. Parking at Keonehelele'i Beach is unimproved and informal with capacity for roughly 15 vehicles.

There are few facilities at Keonehelele'i Beach. There are waste receptacles for general waste and recyclables near the beach at the mouth of Pōhakupule Gulch. These receptacles are emptied regularly. There are no toilets. There is limited formal and informal signage at the beach.

The Honokōhau portion of the HHMP Area has no apparent infrastructure.

Coastal Hazards

Sea Level Rise

With sea level rise incoming waves will ride higher on rising seas, allowing more powerful waves to extend further inland, over the shallows, onto Keonehelele'i Beach and up to the embankment. As a result Keonehelele'i Beach will narrow, and the embankment will become steeper as storm waves erode the shoreline area. The impact of storm surge will become more apparent over time. For example, trees along the edge of the embankment will tilt and topple as their roots become undercut and exposed by erosion.

Tsunami

The low-lying areas of the Keonehelele'i coastline are at a much higher risk of being inundated by a tsunami than the tableland of Kulaoka'e'a given the area's topography. In many places, the coastline is backed by steep cliffs making escape unlikely.

Tsunami heights could be higher in the Honokōhau Valley due to the channeling or converging effect of Honokōhau Bay. The bridge crossing Honokōhau Stream is highly susceptible to damage from inundation and the roadway could easily be blocked by debris dislodged by the force of a tsunami. Access into or out of the Honokōhau valley could readily be constrained by rock falls or landslides along the steep slopes above the narrow roadway.

Hurricane

Keonehelele'i Beach is very susceptible to impacts from a hurricane. Its beaches are likely to erode, its access driveway is likely to be impassible, and escape routes are likely to be blocked by landslides and rock falls, especially to the east where the road narrows, curves inland, and is bounded by sheer cliff sides. Given the heavy rains that come with a hurricane, the risk of landslides or boulders falling on the road would be high. A hurricane could scour much of the sandy beach away and pull this material offshore beyond the shallow nearshore reef shelf.

Flooding

Much of the Keonehelele'i Beach area is within the V or VE flood zone which involves flooding with wave action and velocity hazard. The Pōhakupule Gulch and Stream are close to the west side of the dirt driveway making the driveway susceptible to flood inundation and potentially impassible to vehicles after a heavy storm. Flood waters at the stream's mouth could be up to 21 feet deep during a severe flooding event. The adjacent Keonehelele'i Beach risks flooding from both incoming waves and downhill stream flow that exceeds the Pōhakupule gulch's embankments.

Photos: *Counterclockwise from top: 1. Aerial view of the coastal fringe between Keonehelele'i Beach and Kukaanui (photo by DLNR); 2. Close-up of Keonehelele'i Beach; 3. Overlooking Keonehelele'i Beach to Honokōhau Bay; 4. Coastal cliffs rising above Honokōhau Bay.*

3.0 THE PLANNING PROCESS

The purpose of the planning process was to identify shared values and objectives for the future use, preservation, and management of the HHMP Area. The specific objectives were to:

1. Engage a broad cross section of the community.
2. Work closely with the lineal descendant families of the Honolua and Honokōhau Valley to ensure the planning is informed by their knowledge of the area and their preferences for the future.
4. Provide an iterative process wherein the community has multiple opportunities to provide input.
5. Ensure the HHMP's recommendations are founded on robust technical data and sound planning principles.

Phase 1 - Research
The Research (scoping) Phase included the gathering, analysis, and interpretation of data to identify current conditions, issues, and opportunities. During the research phase the DLNR hosted meetings and site visits with agency stakeholders and interviewed key community stakeholders. Technical studies were prepared to document the HHMP Area's cultural history and archaeology, flora and fauna, stormwater management, and user characteristics. As part of this phase, the consultant team identified the various governmental regulations, environmental risks, natural hazard risks, infrastructure constraints, and other parameters that would affect the HHMP Area's management.

Phase 2 – Community Outreach
The Community Outreach Phase overlapped with the Research Phase and included a series of facilitated stakeholder meetings, agency planning meetings, a huakaʻi hosted by the area's lineal descendants, and a community open house. The smaller stakeholder meetings were followed by the larger open house where the DLNR invited the broader public to attend and participate in a series of participatory mapping exercises designed to elicit input for the future of the HHMP Area's use and management. In this regard, the public engagement process included both small focus groups and larger community meetings. At the conclusion of phase two, the DLNR's consultants prepared a scoping report to summarize much of the data collected through phases 1-2. The scoping plan also provided the DLNR with a scope for developing the management plan for the HHMP Area.

Phase 3 – Stakeholder Vetting of Draft Recommendations
Using the data collected through phases one and two, the vetting phase included DLNR preparation of a draft vision statement, guiding principles, actions, and schematic renderings for review by a diverse working group of stakeholders. The DLNR hosted four meetings with the working group to gather input on the draft recommendations and to discuss and resolve several outstanding issues.

Phase 4 – Prepare and Review the Draft Plan
Using the input collected from the working group during phase three, the DLNR prepared the draft HHMP. The DLNR then hosted an open house to provide an opportunity for the public to review and provide comments in order to revise, strengthen, and finalize the plan.

Phase 5 – Prepare the Final Plan
Using the input collected through the open house, the DLNR prepared the final HHMP.

The planning process is summarized in Table 3.1.

PHASE 1 Research	PHASE 2 Community Outreach	PHASE 3 Stakeholder Vetting of Draft Recommendations	PHASE 4 Prepare and Review the Draft Plan	PHASE 5 Prepare the Final Plan
Document the HHMP Area's moʻolelo, history, existing conditions, and issues within the context of the Honolua and Honokōhau ahupuaʻa.	Identify communityconcerns and shared values and objectives for the future use, preservation, and management of the HHMP area.	Prepare conceptual draft recommendations for vetting by a diverse working group of community stakeholders.	Prepare the draft management plan using information generated through the first three phases. Hold an open house to gather additional input on the draft plan.	Update and finalize the draft plan using input collected through phase four.

***Table 3.1**: HHMP Planning Process.*

4.0 ISSUES AND CHALLENGES

The HHMP Area faces many challenges in the future because of its size, shoreline location, sensitive resources, and its popularity. Among the most important issues facing the area are the following:

Climate Change

The overwhelming consensus of climate scientists is that "our planet's average temperature could be between 2 and 9.7°F (1.1 to 5.4°C) warmer in 2100 than it is today" (NOAA, 2012). For the HHMP Area this means preparing for the impacts of increasing sea level rise and climate change.

Climate change will make low lying areas within the HHMP Area more vulnerable to flooding, and the entire area will be more vulnerable to hurricanes and tsunamis. Stronger and more frequent storms will result in severe and dangerous floods, greater stress on the watersheds, and increased sediment discharge into coastal waters.

The orientation of the HHMP Area's coastline towards the northwest exposes it to winter swell events. Keonehelele'i Beach is particularly vulnerable to coastal erosion. As the sea level rises, more wave energy is anticipated to be telegraphed further inland, above and over the reef fronting the beach. More and stronger waves will contact the beach causing more frequent and significant shoreline erosion events and loss of sandy beach.

Climate change will also cause sea surface temperatures (SST) to rise. According to marine biologists, increasing SSTs threaten marine ecosystems that depend on healthy coral reefs.

According to the Honolua Mokulē'ia MLCD Conservation Action Plan, "increasing SSTs due to climate change have increased the frequency and severity of coral bleaching events in Hawai'i and globally" (DLNR – DAR, 2020). In 2015 a severe coral bleaching event in the Honolua Mokulē'ia MLCD resulted in a 30% loss of coral cover (ibid).

High Human Use

The HHMP Area is popular among snorkelers, surfers, tourists, and local residents. Commercial tour boats frequent Honolua Bay for snorkeling activities. Within the the HHMP Area high human use is most acute at Honolua Bay. Records from Honolua Bay naturalists during the summers of 2007-2009 reported 700-800 visitors arriving during six-hour timeframes on numerous occasions (Komoto, 2009). Nearly 90% of users accessing the bay from Honoapi'ilani Highway are non-resident visitors (Maui Environmental Consulting, LLC, 2019).

Community stakeholders note that overuse of the project area by visitors can make local residents feel less comfortable recreating in the area. Workshop participants surveyed in 2017 about the most significant issues facing the area frequently cited "overuse". In a follow-up question, more than 84% of survey respondents felt Honolua Bay was overused.

Figure 4.1: *Key word frequencies of major issues and concerns facing the HHMP Area as identified by community stakeholders.*

During peak snorkeling periods the dirt parking lot at the head of the Honolua Bay Access Trail fills quickly resulting in cars parallel parking in undesignated areas to the east and west of this lot. Vehicles are also often parked illegally on private property. During site visits to the area in 2018 and 2019 vehicles were observed backing into oncoming traffic and families were seen lugging beach and snorkelling gear accross the highway creating an unsafe condition.

Over time, several walking paths have been cut into the riparian forest along Honolua Stream due to heavy foot traffic from visitors parking along Honoapi'ilani Highway and walking to the main trail that follows the northeastern bank of Honolua Stream (ibid).

Storm Runoff and Coastal Water Quality

Among marine biologists there is a longstanding concern about the impact of high turbidity levels and sediment loading on water quality in Honolua Bay (PIFSC, 2017). The broader community shares these concerns. Throughout the HHMP's planning process, the bay's water quality was frequently cited as a significant issue.

Honolua Bay is fed by two subbasins; Honolua Stream and Papua Gulch. Papua Gulch is an ephemeral tributary of Honolua Stream entering on its eastern side. Honolua Stream meanders inland of the bay to discharge to the ocean on the southern edge of the bay.

"Honolua Bay is a sink for storm runoff and sediment eroded from upland areas deposited by Honolua Stream, its tributaries, and Papua Gulch" (DLNR – DAR,

Photo: *Sediment laden stormwater flows from Honolua Stream into Honolua Bay.*

2020). As a result, turbidity in Honolua Bay is high. According to data from the Hui O Ka Wai Ola, between 2016 and 2018 Honolua Bay had a geometric mean

turbidity of 8.33 NTU (Nephelometric Turbidity Unit) which is more than 40 times the Hawai'i State standard of .2 NTU (Falinski et al., 2020).

A significant cause of turbidity is legacy sediment. Legacy sediment is dirt that has eroded from fallow agricultural fields and upland areas to rest in gulches and stream beds. Other notable sources of sediment that contribute to turbidity include the Honoapi'ilani Highway; abandoned agricultural roads; feral ungulates such as pigs and axis deer; and invasive weeds that alter hydrology and soil capacity (Group 70a, 2016). During heavy rainstorms, these sediments are released by scouring and carried downstream and into Honolua Bay.

Excessive turbidity adversely impacts coral growth and vitality. When sediment settles on a coral's exterior, the coral must expend energy by sloughing off the sediment from its exterior membrane. Sediment also blocks the transfer of sunlight within the water column thereby diminishing photosynthesis by symbiotic algal cells within the coral. Data from the DLNR Division of Aquatic Resources showed a 50% decline in Honolua Bay's coral cover following heavy rainfall in January 2005 that caused a significant discharge of sediment from Honolua Stream into the bay (DAR, 2010).

Protecting and Restoring Natural Resources

The tableland of Kulaoka'e'a was originally vegetated with a diverse coastal herbland and dry to mesic shrubland and forest (Star, F and Starr K, 2018). Much of the tableland is now degraded by plantation agriculture, introduced plants and animals, disease, and fire. Today the area is revegetating with a mix of mostly non-native grasses, shrubs, and trees (ibid). Between approximately 1950 and 2005, roughly 121 acres of the tableland was used for pineapple cultivation; the soil of this area is now littered with plastic mulch and plastic tubing that is swept into coastal waters during storms. The plastic poses a threat to marine life and native birds that may mistakenly ingest it.

Much of the coastal fringe between Līpoa Point and Honokōhau Bay is rugged, windswept, and steep. This is where the bulk of the HHMP Area's remnant native plants occur (ibid). Within the coastal fringe native plants such as the mau akiaki, akulikuli, nena, and ilima can be found in many areas. These native plant communities are increasingly threatened by invasive weeds, shrubs, and trees. Ironwood trees are of particular concern as they are colonizing many of the steep areas near the coast. As the ironwood continues to expand, remnant native plants such as the akulikuli will be overtaken (ibid).

Upland Development

The land mauka of Honoapi'ilani Highway consists of several thousand acres of undeveloped land, much of which is zoned for agricultural use and owned by MLP. The agricultural zoned land lies outside of the SMA boundary and can therefore be subdivided and developed into agricultural lots with "farm dwellings" without any discretionary permits and public review.

In the 1990's, the agriculturally zoned land at Plantation Estates in Kapalua was developed into agricultural estates. This occurred because the subdivision was outside the SMA and loosely regulated. The development of the Plantation Estates adversly impacted the country character of the area, mauka views, and coastal water quality. Upland development has exacerbated brown water events, which have deposited sediment onto reef platforms, leading to declines in coral coverage. The type of development that occurred at the Plantation Estates could also occur on the agriculturally zoned portion of MLP's parcels mauka of the HHMP Area. Such development would further threaten the country character, ecology, open space, water quality, and marine life in the HHMP Area.

Resource Constraints and Fragmented Management

The 2020 Covid-19 pandemic has had severe consequences on state and local government finances. The Brookings Institution projects that across the United States, "state and local government revenues will decline $155 billion in 2020, $167 billion in 2021, and $145 billion in 2022" (Sheiner, L. and Campbell, S., 2020). According to the Economic Research Organization at the University of Hawai'i, "the impact of COVID-19 and the efforts taken to contain it have led to a rapid deterioration in the state's short- and medium-term fiscal outlooks. At its May 28 [2020] meeting, the State Council on Revenue (COR) cut its general fund tax revenue forecast for FY2020-FY2026 by almost $10 billion" (Mak, J. et al., 2020). Between 2020 and 2025, the financial consequences resulting from the Covid-19 pandemic may constrain State funding available for HHMP plan implementation. As a result, HHMP managers should develop alternative funding sources to finance plan implementation.

Successful management of the HHMP Area is complicated by the numerous governmental agencies that have a role in managing the area. These agencies have different management roles and responsibilities. The lack of a single entity responsible for the management of the entire area may complicate the development of policy and programs and impede timely response to challenges like climate change and resource protection.

Photos: *Left-to-right: 1. Looking south across Kulaoka'e'a towards resort-like farm estates overlooking Honolua Bay; 2. A typical Sunday with good surf - cars parked on both sides of the Līpoa Point Access Driveway; 3. Abandoned plantation infrastructure is a major source of legacy agricultural sediment; 4. Legacy plastic mulch and plastic tubing previously used for pineapple cultivation is often swept into coastal waters during heavy rains.*

5.0 HHMP RECOMMENDATIONS

The HHMP's recommendations address both the ideas and concerns captured through the HHMP's public outreach process, as well as the issues and challenges identified by its technical studies. The HHMP includes a vision for the entire planning area as well as a distinct vision for each subarea. The HHMP also includes guiding principles, strategies, actions, and indicators.

The vision describes the community's desire for how the HHMP Area will look, feel, function, and be utilized in twenty years, and it expresses the community's values and hopes for the future (Figure 5.1). The HHMP's guiding principles are based on community values and best planning practice. They provide the overall philosophy that underlie the plan's strategies and implementing actions (Figure 5.1). The HHMP's strategies succinctly describe the broad strategic action that will be taken to achieve the vision and guiding principles. The HHMP's actions are procedures, programs, or physical improvements that carry out the Plan's vision, guiding principles, and strategies. Meanwhile, the plan's indicators serve as a benchmark to monitor the achievement of strategies and the health and resiliency of the HHMP Area. Figure 5.1 illustrates the progression from visioning to plan implementation and monitoring.

The recommendations are grouped into thematic categories organized around "key strategies." The plan includes six core strategies. Strategies are organized geographically. Strategies that address issues systemic to the entire HHMP Area are presented first, followed by strategies that address issues in the subareas of Honolua Bay, Kulaokaʻeʻa / Līpoa Point, and Keonehelele'i Beach.

The HHMP will be implemented incrementally, and with some flexibility, as conditions evolve and as funding constraints are overcome.

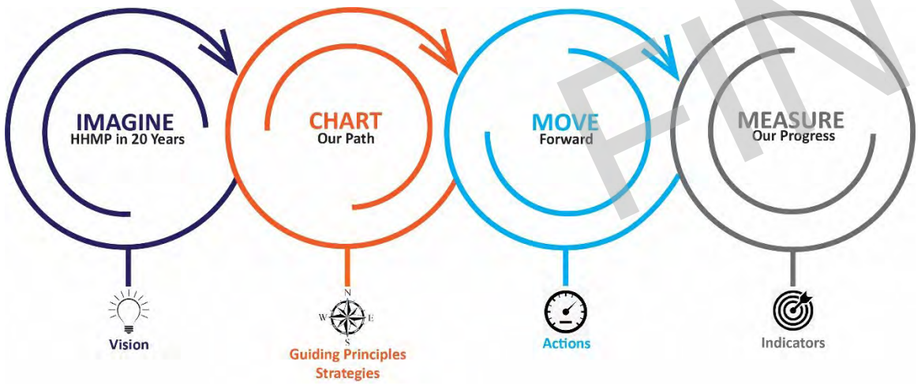


***Figure 5.1**: Progression from the HHMP's vision to plan implementation and monitoring.*

Photo by Hawaiian Paddle Sports

HHMP VISION AND GUIDING PRINCIPLES

The vision statement and guiding principles capture the best qualities of the HHMP Area today and project the community's desire for the future.

Guiding Principles:

Native Hawaiian Customary and Traditional Rights

Recognize and support the traditional relationship native Hawaiians have with the land and the importance of maintaining that relationship. Ensure native Hawaiian legal rights to practice cultural, religious, and subsistence activities are recognized and encouraged.

Environmental Education

Integrate educational opportunities into the user experience to provide users with a better understanding of their surroundings and to foster informed and responsible behavior towards native Hawaiian culture and the environment.

Mauka to Makai

Use ahupua'a concepts of resource management that are built around an understanding of the interconnected and interdependent relationship between land and ocean ecosystems, and the reciprocal relationship between people and the environment. Make management decisions within the context of how those decisions will affect mauka and makai lands, waters, and the people of the area.

Vision:

The HHMP Area is known for its natural beauty. The area is sacred to native Hawaiians who maintain their traditional and customary practices and find the area to be a source of spiritual and physical sustenance. The HHMP Area is resilient to the effects of climate change and coastal erosion, it is protected from overuse, and its resources are well-managed. Its coastal waters are rich in marine life, and its coral reefs are healthy and diverse. The area's coastline supports rare and endangered flora and is an important nesting site for native seabirds. The HHMP Area is cherished and respected by the Maui community for its cultural, natural, and recreational resources; open space; and healthy ecosystems.

Resident Access

Ensure the desires of Hawaii's residents to sustainably access, use, and enjoy the HHMP Area are given special consideration. Strongly discourage actions that may result in the displacement (gentrification) of residents to visitors.

Future Generations

Consider the impact of management decisions on future generations, and emphasize best management practices, to foster wiser decisions that are sustainable and durable over long periods of time.

Adaptive Management

Use management and decision-making approaches that are responsive to new challenges, changes, and information that may necessitate alternative ways to achieve the HHMP's vision and key actions.

Aloha 'Āina

Respect and practice love for the land. The preservation of natural resources, cultural resources, and the area's sense-of-place should be prioritized over improvements to infrastructure, recreation, and the economy.

Community Based

Ensure a strong emphasis on community engagement and participation during the implementation of the HHMP. Local stakeholders are acutely aware of potential implications that may result from implementation activities. Community-based implementation will capture stakeholder desires more effectively leading to a more engaged and active community committed to successful plan implementation.

Resilience

Protect and strengthen natural ecosystems so they are less vulnerable to, and can recover quicker from, unanticipated natural and human impacts (e.g. natural disasters, disease, influx of people, climate change).

Figure 5.2: *An illustration of the HHMP's vision and guiding principles.*

STRATEGIES AND ACTIONS

The following six core strategies and their subsequent actions seek to implement the HHMP's vision and guiding principles (Table 5.2).

CORE STRATEGIES	Actions
1.0 Build and maintain management capacity.	1.1 Issue an executive order for set asides of State land to DLNR divisions for jurisdictional and management disposition. 1.1.1 Develop capacity within the DLNR to ensure there is adequate personnel for onsite management, enforcement, and plan implementation. 1.1.2 Seek an appropriation from the Hawai'i State Legislature for staff and funding as described in the financial plan. 1.1.3 Secure public private partnership(s), where appropriate, to provide stewardship in accordance with the HHMP. 1.2 Ensure there is public input during HHMP implementation. 1.2.1 Conduct regular consultation with the native Hawaiian lineal descendants of the Honolua and Honokōhau ahupua'a. 1.2.2 Conduct regular outreach meetings with stakeholders. 1.2.3 Consider the establishment of a representative citizen advisory committee to assist with HHMP implementation. 1.2.4 Keep the community informed of management activities. 1.3 Leverage community resources to support HHMP implementation. 1.3.1 Utilize the knowledge and expertise of the lineal descendants of the Honolua and Honōkohau Ahupua'a. 1.3.2 Partner with community-based organizations such as the Save Honolua Coalition and Mālama Maui Nui. 1.3.3 Use quasi-volunteer civil society programs such as AmeriCorps, Senior Corps, college internship, and high school summer and after-school student programs. 1.3.4 Coordinate planning, management, and the sharing of studies and data with mauka landowners, watershed managers, and applicable government agencies. 1.4 Generate funding for HHMP implementation. 1.4.1 Prepare and maintain a financial plan. 1.4.2 Develop revenue sources such as: 1.4.2.1 Annual appropriations and grants from federal, state, and county governments. 1.4.2.2 Fundraising. 1.4.2.3 Service fees. A. Charge a fee for non-resident visitors to access Honolua Bay from land and from the sea. The fees are intended to fund visitor parking, educational programs, management, and other services provided. B. Charge a camping fee to support the management of the campground at Keonehelele'i Beach. 1.5 Maintain a digital library of management data. 1.5.1 Conduct surveys, as needed, to measure: 1. The number of users by activity, 2. User satisfaction, and 3. Parking demand. 1.5.2 Continue to measure the health and resiliency of the HHMP Area's natural, cultural, and social resources. 1.6 Obtain required permits (shoreline management area, archaeological, flood zone, etc.) prior to implementation to ensure an effective, orderly implementation process. 1.7 Topographic studies: Prepare topographic studies of the Honolua Bay Parking Area, Honolua Bay Access Trail, Līpoa Point Access Driveway, and Keonehelele'i Beach Access Driveway. 1.8 Continue to procure services for landscaping, trash and litter disposal, and related activities until long-term staffing is secured and programs developed. 1.9 Secure base yard and office space to support HHMP operations. 1.10 Procure heavy equipment and landscaping tools for grounds and trail maintenance. 1.11 Establish a DLNR Working Group, comprised of key DLNR staff responsible for HHMP Area management, to meet regularly to coordinate HHMP implementation.

CORE STRATEGIES	Actions
2.0 Protect the sense-of-place.	2.1 Work with governmental agencies and the community to: 2.1.1 Discourage upland land uses that may threaten the HHMP Area's cultural, natural, and aesthetic resources. 2.1.2 Ensure that infrastructure and facilities are appropriate (context sensitive) and will not spur urbanization of the HHMP Area and diminish its sense-of-place. 2.1.3 Encourage the preservation of the Honolua Bridge as a one-lane bridge in keeping with the bridge's historic character. 2.1.4 Prepare a comprehensive signage plan to ensure that signs are installed in a coordinated fashion and are designed to be respectful of the HHMP Area's sense-of-place. 2.1.5 Foster and maintain wild and scenic character. 2.1.6 Minimize improvements, construction, and development.
3.0 Create a safer environment.	3.1 Natural hazards 3.1.1 Ensure that lands within the HHMP Area are within audible range of a tsunami warning siren. 3.1.2 Install context sensitive signage in low-lying areas to alert users to move uphill in case of a tsunami or earthquake. Signs near Honolua Bay should indicate what direction on the highway is a preferred evacuation route. 3.1.3 Install context sensitive signage in flood-prone areas to warn users of the risks associated with flash floods. 3.2 Marine hazards 3.2.1 Understand how the seasons affect the ocean activities for swimmers. For example, the risk for shark bites is highest during the Manō's pupping season which occurs in the late summer and fall months. Traditional Hawaiian ecological knowledge warns of danger for swimmers during these months. 3.2.2 Install context sensitive signage warning users of: A. Ocean hazards such as swell, currents, rogue waves, and strong winds; and B. Risks associated with swimming in tide pools. 3.3 Trails and vegetation 3.3.1 Install context sensitive signage to direct users away from steep slopes and unauthorized trails. 3.3.2 In consultation with an arborist, regularly trim trees that may pose a safety hazard. 3.3.3 Prepare a comprehensive trails plan. Some trails may be developed and maintained, while other trails may remain unimproved. 3.3.4 Develop a trail maintenance program to keep trails safe, and to discourage hikers from wandering off trails and into hazardous as well as culturally sensitive areas.
4.0 Manage the impact of human activities.	4.1 Manage the number of people using the HHMP Area. 4.1.1 Limit the number of non-residents visiting Honolua Bay to appropriate levels. 4.1.2 Prepare and adopt administrative rules to establish criteria and procedures to limit commercial activities to the following: A. Governmental agencies and nonprofit organizations conducting the activity for the primary purpose of generating revenue to support HHMP implementation. B. Organizations contracted by the State of Hawai'i, or its authorized representative, to perform services supporting HHMP implementation or the management of the HHMP Area (landscaping, parking management, maintenance, etc.). 4.2 Increase user security. 4.2.1 Provide on-site management to discourage property theft, trespassing, squatting, and other undesirable activities. 4.2.2 Create a hotline for reporting concerns and complaints. 4.2.3 Limit user access to appropriate locations and hours with exceptions for legally protected native Hawaiian traditional and customary practices. 4.2.4 Encourage State funding for additional DOCARE staff to support enforcement activities. 4.3 Educate users of responsible stewardship behavior. 4.3.1 Provide context sensitive signage with DLNR kokua rules, public access hours, and emergency phone numbers. 4.3.2 Develop digital and on-site context sensitive signage to educate users of stewardship best practices.

CORE STRATEGIES	Actions
	4.3.3 Train and support citizen volunteers to conduct citizen patrols. 4.3.4 Consider establishing a docent and ambassador program to assist with education. 4.3.5 Establish an interpretive program to educate users of the HHMP Area's historical, cultural, and natural importance. 4.4 Keep the HHMP Area free of trash and litter. 4.4.1 Provide context sensitive signage to discourage littering and dumping. 4.4.2 Provide rodent-proof trash cans that incorporate source separation for recyclables. 4.4.3 Continue to support programs for regular trash removal and disposal of bulky items. 4.4.3.1 Organize community-based volunteer cleanups. 4.4.3.2 Work with the Maui County Department of Environmental Management to address regional needs for bulky item disposal. 4.5 Encourage the State DOT to manage bicycling along Honoapiʻilani Highway so the cyclists do not jeopardize public safety.
5.0 Protect and restore cultural resources.	5.1 Gather the names of the Wahi Pana. Document the meaning and significance of the names. Utilize context sensitive signage to educate users of the meaning and significance of the place names. 5.2 Use Hawaiian language place names, rather than English monikers, whenever possible. 5.3 Restore and perpetuate the generational knowledge of the native Hawaiians starting with outreach to and education of Hawaiʻi's local keiki. 5.4 Consider stewardship agreements and/or partnerships to re-establish mahiʻai traditions of the Honolua area (e.g. ʻuala, kalo). 5.5 Identify, re-establish, and revitalize areas historically important for native Hawaiian gathering. 5.6 Recognize the traditional connection between Halawa Molokaʻi and Punalau (Keonehelele'i) regarding schools of mano and hihimanu and the importance Keonehelele'i as a hammerhead and hihimanu nursery. 5.7 Prepare an archaeological monitoring plan for Honolua Bay, and have it reviewed by the SHPD, prior to any work in the Honolua Bay area. 5.8 Consider stewardship agreements and/or partnerships for care taking and maintaining the archaeological sites within the HHMP Area. 5.9 Within both the Honolua Bay area, and the coastal fringe of Kulaokaʻeʻa, undertake archaeological monitoring as a precautionary measure during construction-related ground altering activities.
6.0 Protect and restore natural resources.	6.1 Prepare a vegetation management plan that will provide the following: A. Detailed mapping of appropriate areas for flora and fauna protection and restoration; and B. Strategies, actions, and cost estimates to: 1. Protect and restore native ecosystems along the coastal fringe from Honolulu Bay to Honokōhau Bay. 2. Reintroduce appropriate native and canoe plants in the riparian forest of Honolua Bay. 3. Plant appropriate vegetation for the restoration of Honolua Stream and to manage sediment. 4. Manage hazardous trees. 5. Restore Kulaokaʻeʻa's fallow agricultural land through the planting of native vegetation to reduce erosion and the discharge of sediment into Honolua Bay. 6.2 Prepare a seabird habitat restoration plan to identify and map areas for seabird habitat restoration, identify appropriate areas for predator-proof fencing, and prepare a detailed work program and budget to support plan implementation. 6.3 Actively protect and restore native flora and fauna assemblages. A. Control predators in native ecosystem restoration areas including use of predator-proof fences and other effective methods. B. Control and prohibit feeding of feral ungulates, feral cats, and other feral animals. C. Restore native ecosystems according to the Vegetation Management Plan (Action 6.1) D. Develop and implement a comprehensive trail plan to allow shoreline access while protecting native vegetation. Designate and monitor paths to the beach and along the coastline. Use natural buffering and other means to impede the use of inappropriate footpaths through sensitive habitat. E. Use wooden posts connected with barrier ropes to protect sensitive areas. F. Educate users, and surrounding property owners, of the impact of light pollution on native seabird populations.

CORE STRATEGIES	Actions
	G. Prohibit the use of artificial lights except by permit to maintain dark skies. H. Maintain early detection and control of incipient invasive species. 6.4 Support the protection and restoration of marine ecosystems. 6.4.1 Support the implementation of the Honolua-Mokulēʻia MLCD Conservation Action Plan (CAP). See Appendix A.4. 6.4.2 Improve coastal water quality. 6.4.2.1 Minimize sources of land-based pollution into the Honolua - Mokulēʻia MLCD and other coastal waters. 6.4.2.2 Work with watershed managers to develop data on the frequency, quantity, and quality of freshwater flow from the Honokōhau watershed including the Pōhakupule and Punaha gulches. 6.4.2.3 Work with watershed managers to determine the primary sources of sediment and nutrient inputs into Honolua Bay. 6.4.2.4 Implement measures to reduce erosion and sedimentation through vegetation management and other means identified through the "Honolua Bay / Līpoa Point Erosion and Sedimentation Stormwater Management Report" and the "WEST MAUI WATERSHED PLAN: Kahana, Honokahua and Honolua Watersheds Strategies and Implementation Report." 6.5 Education 6.5.1 Establish a program to educate local keiki and ocean recreationists of appropriate stewardship practices. 6.5.2 Provide context sensitive signage to promote proper stewardship of the HHMP Area's natural resources. 6.5.3 Use digital media and other means to illustrate the important functions of the HHMP Area's natural resources and explain proper stewardship practices and activities that should be avoided. 6.6 Seek and develop opportunities to acquire fee title to adjacent lands to support and improve the success of the HHMP.

***Table 5.2**: HHMP Core Strategies and Actions.*

Using the vision, guiding principles, strategies, and actions the DLNR prepared a conceptual improvement plan for the HHMP Area. The improvement plan was revised several times in resonse to input received from community stakeholders and DLNR agencies. The Conceptual Improvement Plan for the HHMP Area is illustrated by Figure 5.3 and followed by a more detailed description of proposed management and improvements for each planning subarea (Honolua Bay, Kulaokaʻeʻa and the headland of Līpoa Point, and Keonehelele'i Beach to Honokōhau Bay).

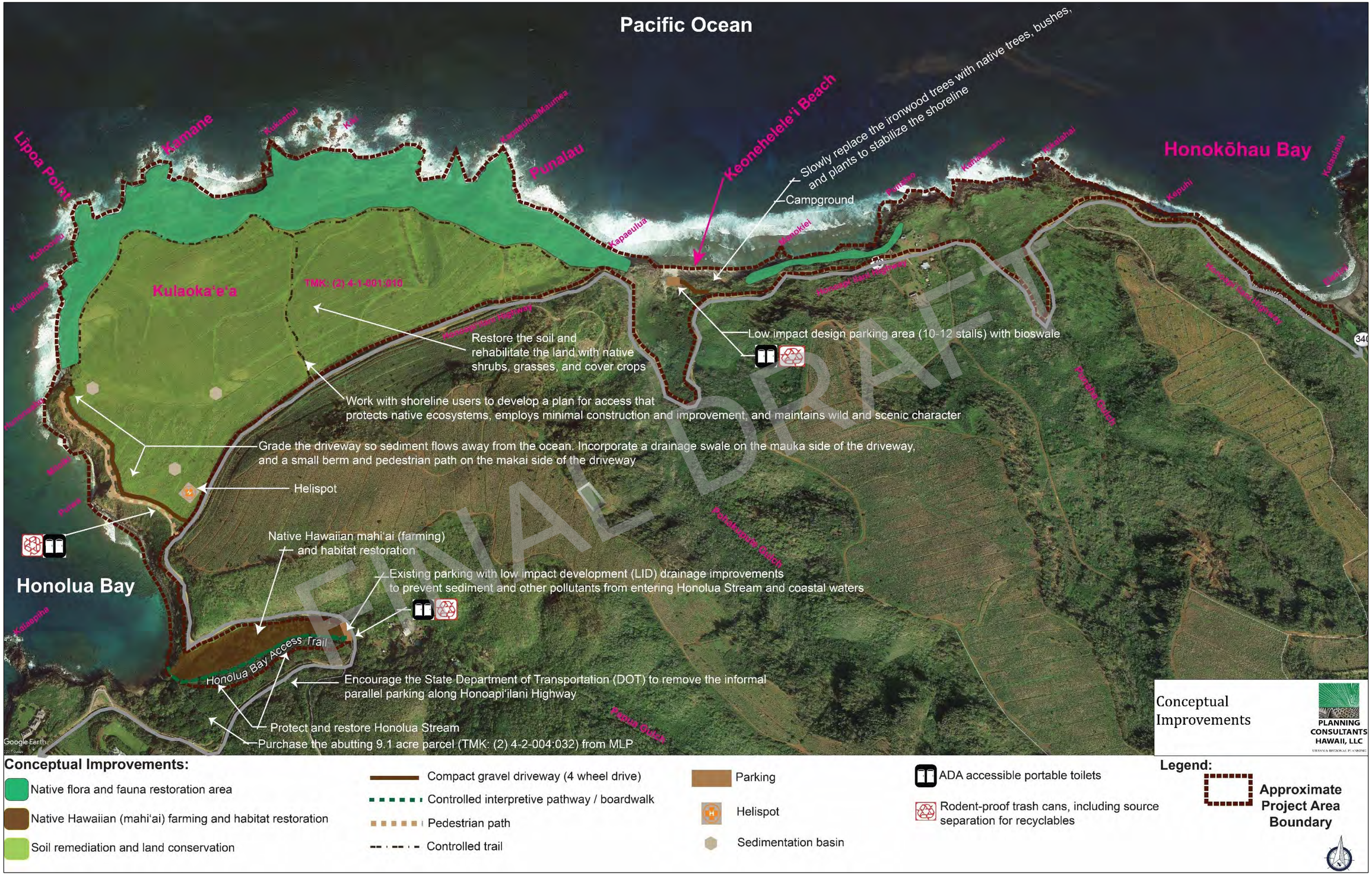


***Figure 5.3**: Conceptual Improvement Plan for the HHMP Area.*

Honolua Bay Planning Area

The Honolua Bay planning area comprises two reefs and numerous fish assemblages, a volcanic rock and boulder coastline, a riparian forest backed by steep cliffs, and a perennial stream. The area is rich in cultural resources.

Visitors frequent the area to snorkel, dive, surf, and sunbathe. The area has limited facilities, and several unmanaged trails.

Participants in the HHMP planning process highlighted the following major planning challenges facing the Honolua Bay planning area:

MAJOR PLANNING CHALLENGES

- Declining health of marine habitat and species
- Nonpoint source pollution
- Overuse
- Gentrification of residents by tourists

Through the planning process, the community prepared a vision to express its aspiration for the future of the Honolua Bay Planning Area. The community used the vision as a guide to develop strategies and actions to help it achieve its vision.

*Please see Appendix A.1 for a complete, numbered list of actions for the Honolua Bay Planning Area.

HONOLUA BAY'S VISION

The traditional landscape and connections between Honua'ula Heiau and Honolua Bay have been restored. Honolua Stream brings life to native Hawaiian mahi'ai traditions and practices. The stream's biota has been restored. Invasive trees and plants have been replaced with plants important for habitat restoration and native Hawaiian traditional and customary practices. Honolua Bay's waters are clean and provide a nursery for marine life.

Access to the bay is managed. The bay is peaceful, quiet, and resilient. Residents and visitors enjoy Honolua Bay's beauty, while respecting the bay's historical, cultural, and natural wonders. Honolua Bay is revered for its clean water. Honolua touches people's hearts and educates them about Hawaiian culture and ecology. Honolua is a shining example of how to restore an ahupua'a.

CORE STRATEGY

Strengthen Honolua Bay's cultural integrity and resilience while providing managed, safe access.

To secure the community's vision and core strategy for Honolua Bay, focus effort on six actions and their associated subactions:

Re-establish the traditional landscape and connections between Honua'ula Heiau and Honolua Bay, while understanding that the modern landscape and environment has evolved from the time of the kupuna. To enhance the traditional landscape, the non-indigenous trees and plants will be removed and simultaneously replaced with appropriate native plants (e.g., popolo, aalii, lauhala, pohuehue, ilima, naupaka) used in laau lapaau and other traditional uses. Where appropriate, the plan also envisions establishing and restoring lo'i kalo for food production and sediment retention within the riparian zone of Honolua Stream.

Manage access between parking areas and Honolua Bay to protect natural and cultural resources. Establish a controlled, interpretive, and environmentally sustainable pathway from the parking lot to Honolua Bay. Where appropriate, portions of the pathway may be in the form of an elevated boardwalk to minimize erosion and protect environmental resources. The pathway should include an educational component to share Honolua Bay's history, cultural significance, and restoration area values and functions. The interpretive pathway may include theme plantings for educational and cultural considerations, such as a canoe plant grouping and a grouping of endemic and indigenous plants that are used for native Hawaiian sustenance and handicrafts.

Pedestrian use along the pathway should be controlled with existing java plum logs, posts, rope, context sensitive signage, native vegetation, and exclusion barriers (stumps, snags, branches). The intent is to prevent pedestrians from wandering off the pathway and trampling sensitive cultural and natural resources. The informal trails leading from Honoapi'ilani Highway will be decommissioned and planted over with native vegetation or vetiver. Signage may be placed at the beginning of decommissioned trails explaining why the trails are not access points to Honolua Bay and providing directions to the interpretive pathway.

At the makai end of the trail lies a boat ramp. Ocean users access the bay from the boat ramp. The boat ramp will be evaluated to identify safety issues that should be corrected so the ramp can continue to be used safely by snorkelers and swimmers.

Provide Hawaiian culture and marine education opportunities. Honolua Bay offers a unique and special setting in which to educate Hawai'i's residents and visitors of Hawaiian culture and restoration ecology. Educational programs will be offered to perpetuate the generational knowledge of Hawai'i's local keiki. Such programs may pass-on mahi'ai traditions of the Honolua area such as 'uala and kalo cultivation. Programs may be offered around the practice of traditional ecological knowledge as a means for perpetuating stream and marine resource restoration. Programs in marine biology, botany, and ecology may also be offered to teach stewardship best practice.

Reduce the amount of sediment entering Honolua Stream. The northern bank of Honolua Stream will be planted, from the access parking lot to the mouth of Honolua Bay, with appropriate vegetation to slow sheet flow from the access trail, and to capture sediment before it enters the stream. As part of this effort, the stream's natural biota will be restored. Managers will also work with mauka landowners to identify and remediate sources of sediment in Papua Gulch, which connects to Honolua stream mauka of Honoapi'ilani Highway, and is a major contributor of sediment to Honolua Bay.

Manage the number of people accessing Honolua Bay to protect the area's resources and to protect the user experience. Managers will establish a daily cap on the number of non-resident visitors accessing the bay from Honoapi'ilani Highway to ensure visitor use does not exceed the bay's available infrastructure, burden Honolua and Honokōhau residents, and diminish the area's sense-of-place. Other tools to manage the number of people using the bay may include parking capacity limits, online reservations, and service fees coupled with an entrance gate where the number of users is counted and controlled. To manage vehicular traffic to the bay, managers may consider establishing a system to warn drivers before they arrive at Honolua Bay of the availability of parking.

Managers may also consider management approaches to close Honolua Bay for defined periods to "rest" the natural environment, and to provide Hawai'i residents with an opportunity to enjoy a less congested and more peaceful user experience.

Managers will conduct periodic follow-up evaluations of the visitor cap to consider whether the visitor cap should be adjusted. The evaluation will also be used to determine whether a new shuttle parking lot located along the mauka portion of the Līpoa Point Access Driveway, and intended to serve visitors to Honolua Bay, is desired.

Manage parking areas to protect resources and public safety. As illustrated in Figure 5.4, the Honolua Bay parking area will be improved to address environmental and safety concerns. Bio-swales and native planting will be incorporated to capture sediment from the parking area. The parking area will provide Americans with Disability Act (ADA) accessible stalls and parking for management staff. The parking area will also include an active loading zone, ADA accessible portable toilets, and covered or rodent-proof trash cans that incorporate source separation for recyclables. The parking plan will address the informal, and often hazardous, parallel parking along Honoapi‘ilani Highway. Prohibit commercial activities, tours, and buses from conducting operations and entering the parking area or otherwise dropping visitors at the HHMP Area. Enforce policies and rules prohibiting commercial activities. Coordinate with the State Department of Transportation (DOT) to remove the informal parallel parking along Honoapi‘ilani Highway through appropriate signage and pavement markings. The Maui County Police Department will also be encouraged to ticket, or tow, vehicles parked illegally along the Highway.

Table 5.3 highlights “key actions” to be undertaken to implement the vision and strategies for the Honolua Bay Planning Area. Figure 5.5 illustrates the general location of the proposed actions.

***Figure 5.4**: Top – Honolua Bay parking concept plan. Bottom – Highway and parking section.*

KEY ACTIONS*

1. **Gravel the parking area and use low impact design techniques and a drainage swale to capture sediment.**
2. **Provide ADA accessible portable toilets.**
3. **Provide rodent proof trash cans including source separation for recyclables.**
4. **Purchase the abutting 9.1-acre parcel (TMK: (2) 4-2-004:032).**
5. **Protect and restore Honolua stream.**
6. **Re-establish the traditional landscape (native Hawaiian mahi‘ai, farming, and habitat restoration).**
7. **Establish a controlled, interpretive, and environmentally sustainable pathway from the parking area to Honolua Bay.**
8. **Coordinate with the State DOT to remove the informal parallel parking along Honoapi‘ilani Highway through appropriate signage and pavement markings.**

*See Figure 5.5 for a graphic illustration of key actions in the Honolua Bay Planning Area.

***Table 5.3**: Key Actions for the Honolua Bay Planning Area.*

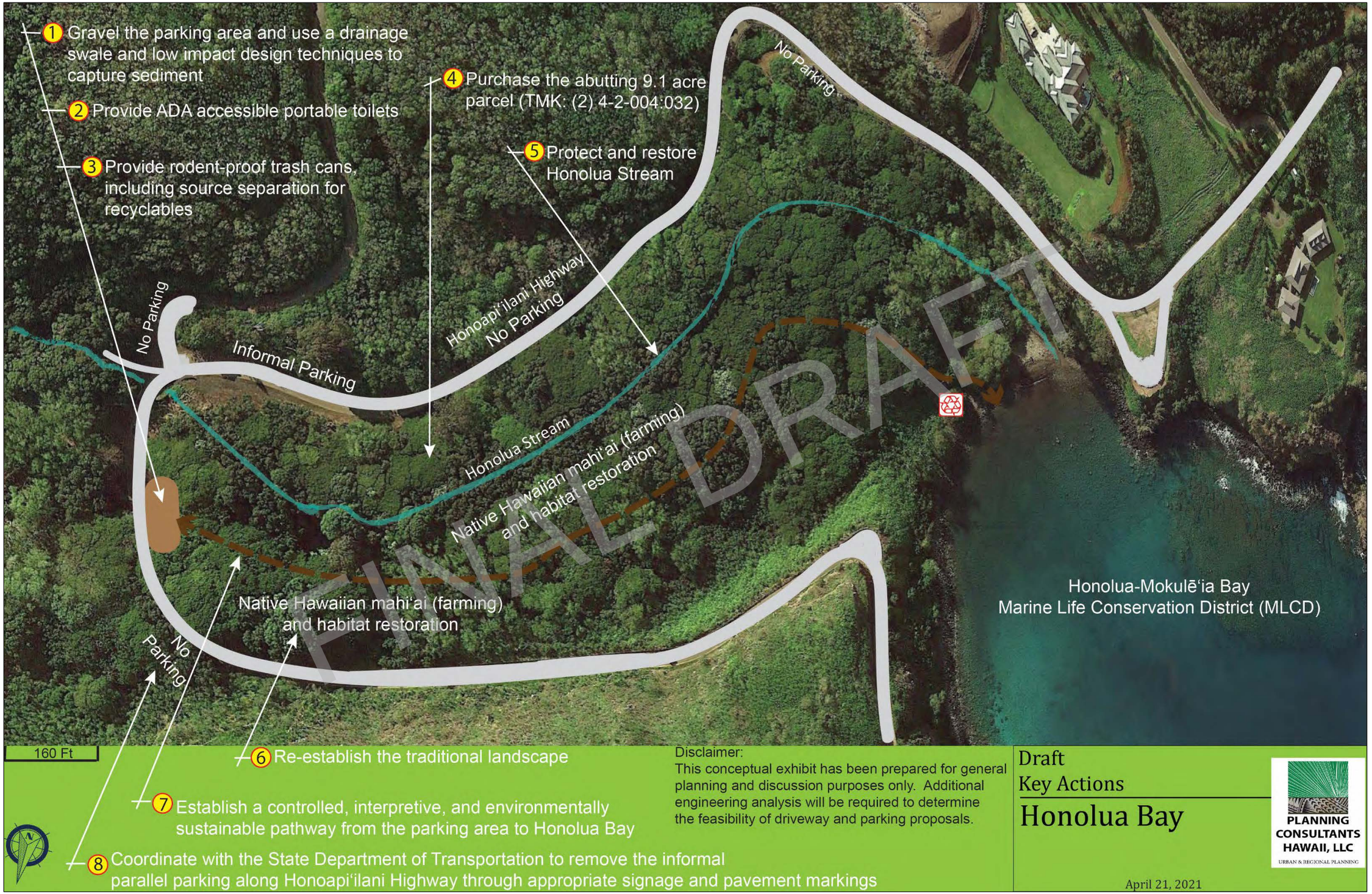


***Figure 5.5**: Key Actions for the Honolua Bay Planning Area.*

Kulaoka‘e‘a and Līpoa Point Planning Area

Kulaoka‘e‘a and the headland of Līpoa Point make up the central area and largest portion of the HHMP Area. This area includes rugged volcanic coastal cliffs, gulches, streams, beaches, several bays, and a roughly 150-acre plateau.

Vehicle access is provided via a gravel and dirt driveway that descends from Honoapi‘ilani Highway on the western side of the plateau along the top of the cliff line above Honolua Bay.

The prevailing uses tend to focus on the coastline and ocean recreation. The area provides the primary access point for surfers accessing Honolua Bay and the surf breaks between Līpoa Point and Punalau Point.

MAJOR PLANNING CHALLENGES

- Protection of natural and cultural resources
- Legacy agricultural contaminants
- Poor condition of the driveway and parking facilities
- Safety and security
- Illegal dumping

Through the planning process, the community prepared a vision to express its desire for the future of Kulaoka‘e‘a and the headland of Līpoa Point. The vision guides the Plan’s strategies and actions.

*Please see Appendix A.1 for a complete, numbered list of actions for the Kulaoka‘e‘a & Līpoa Point Planning Area.

KULAOKA‘E‘A / LĪPOA POINT VISION

Kulaoka‘e‘a is a place of natural, windswept beauty. Native shrubs and grasses manage soil erosion, restore soil quality, and provide a refuge for native wildlife.

Kulaoka‘e‘a is an important place for traditional gathering and cultural practices. Kulaoka‘e‘a’s coastal fringe is a popular nesting site for endangered native seabirds. This coastline is rich in native coastal plants and is known as a model restoration site.

CORE STRATEGY

Heal and restore the Kulaoka‘e‘a & Līpoa Point planning area’s natural and cultural resources and improve its resilience to climate change.

To secure the community’s vision and core strategy for Kulaoka‘e‘a & Līpoa Point, improvements focus on six actions and their associated subactions:

Restore and rehabilitate Kulaoka‘e‘a’s agricultural lands. Kulaoka‘e‘a’s agricultural lands will be restored to a natural condition using native trees, shrubs, and grasses. Managers will also implement a program to remediate the fallow pineapple lands of plastic, chemicals, and other contaminants. An appropriate site for a community garden intended to support subsistence agriculture and educational opportunities may be considered. Any such garden will need to rely on ambient rainfall as its water source.

Restore and protect native plant communities along the coastal fringe from Pōhakupule to Punalau, at Punalau Point, and at Kamane. To accomplish the restoration effort, the plan envisions the removal of aggressive non-native ironwood trees around the richest pockets of remnant plants. Managers will also institute a selective weeding program. With DLNR guidance, ecologists may obtain supplemental plantings of native species from nearby coastal areas to increase the coastal fringe’s plant diversity. At Kamane, the naupaka should be selectively trimmed to help the target plants in the area, including native panicum grass and schiedea. Managers should also install context sensitive signage to educate the public of the importance of native plants and proper stewardship practices.

Establish seabird restoration areas to protect and restore native seabird colonies along the coastal fringe. At one time, the coastal fringe between Pōhakupule and Punalau, as well as the tablelands of Kulaoka‘e‘a, likely hosted diverse populations of breeding seabirds. This area has the potential to support vast numbers of seabirds in the future.

To support the restoration of seabird colonies, predators will be removed from identified restoration sites and predator-proof fences may be installed. Managers will place pedestrian gates where the fence crosses formal trails to allow appropriate access to the coast consistent with the Vegetation Management Plan to include protection of fauna and vegetation, as well as reintroduction of species that have been extirpated. Where predator-proof fences are used they will be designed to manage shoreline access consistent with the Comprehensive Trail Plan.

Ecologists may utilize social attraction techniques such as decoys, bird calls, and man-made burrows to attract native birds to the restoration area. Technology such as game cameras may be used to track visits by birds as well as predators. Lighting that would disrupt seabird populations will be prohibited.

Manage access to Kulaoka‘e‘a’s coastal fringe and tableland to protect sensitive natural and archaeological resources. Marked trails will be provided to support management activities and to protect native flora, fauna, archaeological features, and other sensitive resources. Inappropriate trails will be decommissioned by blocking them with stags and planting them with native vegetation, or vetiver grass, to discourage their use.

Reduce sedimentation into coastal waters. Scientists have identified legacy pineapple fields as an important source of pollution into the Honolua-Mokule‘ia MLCD. To mitigate pollution from the fallow fields at Kulaoka‘e‘a, legacy pineapple roads will be decommissioned and planted over with native plants or vetiver grass. Water bars, bioswales, and kickouts will be used to divert runoff from legacy agricultural roads to detention basins. To accomodate the diverted runoff, the existing detention basins constructed by MLP will be restored and enhanced so they can perform as originally intended. Natural flow ways will also be maintained through ongoing removal of sediment deposits, head cuts, and debris. Managers will plant slopes susceptible to erosion with native species that will hold and stabilize the soil.

Improve the Līpoa Point Access Driveway and parking with Low Impact Development (LID) techniques. As illustrated in Figures 5.6 and 5.7 the Līpoa Point Access Driveway and parking will be graded, designed to include water bars and kickouts, and covered with course gravel so stormwater runoff will flow away from Honolua Bay and into a drainage swale for transport to a detention basin. The detention basin will be located to the northeast of the driveway.

A bioswale will be included on the mauka side of the driveway to capture and filter runoff collected from the driveway. A berm will be provided on the makai side of the driveway to direct stormwater runoff away from the ocean. Native grasses, shrubs, or vetiver will be planted on the makai side of the driveway along the top of the cliff to stabilize the cliff, filter runoff, and capture sediment.

A pedestrian path will be provided between the makai side of the driveway’s parallel parking, and the cliff, to accommodate pedestrians with surfboards. The driveway will be widened to accomodate emergency vehicles. Parking capacity will be maintained at 2020 levels with space for roughly 125 automobiles provided in a parallel configuration along both sides of the driveway. Future studies will determine whether an additional parking lot intended for use by snorkelers shuttling to and from Honolua Bay is desired and warranted.

ADA accessible portable toilets and covered or rodent-proof trash cans that incorporate source separation for recyclables will be provided at appropriate locations.

Place signs at strategic locations to discourage snorkelers from accessing Honolua Bay from cliffside trails along the Līpoa Point Access Driveway. The signs will inform pedestrians that the cliff-side trails from the Līpoa Point Access Driveway to Honolua Bay are hazardous and that those using the trails do so at their own risk.

Provide a helispot for emergency evacuations, in an appropriate location. Throughout the planning process, the residents of the Honolua and Honokōhau communities expressed the need for a medivac facility to serve those requiring urgent care. The plan envisions a small helispot towards the top of the Līpoa Point Access Driveway and on the driveway's mauka side. The helispot will provide a flat, clearly marked area for medical evacuation of residents and visitors to medical facilities.

Table 5.4 highlights "key actions" to be undertaken to implement the vision and strategies for the Kulaokaʻeʻa and Līpoa Point Planning Area.

Figure 5.8 illustrates the general location of the proposed actions.

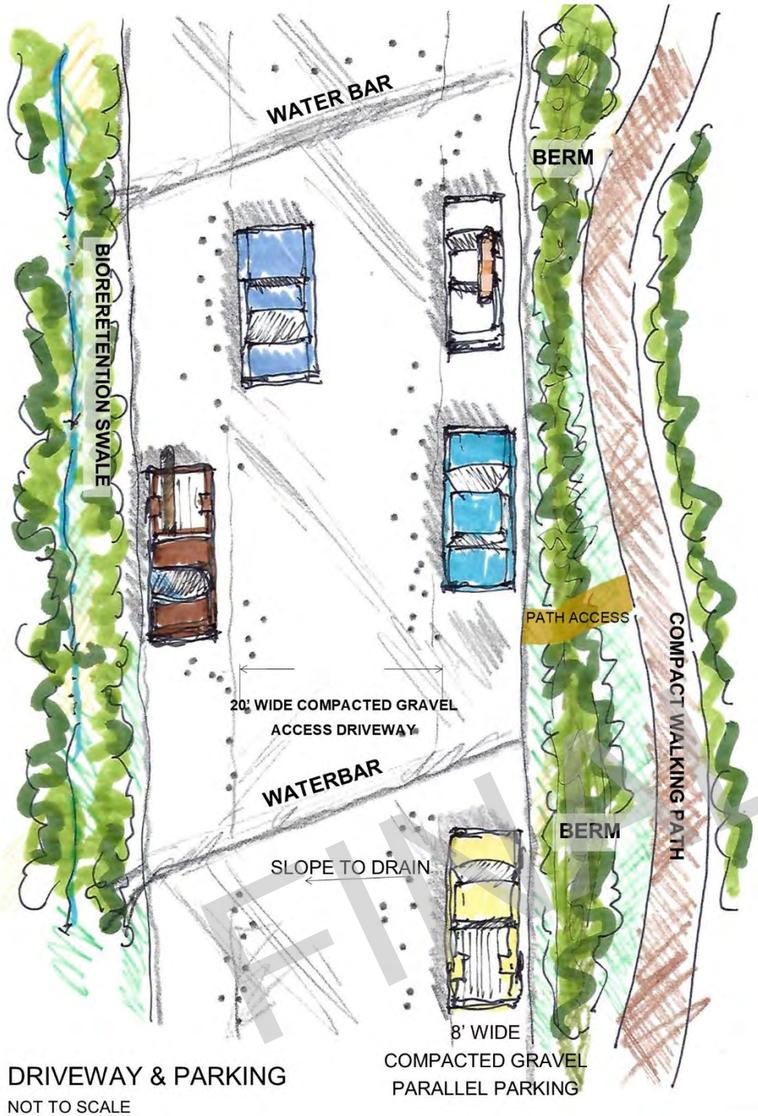


***Figure 5.6**: Līpoa Point Access Driveway and Parking Plan.*

KEY ACTIONS*

1. **Encourage the State Department of Transportation to remove the informal parallel parking along Honoapiʻilani Highway through appropriate signage and pavement markings.**
2. **Provide a helispot for emergency evacuations.**
3. **Potential location of a Honolua Bay visitor shuttle parking lot (subject to future studies to determine if desired).**
4. **Improve the Līpoa Point Access Driveway:**
   - **A. Grade and cover with course gravel.**
   - **B. Slope the driveway away from Honolua Bay so stormwater will flow into a drainage swale for transport to a detention pond.**
   - **C. Widen the driveway to accommodate emergency vehicles.**
   - **D. Provide parallel parking along both sides of the driveway.**
5. **Provide ADA accessible portable toilets.**
6. **Provide rodent proof trash cans including source separation for recyclables.**
7. **Provide a pedestrian path on the makai side of the driveway to accommodate pedestrians with surfboards.**

* See Figure 5.8 for a graphic illustration of key actions in the Kulaokaʻeʻa and Līpoa Point Planning Area.

***Table 5.4**: Key Actions for the Kulaokaʻeʻa and Līpoa Point Planning Area.*

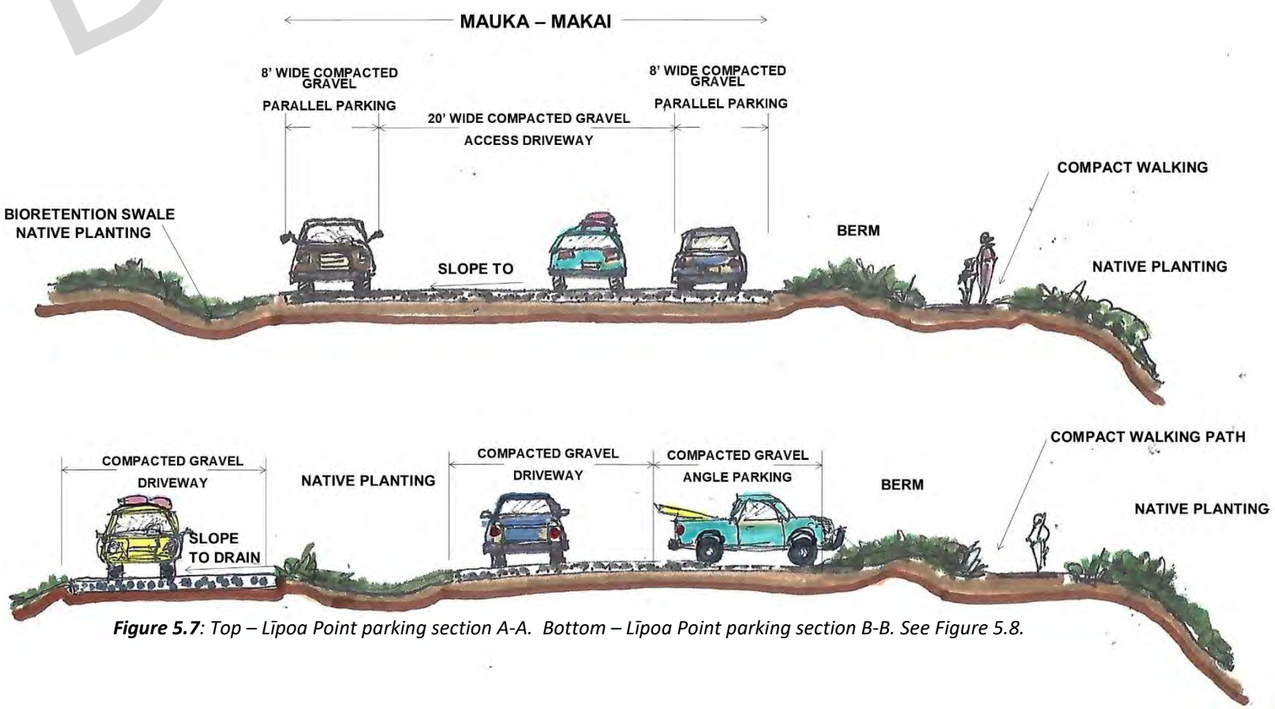


***Figure 5.7**: Top – Līpoa Point parking section A-A. Bottom – Līpoa Point parking section B-B. See Figure 5.8.*

***Figure 5.8**: Key Actions for the Kulaoka'e'a and Līpoa Point Planning Area.*

Keonehelele‘i Beach Planning Area

Keonehelele‘i Beach comprises the northeastern part of the HHMP Area and includes steep cliffs, low-lying embayments, streams, and beaches. Offshore is an extensive fringing reef. Punaha Gulch lies to the northeast of Keonehelele‘i Beach and is the last portion of the HHMP area that offers accessible terrain. The balance of the area to the east consists of steep cliffs.

Popular activities at Keonehelele‘i Beach include Hawaiian gathering and cultural practices, sunbathing, surfing, camping, and fishing.

Participants in the HHMP planning process highlighted the following major planning challenges facing Keonehelele‘i Beach:

MAJOR PLANNING CHALLENGES

- Shoreline erosion
- Protection of natural and cultural resources
- Poor condition of driveway and parking facilities
- Unmanaged camping

Through the planning process, the community prepared a vision to express its desire for the future of Keonehelele‘i Beach. The vision guides the Plan’s strategies and actions.

*Please see Appendix A.1 for a complete, numbered list of actions for the Keonehelele‘i Beach Planning Area.

KEONEHELELE‘I BEACH VISION

Keonehelele‘i Beach is a serene, wilderness beach with a sandy shoreline. Native plants thrive along the low cliffs east of the beach. The carefully managed beach provides a peaceful respite for fishing, native Hawaiian gathering, picnicking, camping, and relaxing.

CORE STRATEGY

Protect and restore Keonehelele‘i Beach’s natural and cultural resources while providing managed, safe access.

To secure the community’s vision and core strategy for Keonehelele‘i Beach improvements focus on six actions and their associated subactions:

Improve the Keonehelele‘i Beach Access Driveway and parking with Low Impact Development (LID) techniques and a bioswale to capture sediment.

As illustrated in Figure 5.9, the Keonehelele‘i Beach Access Driveway and parking area will be graded, designed to include water bars so stormwater will flow into a drainage swale, and covered with course gravel. A bioswale will be included on the mauka side of the driveway to capture and filter water coming off Honoapi‘ilani Highway and the hillside above the driveway. Native plants will be used to filter water and capture sediment.

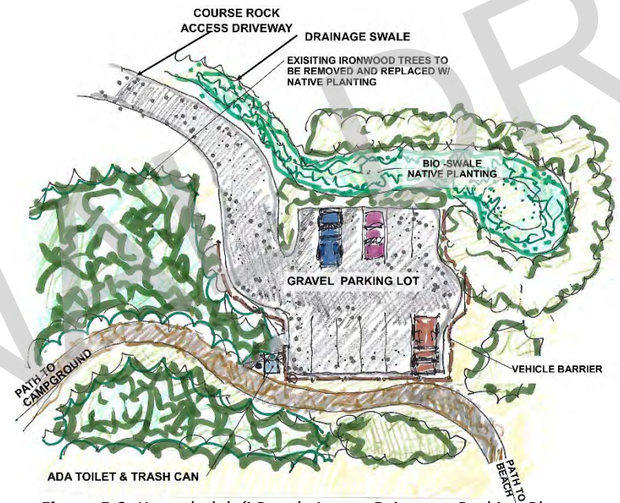


***Figure 5.9**: Keonehelele‘i Beach Access Driveway Parking Plan.*

Informal parking will remain at the top of the driveway along the existing highway pullout. The gravel parking area at the foot of the dirveway will accomodate 10-12 parking spaces. ADA accessible portable toilets and covered or rodent-proof trash cans that incorporate source separation for recyclables will be provided at appropriate locations.

Support a small, well-managed campground. The existing camping area along Keonehelele‘i Beach will be maintained. The camping area will provide priority access for Hawai‘i residents.

Restore native flora. The plan envisions the restoration of native ecosystems in accordance with the Vegetation Management Plan (Subaction 6.1). Within the Keonehelele‘i Beach area, the endangered awiwi, the ulei, and other native plants will be restored and protected. To facilitate habitat restoration, managers will implement an ongoing weeding program wherein invasive ironwood trees, guinea grass, and other invasive plants and weeds will be removed. The area’s native plants will be supplemented with native plants from nearby areas to promote plant diversity.

Mitigate shoreline erosion. As sea levels rise due to climate change, the waves along Keonehelele‘i Beach will ride higher on rising seas and extend further inland over the shallows, onto the beach, and up to the embankment. Without mitigation, the beach will narrow, and the embankment will become steeper as waves erode the shoreline. To stabilize and protect the beach, the ironwood trees, and other invasive trees along Keonehelele‘i Beach, will be removed and simultaneously replaced with climate-adapted shade species such as milo or beach heliotrope. Managers will also plant appropriate native plants and bushes to further stabilize the shoreline.

Reduce Sedimentation. Best management practices will be implemented to reduce erosion and the subsequent pollution of the coastal waters off of Keonehelele‘i Beach. The edge of the camping area and walking path will be planted with naupaka, or other appropriate native shoreline vegetation to slow sheet flow and capture sediment. Informal trails will be blocked with stags and replanted with native vegetation to discourage their continued use. Access trails to the beach will be designed and designated. The hillslope above the beach should be planted with appropriate native vegetation to anchor the soil.

Table 5.5 highlights “key actions” to be undertaken to implement the vision and strategies for the Keonehelele‘i Beach Planning Area. Figure 5.10 illustrates the general location of the proposed actions.

KEY ACTIONS*

1. **Improve the Keonehelele‘i Beach Access Driveway and Parking (10-12 stalls) with Low Impact Development techniques and a bioswale to capture sediment.**
2. **Provide ADA accessible portable toilets.**
3. **Provide rodent proof trash cans including source separation for recyclables.**
4. **Replace the ironwood trees with native trees, bushes, and plants to stabilize the shoreline.**
5. **Maintain the camping area with priority access for Hawai‘i residents.**

* See Figure 5.10 for a graphic illustration of key actions in the Keonehelele‘i Beach Planning Area.

***Table 5.5**: Key Actions for the Keonehelele‘i Beach Planning Area.*

***Figure 5.10**: Key Actions for the Keonehelele'i Beach Planning Area.*

Honolua-Mokulēʻia Marine Life Conservation District (Conservation Action Plan)

The DLNR was the lead agency responsible for preparing both the HHMP and the Honolua- Mokulēʻia MLCD Conservation Action Plan (CAP). Both plan's were prepared concurrently and are intended to be used together to effectively manage, revitalize, and protect the terrestrial and marine resources of the HHMP Area and the adjacent Honolua-Mokulēʻia MLCD (Figure 5.11). To foster integrated management of these areas, excerpts from the CAP's Executive Summary are provided below along with the CAP's Vision, Objectives, and Strategies. The entire CAP is attached as Appendix A.4.

The CAP's purpose is "to revisit and revitalize management efforts to reduce the decline in the vitality of the coral reef ecosystem and cultural landscape that make the Honolua- Mokulēʻia MLCD so unique andspecial" (DLNR – DAR, 2020).

The CAP's Executive Summary provides important information on the CAP planning process:

"This Conservation Action Plan was developed using The Open Standards for the Practice of Conservation, a science-based approach for planning, implementing, and measuring the impacts of management activities supported by a worldwide network of conservation coaches. It reflects our current best thinking and highest priorities and will be adapted to changing circumstances to improve strategy effectiveness and achieve greater impacts.

Designated as a Marine Life Conservation District (MLCD) in 1978, Honolua and Mokulēʻia Bays are adjacent bays along the northwestern coast of Maui. The MLCD protects 45 acres of nearshore marine habitat where protected species, the beautiful coral reef, and abundant fish attract high levels of human use. Long-term trends at the MLCD suggest that important features and qualities of the area are changing and are cause for concern.

Five conservation targets on which to focus management efforts were identified:

1. Reef habitat
2. Fish
3. Protected species
4. Community relationship with the MLCD
5. Natural and cultural experience

To improve the conservation targets, the four highest rated threats were determined:

1. Increased oceantemperature
2. Legacy in-streamsediment
3. Overcrowding and high human use
4. Overfishing in surrounding areas

Priority conservation objectives and actions were developed to improve targets and address threats laid out in this plan" (ibid).

The CAP was guided by the following vision:

"We want to see a future MLCD that has clean water flowing from the mountains, is a peaceful place for community to gather and enjoy, and where marine resources are abundant and reflective of a healthy ecosystem benefitting from management."

Please see Table 5.6 for a list of the CAP's conservation objectives and actions.

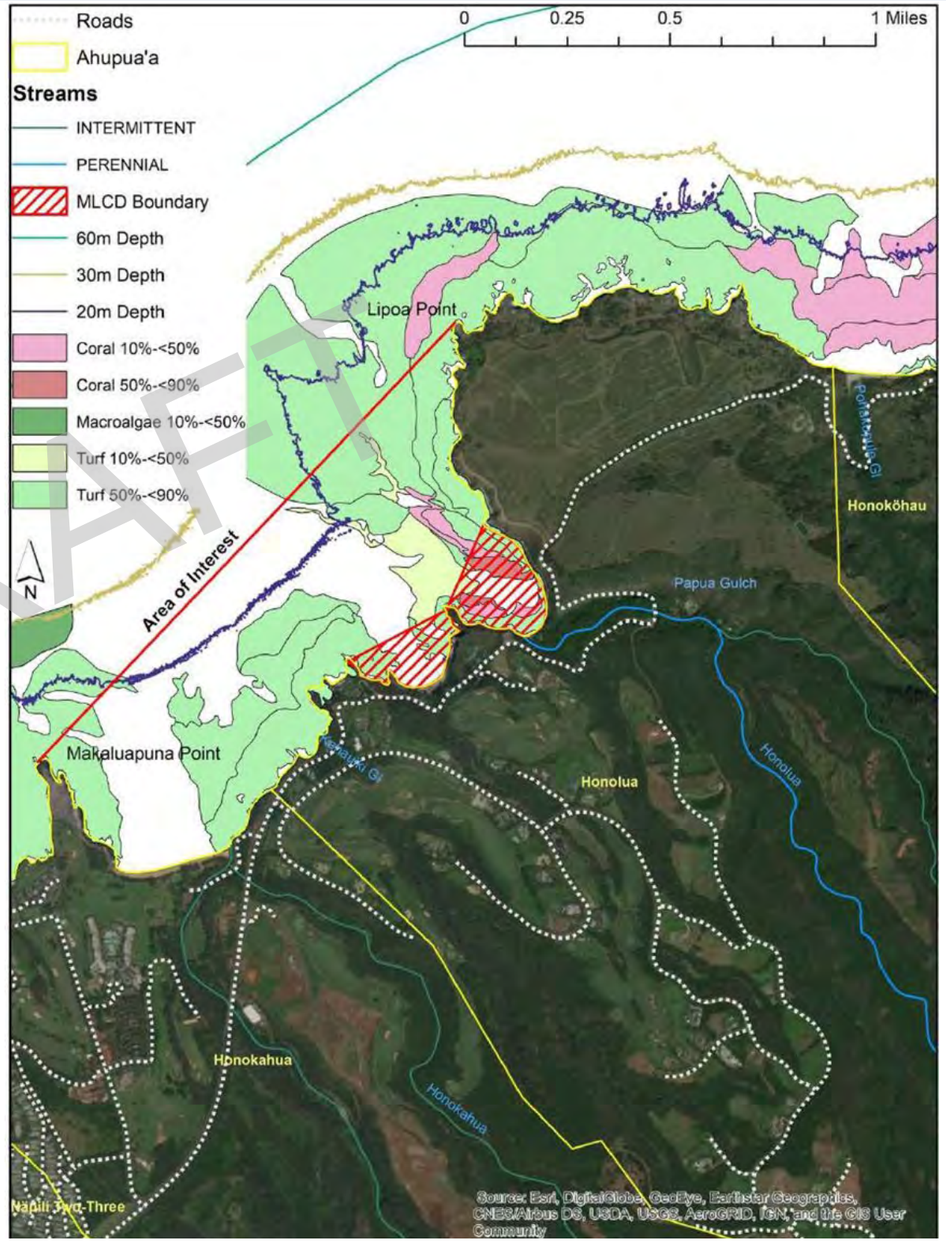


Figure 5.11: *Mapof theHonolua-Mokulēʻia MLCD and surrounding area including benthic marine habitat and stream types.*
Citations: Maui County, DLNR Division of Aquatic Resources & Division of Forestry and Wildlife, Office of Hawaiian Affairs, NOAA 2007, USGS, Map by Roxie Sylva (Feb. 2020)

IMPROVE REEF HABITAT **Objective1:**Starting now, reduce annual sediment input into Honolua Bay from 2016 levels (91 metric tons/year) by 50% by 2030, and by 90% by 2040.	**Strategies:** 1.1 Remove legacy sediments from lower Papua Gulch. a. Map out and model opportunities for mechanical removal of bank sediment in concert with micro-basin or other terraced sediment catchment opportunities in lower Papua Gulch (thereby avoiding the amount of sediment-laden water that would mobilize to the ocean), to determine if this would be an effective strategy. b. If this is determined to be an effective intervention, then implement this strategy with landowners and other partners. 1.2 Conduct sediment reduction activities in Papua Gulch, Honolua Stream, and priority surrounding areas. a. Conduct a small-scale pilot project at lower Papua Gulch using bank stabilization methods already researched for use in west Maui to determine if it is feasible and effective for larger scale implementation. b. Plant native species on seven acres at Field 52, and hydro- mulch and/or plant agriculture push piles and barren land along Papua Gulch and Honolua Stream to prevent more soil from washing into streams and gulches. c. Maintain Pu'u Kukui Watershed Preserve's Honolua boundary fence at 400ft elevation and conduct feral ungulate control within the fenced area to prevent soil erosion from the watershed. d. Continue to work with managers of State lands surrounding the MLCD to reduce and prevent sedimentation (see DLNR's Management Plan for the Makai Lands of Honolua and Honokōhau Ahupua'a when completed). 1.3 Conduct monitoring to measure changes over time. a. Conduct long-term consistent coral reef monitoring. b. Conduct long-term consistent water quality and turbidity monitoring.
INCREASE FISH ABUNDANCE, BIOMASS, AND DIVERSITY **Objective 2:** Sustain long-term community benefits by increasing the biomass of reef fish outside the MLCD boundary from Makāluapuna Point to Līpoa Point by 300% by 2030.	**Strategies:** 2.1 Improve reef fish biomass in and around the MLCD. a. Work with community and other stakeholders to establish a potential marine management area adjacent to MLCD from Makāluapuna Point to Līpoa Point (area of interest), emphasizing the role of the MLCD as a beneficial source of spill-over into this area. 2.2 Monitor changes over time to inform management. a. Sustain annual in-water visual survey monitoring efforts of the reef and reef fish both inside and outside the MLCD to measure change over time. b. Conduct fisheries intercept surveys in the areas surrounding the MLCD to inform data-driven management decisions for a potential marine management area.
REDUCE IMPACTS TO PROTECTED SPECIES **Objective 3:** Understand and protect conditions needed for protected species (Hawaiian spinner dolphins, reef manta rays, and sea turtles) to engage in optimal behaviors in the MLCD by 2025.	**Strategies:** 3.1 Conduct a study to understand behaviors of Hawaiian spinner dolphin pods, reef manta rays, and sea turtles in the MLCD and surrounding areas. 3.2 Understand how human use impacts the behaviors of protected species. 3.3 Incorporate findings into the commercial use permit system, guidance to boaters, educational and outreach guidance for visitors to the MLCD, and other management actions as needed.
IMPROVE COMMUNITY MLCD ENGAGEMENT **Objective 4:** Increase and maintain community involvement in MLCD management by 2022.	**Strategies:** 4.1 Formalize community involvement in resource management in the MLCD by organizing a stakeholder advisory group to work with DLNR on a regular and ongoing basis (in coordination with DLNR's Management Plan for the Makai Lands of Honolua and Honokōhau Ahupua'a). 4.2 Provide opportunities for the community to be involved in meaningful resource management within the MLCD and surrounding lands (in coordination with DLNR's Management Plan for the Makai Lands of Honolua and Honokōhau Ahupua'a).
IMPROVE NATURAL AND CULTURAL EXPERIENCE **Objective 5:** Reduce the number of people within the MLCD and surrounding areas at peak times to a sustainable level (to be determined by carrying capacity study) by 2025 in order to reduce negative impacts to resources and people.	**Strategies:** 5.1 Conduct studies to determine and establish appropriate levels of use and visitation. a. Conduct a social carrying capacity study for the MLCD, balancing the user perceptions of residents, cultural practitioners, and visitors. b. Conduct a study that measures ecological responses of key species to levels of human use in MLCD. c. Conduct a cultural and historical study of the area (using both primary and secondary sources of information). 5.2 Reduce crowding through management tools aimed at lessening stress to marine life and the people who visit the MLCD. a. Develop and implement a Honolua-Mokulēi'a MLCD commercial use permit system. i. Set boat size and passenger limits. ii. Set maximum limit for number of boats at any given time. iii. Prohibit anchoring by commercial boat operators. iv. Address the need for dedicated non-commercial day-use moorings. v. Develop a system to give preferential treatment for periodic visits by Polynesian/Hawaiian voyaging canoes. vi. Develop materials to educate and encourage commercial operator compliance with permit system. vii. Regulate activities, noise, and other concerns as appropriate. 5.3 Work to reduce human impacts to natural and cultural experience and resources (in coordination with DLNR's Management Plan for the Makai Lands of Honolua and Honokōhau Ahupua'a). a. Engage experts and community members to develop and disseminate educational materials and a code of conduct to minimize impact and increase appreciation and awareness of the area and MLCD. b. Explore weekly day(s) of rest for Honolua and Mokulē'ia Bays for all users (e.g. no commercial use on Sundays and holidays following the County's example). c. Explore days where community-engaged stewardship activities take place (e.g. Kuleana Days). d. Explore a community group-State partnership to provide on- site education and management potentially funded by a user fee following a Makai Watch model. e. Explore a limited parking plan.

***Table 5.6**: Honolua- Mokulē'ia MLCD Conservation Action Plan Objectives and Strategies.*

6.0 MANAGEMENT AND FINANCIAL STRATEGY

HHMP Area Management (2014 – 2021)

The mission of the DLNR is to "enhance, protect, conserve, and manage Hawai'i's unique and limited natural, cultural, and historic resources held in public trust for current and future generations of the people of Hawai'i, and its visitors, in partnership with others from the public and private sectors" (Hawai'i Revised Statues §26-15). Through Title 13 of the Hawai'i Administrative Rules, the DLNR administers ten divisions to implement this mission, including: (1) the Division of State Parks (SP), responsible for planning, operating, and maintaining the 52 state parks and associated facilities; and (2) the Division of Aquatic Resources (DAR), responsible for managing the State's marine and freshwater resources, including establishing and managing the State's 11 Marine Life Conservation Districts.

Since the State of Hawai'i's purchase of the HHMP Area in 2014 the area has been managed by the DLNR's Land Division as unencumbered State land and will continue to be so managed until there is a disposition of the land to other DLNR Divisions (Figure 6.1). The adjacent waters of the Honolua-Mokulē'ia MLCD are managed by the DLNR's Division of Aquatic Resources and Division of Boating and Ocean Recreation.

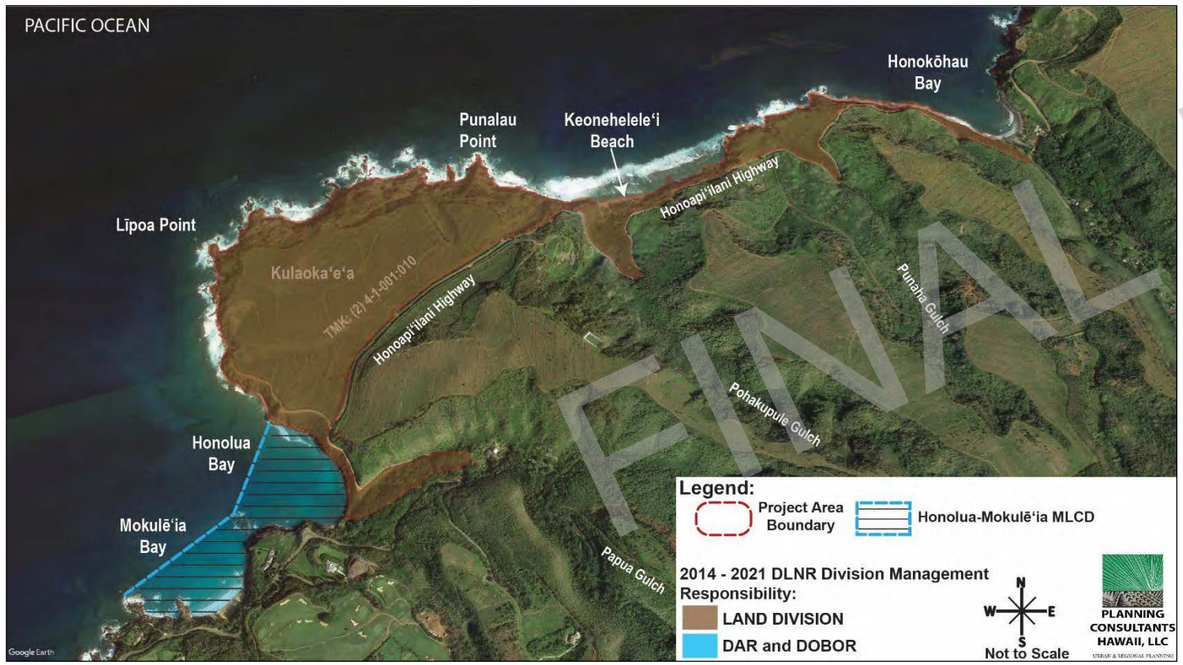


***Figure 6.1**: Conceptual illustration of the geographic extent of DLNR Division management responsibility from 2014 - 2021.*

DLNR's Division of Conservation and Resources Enforcement (DOCARE) is responsible to enforce all laws, rules, and regulations in the HHMP Area. DOCARE's statutory mandate (HRS Chapter 199) encompasses a wide range of law enforcement responsibilities that service DLNR.

The State Historic Preservation Division (SHPD) has a regulatory and support function in addressing management of the HHMP Area's cultural and historic resources. Pursuant to State law, SHPD must be given the opportunity to review all proposed actions that may affect historic properties in the area and give its written concurrence before these actions can proceed (§6E-8, HRS, and Chapter 13-275, HAR).

Between 2014 and 2021, the State appropriated funds to the DLNR for day-to-day management and future planning of the HHMP Area. This funding allowed the DLNR to contract with service providers to perform the following types of management activities: landscaping, hazardous tree removal, trash disposal, and servicing of the portable toilets at Honolua Bay. The DLNR also contracted with Planning Consultants Hawai'i, LLC (PCH)to assist with the preparation of a management plan for the HHMP Area. As part of the management planning process a robust public participation program was implemented and several technical studies were prepared (archaeology, cultural, flora/fauna, stormwater management, and user study). In consideration of the data and input collected through the planning process, DLNR prepared the HHMP with the assistance of PCH.

The 2020 Covid-19 pandemic has led to a rapid deterioration in the State's short- and medium-term fiscal outlook. Between 2021 and 2025, the financial consequences resulting from the Covid-19 pandemic may constrain State funding available for HHMP plan implementation. As a result, HHMP managers will need to adapt, and where appropriate, look to alternative financial and management structures to facilitate HHMP implementation.

Future Management Structure

During 2017 Planning Consultants Hawai'i, LLC conducted a series of community and stakeholder focus group meetings; key informant interviews; and an open house to invite, document, and integrate public input to inform the future planning and management of the HHMP Area. During these community consultations, participants helped identify the following five policy options for the long-term management of the HHMP Area:

1. Traditional approach. DLNR Management of the HHMP Area through Hawai'i Administrative Rules Title 13 but augmented by service contracts and community partnerships.
2. Private, land trust. Designation of some, or all, of the HHMP Area to be managed through a partnership with a private land trust, or other entity, through cooperative agreements or other appropriate instruments.
3. Private, community non-profit organization. Designation of some, or all, of the lands within the HHMP Area to be administered and managed day-to-day by a community organization or foundation (not-for-profit corporation; IRS 501(c)(3) designation), under the DLNR oversight (via a long-term lease).
4. Mixed, public-private partnership. Creation of a public-private partnership (PPP) that would manage the HHMP Area under a State/DLNR-sanctioned, legal collaborative co-management agreement, designating a coalition of public agencies (led by the DLNR as the statutory authority) and private entities (including interested and relevant not-for-profit corporations, foundations, and community organizations).
5. Mixed, for-profit. Creation of a for-profit public-private partnership (PPP) that would manage the Honolua and Līpoa Point lands and waters under a State/DLNR-sanctioned, legal collaborative co-management agreement, designating a coalition of public agencies (led by the DLNR as the statutory authority) and private for-profit entities.

Between 2018 and 2019 the five policy options were evaluated by the DLNR with consultation from community stakeholders. During the stakeholder consultation process most participants favored a traditional DLNR management structure augmented by service contracts with private vendors and community partnerships to assist with implementation. The traditional management model's existing legal and statutory authority, political support (legislative and executive), federal relationships and support, and DLNR's location within the State's administrative center offer strong advantages, particularly during the early phases of HHMP implementation. Thus, while the favored management approach is structured around Option 1, it borrows

elements from Options 2-4 that will allow the DLNR to leverage its relationships with community organizations that have a long history stewarding the HHMP Area.

The Covid-19 pandemic has underscored the importance of community partnerships as a cost-effective approach to plan implementation during periods of fiscal constraint. Furthermore, HHMP managers will need to adapt as conditions evolve in response to Covid-19 and other unforeseen events that occur over the planning horizon.

DLNR Management through Hawai'i Administrative Rules Title 13.

It is proposed that the DLNR manage the HHMP Area through Hawai'i Administrative Rules Title 13. Through this approach, there will be a disposition of land to the appropriate DLNR agencies that would then be responsible for managing the HHMP Area, while the DLNR DAR would continue to manage the waters of Honolua Bay consistent with the rules and regulations of the Honolua-Mokulē'ia MLCD designation.

Through the disposition, this HHMP recommends DLNR DOFAW be given responsibility for the management of land along the coastal fringe between the end of the Līpoa Point Access Driveway and the southern extent of Honokōhau Bay, excluding the camp area at Keonehelele'i Beach. The coastal fringe is particularly rich in natural and cultural resources. This HHMP recommends DLNR's Land Division be assigned responsibility for the management of the Keonehelele'i Beach driveway, parking area, and camping area; the management of the Līpoa Point Access Driveway; and the management of the tableland of Kulaoka'e'a. Much of this area has been degraded from industrial pineapple cultivation and is in need of soil remediation, stormwater management, and driveway improvements. The HHMP recommends the State Parks Division manage the landward areas of Honolua Bay including the visitor parking area, Honolua Bay Access Trail, and the bay's riparian forest. Strong management is needed to address visitor overuse and unmanaged access that is degrading the area. Figure 6.2 provides a conceptual illustration of the proposed geographic extent of each DLNR Division's management responsibility.

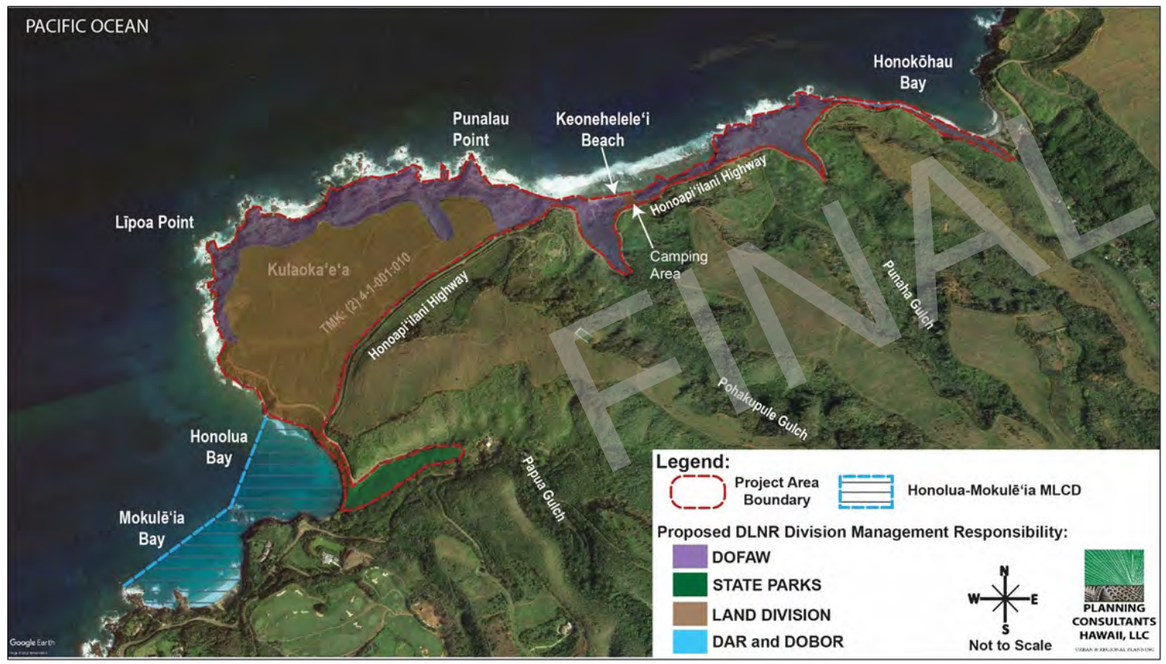


***Figure 6.2**: Conceptual illustration of the geographic extent of proposed DLNR Division management responsibility.*

Additional administrative support of the project area, and the MLCD, would be provided from other DLNR Divisions, such as: (a) DBOR, with responsibility for the management and administration of statewide ocean recreation and coastal areas programs, including designated ocean recreation management areas and offshore mooring areas (including those located within Honolua Bay); (b) the SHPD which has responsibility over historical, cultural, and archaeological resources and sites (including those found within the HHMP Area); and (c) DOCARE, with enforcement responsibility for all state laws and rules involving state lands, parks, historic sites, natural areas, and aquatic life (including the HHMP Area).

DLNR may use partnerships with community organizations and service contracts with vendors to complement its management. For many years concerned citizens and community non-profit organizations such as the Save Honolua Coalition have led efforts to protect and manage the lands of the HHMP Area. Through citizen volunteers these organizations have assisted with litter control, habitat restoration, management of the portable toilets, and community education. These citizens and organizations have strong ties to and a deep understanding of the HHMP Area. They provide a significant opportunity for collaboration and partnership in future stewardship of the HHMP Area.

As of 2021 the DLNR Divisions (DOFAW, Land Division, and State Parks) that would be assigned responsibility for managing the HHMP Area lack the staffing and operating budget to assume this new responsibility. If these Divisions are not provided the necessary funding to effectively manage the HHMP Area, over time the area's resources will degrade, user safety will be compromised, and managers may have to limit public access to the area.

III. HHMP Area Operations and Budget

This section describes and provides order-of-magnitude cost estimates of the resources necessary to implement the HHMP's recommendations, and fund day-to-day management operations. The purpose of this section is to provide a foundation for achieving a resilient and sustainable financing system for the HHMP Area. A resilient financial system should incorporate the following three characteristics: 1. Revenue diversification; 2. Cost containment; and 3. Leveraging of community partnerships to maximize plan implementation.

Such a system should generate revenue from a variety of sources without being too dependent on any single revenue source. A diverse, balanced set of revenue sources including government, users, and philanthropic entities will ensure that funding is more resilient during times of fiscal constraint and less susceptible to shifting political winds. As a protected area, the budget should not be overly dependent on user fees. Over reliance on user fees may incentivize overuse which would be inconsistent with the HHMP Area's vision and guiding principles. User fees can be a valuable source of revenue but should be tailored to work in concert with the HHMP Area's non-resident visitor caps to ensure the HHMP Area is protected from overuse. Examples of additional sources of revenue may include parking fees, merchandise sales done over the internet using a QR code, donations, and calendar and photo sales. Likewise, on-site commercial uses should be strictly regulated and limited in accordance with HHMP Action 4.1.2.

Cost containment should be an integral part of the HHMP's financial strategy. Significant cost savings can be achieved through the sharing of equipment (vehicles, heavy equipment, etc.) and expertise among DLNR Divisions responsible for HHMP Area management.

Long-term maintenance of the HHMP Area will be a challenge given the State's limited budget. Proposed improvements should incorporate features that minimize future maintenance requirements during design. Additionally, formal partnerships with local community organizations, some of which already have ties to the HHMP Area, are encouraged to support maintenance, management, and implementation efforts.

HHMP Action 1.4 (Figure 6.3) highlights specific steps to achieve financial sustainability.

1.4 Generate funding for HHMP implementation.
- **1.4.1 Prepare and maintain a financial plan.**
- **1.4.2 Develop revenue sources such as:**
  - **1.4.2.1 Annual appropriations and grants from federal, state, and county governments.**
  - **1.4.2.2 Fundraising.**
  - **1.4.2.3 Service fees.**
    - **A. Charge a fee for non-resident visitors to access Honolua Bay from land and from the sea. The fees are intended to fund visitor parking, educational programs, management, and other services provided.**
    - **B. Charge a camping fee to support the management of the campground at Keonehelele'i Beach.**

***Figure 6.3**: HHMP Action 1.4.*

FUNCTIONAL AREAS

Management and Administration (MA)
Encompasses all HHMP Area management and administrative support activities. It includes the preparation of budgets and financial management, fundraising, the preparation of administrative policies and procedures, partnership relations, stakeholder coordination, and human resource management.

Resource Management and Protection (RMP)
Encompasses all activities related to the management, preservation and protection of the HHMP Area's cultural and natural resources. Activities include cultural resource management; flora and fauna restoration; stream and aquatic management; erosion control and prevention; wild land fire management; and planning, scientific monitoring, and research.

Facility Operations and Maintenance (FOM)
Includes all activities required to manage and operate the HHMP Area's infrastructure and facilities. Activities include trail management, the collection and disposal of solid waste and wastewater, the maintenance of driveways and parking areas, the maintenance of the campground and helipad, the upkeep of the grounds, and maintaining facilities for public safety purposes.

Community Outreach and Education (COE)
Includes all programs designed to inform, educate, and reach out to the community and HHMP Area stakeholders. Involves the development and maintenance of positive relationships with the community including the implementation of environmental and cultural education programs, stakeholder engagement, the development of interpretive programs and signage, the hosting of public meetings and events, and other education campaigns.

Recreation and Visitor Management (RVM)
Encompasses all HHMP Area activities related to ecotourism, visitor revenue generation, and concessions management. This area also includes programs to both support visitor safety and provide visitors with an enjoyable and educational experience.

Enforcement (E)
Includes all activities related to the enforcement of State laws and rules involving the HHMP Area's lands and waters, historic sites, aquatic life and wildlife areas, coastal zones, conservation districts, and shorelines.

***Table 6.1**: HHMP functional areas.*

[2] FTE refers to "Fulltime Equivalent", or the amount one person would work in one year. In this plan, 1 FTE = 8 hours/day x 5 days/week x 52 weeks/year.

The HHMP financial strategy differentiates between three types of expenditures: operating, program, and investment costs. Operating costs are those recurring expenses needed to carry out the everyday operations of the HHMP Area such as employee salaries and costs for supplies, maintenance, and training. Program costs are those recurring expenses to fund a specific activity over a period of time (e.g. interpretive, education, and habitat restoration programs). Investment costs are one-time expenditures normally used to purchase a physical asset (i.e. construct a new boardwalk) or to purchase a non-physical resource (i.e. conduct an inventory or monitoring study).

Operating Costs

To estimate the HHMP Area's operating costs, the HHMP divides management activities into six functional areas. A functional area is a broad group of activities, programs, and investments that together form a common function. Together, the following six functional areas describe projected management responsibilities within the HHMP Area: 1. Management and Administration, 2. Resource Management and Protection, 3. Facility Operations and Maintenance, 4. Community Outreach and Education, 5. Recreation and Visitor Management, and 6. Enforcement (See Table 6.1).

These functional areas are then further divided into program areas that define a set of activities that achieve a specific purpose, and when combined with other programs, perform a function.

Staffing

To estimate the number of staff required to manage the HHMP Area, and implement the HHMP's recommendations, DLNR managers assigned estimated order-of-magnitude fulltime equivalent (FTE)[2] staffing needs to each functional area. These estimates were then aggregated to determine staffing needs by functional area (see Table 6.2). It is estimated that ten full time employees are necessary to effectively manage the 244.12-acre HHMP Area. To the extent possible, encourage the hiring of local (Hawai'i) residents to promote a circular economy and increase the probability of employee retention.

FUNCTIONAL AREA	ESTIMATED FTE STAFFING NEEDS
Management and Administration	1
Resource Management and Protection	3
Facility Operations and Maintenance	3
Community Outreach and Education	1
Recreation and Visitor Management	1
Enforcement	1
TOTAL STAFF	**10**

***Table 6.2**: HHMP Area estimated staffing needs.*

Accessory Operating Costs

Once staffing needs were estimated, DLNR managers developed order-of-magnitude estimates of the average annual cost for the following types of non-salary operating expenses required to sustain the HHMP Area's daily operations:

- Office and field supplies
- Employee computers and software
- Vehicles and fuel
- Rent for baseyard and office space
- Training
- Travel and per diem
- Miscellaneous professional service contracts

Order-of-magnitude estimates of both salary and non-salary accessory operating costs were aggregated for the first six years of HHMP Implementation, and the average annual operating budget for the first six years computed as follows:

- Year 1-6 total: $5,544,347.12
- Year 1-6 average annual: $924,057.85

Program and Investment Costs

Separate from annual operating costs, program and investment costs represent anticipated expenditures to implement specific strategies and actions provided in the HHMP. Table 6.3 provides order-of-magnitude estimates of the sum of program and investment costs over the 20-year planning horizon and broken out by 5-year project phase. Table 6.4 provides order-of-magnitude estimates for program costs while Table 6.5 provides order-of-magnitude estimates for investment costs. These estimates will need to be refined upon completion of more detailed planning, design, and construction documents.

5-YEAR PHASE	ESTIMATED BUDGET[1,2,3]
Phase 1	$7,168,925.00
Phase 2	$6,262,500.00
Phase 3	$2,468,750.00
Phase 4	$2,468,750.00
TOTAL	$18,368,925.00

[1]All costs are in 2020 dollars
[2]The estimated budget includes investment and program costs
[3]The estimated budget doesn't include operating costs (e.g. staffing)

***Table 6.3**: Estimated 20-year budget for programs and investments.*

Priorities and Phasing Plan

The HHMP should be phased to allow for proper budgeting and implementation management. Phasing of improvements considers the desirability and ease of implementing individual projects, the time required to obtain permits for individual projects, and the benefits of combining several projects to take advantage of construction efficiencies. Preference is also given to actions that will protect public health and safety, as well as actions that will prevent the loss of irreplaceable natural resources.

Please see Figure 6.4 for a conceptual schedule of implementation milestones.

Required Land Use Permits and Approvals

Many of the actions in the HHMP may be implemented with few permitting requirements. This is especially true for many of the actions intended to protect public health and safety and protect and maintain coastal and riparian habitat. The implementation of other actions will trigger a requirement to prepare an Environmental Assessment (EA) pursuant to HRS Chapter 343. For these actions, this plan encourages the preparation of a single, programmatic EA that addresses the cumulative impacts of the various actions in the HHMP. The HHMP Area is located within the SMA, and because construction costs exceed $500,000.00, an SMA major permit will likely be required.

A Conservation District Use Application (CDUA) will also be required for certain actions. Removal of existing plants and planting of landscaping may be an administrative approval if less than 10,000 square feet. If more than 10,000 square feet, Board of Land and Natural Resource approval may be required.

For any structures that are regulated by the building code, a building permit will be required. Structures will also need to comply with the shoreline setback rules of the Maui Planning Commission, and a request for a shoreline determination will be required. This will require a licensed surveyor's shoreline certification, topographic maps, development plans, photographs, and other data required by Maui County. Most new structures will also need a flood development permit. Please see the Honolua Bay and Līpoa Point Scoping Report (2018) for further information about regulatory considerations.

FUTURE LOCATION FOR BUDGET CHARTS AND GRAPHS

(If Desired)

TABLE 6.4:
ORDER-OF-MAGNITUDE ESTIMATES OF PROGRAM COSTS

PLANNING AREA	ACTION(s)	PROGRAMS	TOTAL ESTIMATED BUDGET 1, 2, 3	CONTINGENCY (25%)	GRAND TOTAL ESTIMATED BUDGET	YEARS	ANNUAL ESTIMATE	ANNUAL ALLOWANCE	ASSUMPTIONS
Overall	1.9	Secure base yard and office space to support HHMP operations.						TBD	
Overall	4.3.5	Establish an interpretive program to educate users of the project area's historical, cultural, and natural importance.	$ 425,000.00	$ 106,250.00	$ 531,250.00	17	$25,000.00	$31,250.00	
Overall	5.3	Restore and perpetuate the generational knowledge of the Kanaka Maoli starting with outreach to and education of Hawaii's local keiki.	$ 425,000.00	$ 106,250.00	$ 531,250.00	17	$25,000.00	$31,250.00	
Overall	7.4	Provide Hawaiian culture and marine education opportunities.	$ 425,000.00	$ 106,250.00	$ 531,250.00	17	$25,000.00	$31,250.00	
Overall	1.8	Continue to procure services for landscaping, trash and litter disposal, and related activities until long-term staffing is secured and programs developed.	$ 80,000.00	$ 20,000.00	$ 100,000.00	2	$40,000.00	$50,000.00	
Overall	3.3.2	In consultation with an arborist, regularly trim trees that may pose a safety hazard.	$ 700,000.00	$ 175,000.00	$ 875,000.00	20	$35,000.00	$43,750.00	
Overall	4.4.3	Continue to support programs for regular trash removal and disposal of bulky items.	$ 400,000.00	$ 100,000.00	$ 500,000.00	20	$20,000.00	$25,000.00	Three dumpsters with locking lids. Weekly service provided at Honolua Bay, Lipoa Point, and Keonehelele'I Beach.
Honolua Bay	7.13	Provide ADA accessible portable toilents at the Honolua Bay access parking lot.	$ 700,000.00	$ 175,000.00	$ 875,000.00	20	$35,000.00	$43,750.00	
Kulaoka'e'a/ Līpoa Point	8.8	Place new ADA accessible portable toilets at an appropriate location along the Līpoa Point Access Driveway.	$ 560,000.00	$ 140,000.00	$ 700,000.00	16	$35,000.00	$43,750.00	
Keonehelele'i Beach	9.7	Provide ADA accessible portable toilet(s) at Keonehelele'i Beach.	$ 560,000.00	$ 140,000.00	$ 700,000.00	16	$35,000.00	$43,750.00	
Overall	6.3, 8.1	Actively protect and restore native flora and fauna assemblages. Restore and rehabilitate Kulaoka'e'a's agricultural lands.	$ 1,800,000.00	$ 450,000.00	$ 2,250,000.00	18	$100,000.00	$125,000.00	For recurring operating costs for plants, tools, fuel, communications, labor, and other needs.
Kulaoka'e'a/ Līpoa Point	8.3	Seabird habitat restoration. Establish seabird restoration areas to protect and restore native seabird colonies along the coastal fringe. This subaction should be accomplished in accordance with the Seabird Habitat Restoration Plan (subaction 6.2). A. Remove predators from seabird restoration areas. B. Utilize social attraction techniques such as decoys, bird calls, and man-made burrows to attract native birds to the restoration area. C. Utilize technology such as game cameras to track visits by birds and predators. D. Prohibit lighting in the project area that would disrupt seabird populations.	$ 900,000.00	$ 225,000.00	$ 1,125,000.00	18	$50,000.00	$62,500.00	
TOTAL			**$ 6,975,000.00**	**$ 1,743,750.00**	**$ 8,718,750.00**				

TABLE 6.5:
ORDER-OF-MAGNITUDE ESTIMATES OF INVESTMENT COSTS

PLANNING AREA	ACTION(s)	INVESTMENTS	QTY	UNIT	UNIT COST	TOTAL ESTIMATED BUDGET\1,\2	CONTINGENCY (25%)	GRAND TOTAL ESTIMATED BUDGET	ASSUMPTIONS
Overall	1.6	Obtain required permits (shoreline management area, archaeological, flood zone, etc.) prior to implementation to ensure an effective, orderly implementation process.						TBD	
Overall	1.7	Topographic studies: Prepare topographic studies of the Honolua Bay Parking Area, Honolua Bay Access Trail, Līpoa Point Access Driveway, and Keonehelele'i Beach Access Driveway.	1	Survey	$ 40,000.00	$ 40,000.00	$ 10,000.00	$ 50,000.00	
Overall	2.1.4	Prepare a comprehensive signage plan to ensure that signs are installed in a coordinated fashion and are designed to be respectful of the HHMP Area's sense-of-place.	1	Plan	$ 100,000.00	$ 100,000.00	$ 25,000.00	$ 125,000.00	
Overall	3.1.2, 3.13, 3.22, 3.3.1, 4.3.1, 4.3.2, 4.4.1, 6.5.2, 8.4.2, 8.7, 9.5	In accordance with the comprehensive signage plan, install context sensitive signage to address hazard, educational, interpretive, and information needs.				$ -	$ -	$ -	
		Hazard signage - 30 Units 2/	30	Sign	$ 250.00	$ 7,500.00	$ 1,875.00	$ 9,375.00	
		Habitat signage (flora, fauna, stream, coastal) - 50 Units 3/	50	Sign	$ 250.00	$ 12,500.00	$ 3,125.00	$ 15,625.00	
		Cultural resource signage	15	Sign	$ 250.00	$ 3,750.00	$ 937.50	$ 4,687.50	
		Park rules signage - 25 Units 3/	25	Sign	$ 250.00	$ 6,250.00	$ 1,562.50	$ 7,812.50	
		Information Kiosk	4	Kiosk	$ 5,000.00	$ 20,000.00	$ 5,000.00	$ 25,000.00	
		Highway point of interest	4	Sign	$ 450.00	$ 1,800.00	$ 450.00	$ 2,250.00	
		Interpretive	10	Sign	$ 3,000.00	$ 30,000.00	$ 7,500.00	$ 37,500.00	
Overall	3.3.3	Prepare a comprehensive trails plan. Some trails may be developed and maintained, while other trails may remain unimproved.	1	Plan	$ 125,000.00	$ 125,000.00	$ 31,250.00	$ 156,250.00	1. The trails plan should be prepared concurrently with the signage plan. 2. The plan should include trail specifications and detailed drawings.
Overall	4.4.2, 7.14, 8.9, 9.9	Provide rodent-proof trash cans that incorporate source separation for recyclables.	10	Recycle Trash Can	$ 1,650.00	$ 16,500.00	$ 4,125.00	$ 20,625.00	Honolua Bay: 4 cans Līpoa Point: 3 cans Keonehelele'i Beach: 3 cans

PLANNING AREA	ACTION(s)	INVESTMENTS	QTY	UNIT	UNIT COST	TOTAL ESTIMATED BUDGET\1,\2	CONTINGENCY (25%)	GRAND TOTAL ESTIMATED BUDGET	ASSUMPTIONS
Honolua Bay	7.2	Establish a controlled, interpretive, and environmentally sustainable pathway from the parking lot to Honolua Bay. Where appropriate, portions of the pathway may be in the form of an elevated boardwalk to minimize erosion and protect environmental resources. A. Include a component to educate users of Honolua Bay's history, cultural significance, and restoration area values and functions. The interpretive pathway may include theme plantings for educational and cultural considerations, such as a canoe plant grouping and a grouping of endemic and indigenous plants that are used for native Hawaiian sustenance and handicrafts. B. Control pedestrian use along the pathway with existing java plum logs, posts, rope, context sensitive signage, native vegetation, and exclusion barriers (stumps, snags, branches). The intent is to prevent pedestrians from wandering off the pathway and trampling sensitive cultural and natural resources. C. Decommission the informal trails leading from Honoapi'ilani Highway and plant the trails over with native vegetation or vetiver. D. Where appropriate, place signs at the beginning of decommissioned trails explaining why the trails are not access points to Honolua Bay and providing directions to the interpretive pathway and controlled trail(s).	15,000	SF	$ 10.00	$ 150,000.00	$ 37,500.00	$ 187,500.00	1. Approximately 1,500 ft long by 10 ft wide 2. Crushed cinder
		Archaeological monitoring plan for Honolua Bay	1	Plan	$ 6,000.00	$ 6,000.00	$ 1,500.00	$ 7,500.00	
		Field monitoring	2	Week	$ 4,500.00	$ 9,000.00	$ 2,250.00	$ 11,250.00	
		Archaeological Monitoring Report	1	Report	$ 8,000.00	$ 8,000.00	$ 2,000.00	$ 10,000.00	
Honolua Bay	7.3	Identify and address safety issues associated with the ongoing use of the boat ramp by swimmers and snorkelers.						TBD	
Honolua Bay	7.9	Manage parking areas to protect resources and public safety. A. Improve the existing parking area with low impact design (LID) techniques and a drainage swale to capture sediment from the parking area. B. Accommodate Americans with Disability Act (ADA) accessible stalls for management staff, and an active loading zone within the existing parking area. C. Strictly prohibit and enforce any commercial activities, tours, and buses from entering the parking area or otherwise dropping visitors at the HHMP Area.	1		$ 120,000.00	$ 120,000.00	$ 30,000.00	$ 150,000.00	
		Planting restoration in disturbed areas with native planting	1		$ 60,000.00	$ 60,000.00	$ 15,000.00	$ 75,000.00	
		Detailed design and permits (construction drawings and permits for engineering, grading, and landscaping)	1		$ 69,000.00	$ 69,000.00	$ 17,250.00	$ 86,250.00	Topographic survey included in Action 1.7 above.
		Design Team Construction Administration (Engineering and landscaping)	1		$ 15,500.00	$ 15,500.00	$ 3,875.00	$ 19,375.00	

PLANNING AREA	ACTION(s)	INVESTMENTS	QTY	UNIT	UNIT COST	TOTAL ESTIMATED BUDGET\1,\2	CONTINGENCY (25%)	GRAND TOTAL ESTIMATED BUDGET	ASSUMPTIONS
Kulaokaʻeʻa/ Līpoa Point	8.6	Improve the Līpoa Point Access Driveway and parking with Low Impact Development (LID) techniques. A. Grade the driveway and parking away from the cliff so the water and sediment flow away from Honolua Bay and so the driveway is better protected from erosion. Provide a path between the makai side of the driveway's parallel parking, and the cliff, to accommodate pedestrians with surfboards. Maintain roughly the same number of parking stalls as exist prior to the driveway improvements. B. Install water bars for roughly every six feet of elevation drop to direct water and sediment away from Honolua Bay. C. Install a bioswale on the makai side of the access driveway to capture and filter water collected from the driveway. Install a berm on the mauka side of the driveway to direct stormwater away from the ocean. D. Install kickouts and detention basins within Kulaokaʻeʻa, northeast of the driveway, to capture water and sediment diverted into the bioswale. E. Plant native grasses, shrubs, or vetiver on the makai side of the driveway along the top of the cliff to stabilize the cliff, filter water, and capture sediment. F. Enhance driveway ingress and egress from Honoapiʻilani Highway, particularly for emergency vehicles.	1		$ 750,000.00	$ 750,000.00	$ 187,500.00	$ 937,500.00	
		Planting restoration in disturbed areas with native planting	1		$ 122,000.00	$ 122,000.00	$ 30,500.00	$ 152,500.00	
		Detailed design and permits (construction drawings and permits for engineering, grading and landscaping)	1		$ 108,000.00	$ 108,000.00	$ 27,000.00	$ 135,000.00	Topographic survey included in Action 1.7 above.
		Design Team Construction Administration (Engineering and landscaping)	1		$ 20,500.00	$ 20,500.00	$ 5,125.00	$ 25,625.00	
Kulaokaʻeʻa/ Līpoa Point	8.10	Provide a helipad for emergency evacuations, in an appropriate location.	**1**		$ 70,000.00	$ 70,000.00	$ 17,500.00	$ 87,500.00	100-by-100-foot or larger
		Planting restoration in disturbed areas with native planting	1		$ 6,000.00	$ 6,000.00	$ 1,500.00	$ 7,500.00	
		Detailed design and permits (topographic survey, construction drawings, permits)	1		$ 30,000.00	$ 30,000.00	$ 7,500.00	$ 37,500.00	
		Design Team Construction Administration (Engineering)	1		$ 5,000.00	$ 5,000.00	$ 1,250.00	$ 6,250.00	
Keonehelehe'i Beach	9.1	Improve the Keonehelehe'i Beach Access Driveway and parking with Low Impact Development (LID) techniques and a bioswale to capture sediment.	1		$ 150,000.00	$ 150,000.00	$ 37,500.00	$ 187,500.00	
		Planting restoration in disturbed areas with bioswales	1		$ 10,000.00	$ 10,000.00	$ 2,500.00	$ 12,500.00	
		Detailed design and permits (construction drawings and permits for engineering, grading, and landscaping)	1		$ 63,000.00	$ 63,000.00	$ 15,750.00	$ 78,750.00	Topographic survey included in Action 1.7 above.
		Design Team Construction Administration (Engineering and landscaping)	1		$ 15,500.00	$ 15,500.00	$ 3,875.00	$ 19,375.00	
Overall	1.10	Procure heavy equipment and landscaping tools for grounds and trail maintenance.				$ -	$ -	$ -	
		Commercial riding lawnmower	1	Riding Lawnmower	$ 5,000.00	$ 5,000.00	$ 1,250.00	$ 6,250.00	
		Commercial push lawnmower	1	Push Mower	$ 900.00	$ 900.00	$ 225.00	$ 1,125.00	
		Commercial weedeater	3	Weedeater	$ 600.00	$ 1,800.00	$ 450.00	$ 2,250.00	
		Backhoe	1	Backhoe	$ 100,000.00	$ 100,000.00	$ 25,000.00	$ 125,000.00	

PLANNING AREA	ACTION(s)	INVESTMENTS	QTY	UNIT	UNIT COST	TOTAL ESTIMATED BUDGET\1,\2	CONTINGENCY (25%)	GRAND TOTAL ESTIMATED BUDGET	ASSUMPTIONS
		Skid Steer	1	Skid Steer	$ 45,000.00	$ 45,000.00	$ 11,250.00	$ 56,250.00	
		Misc. Hand tools (shovels, rakes, picks, hoes, pruners, etc.)	NA	Yard hand tools	$ 2,000.00	$ 2,000.00	$ 500.00	$ 2,500.00	
Overall	6.1	Prepare a vegetation management plan that will provide the following: A. Detailed mapping of appropriate areas for flora and fauna protection and restoration. B. Strategies, actions, and cost estimates to: 1. Protect and restore native ecosystems along the coastal fringe from Honolulu Bay to Honokōhau Bay. 2. Reintroduce appropriate native and canoe plants in the riparian forest of Honolua Bay. 3. Plant appropriate vegetation for the restoration of Honolua Stream and to manage sediment. 4. Manage hazardous trees. 5. Restore Kulaokaeʻa's fallow agricultural land through the planting of native grasses and shrubs and other appropriate vegetation to reduce erosion and the discharge of sediment into Honolua Bay.	1	Plan	$ 120,000.00	$ 120,000.00	$ 30,000.00	$ 150,000.00	
Overall	6.2	Prepare a seabird habitat restoration plan to identify and map areas for seabird habitat restoration, identify appropriate areas for predator-proof fencing, and prepare a detailed work program and budget to support plan implementation.	1	Plan	$ 25,000.00	$ 25,000.00	$ 6,250.00	$ 31,250.00	
Overall	6.3	Actively protect and restore native flora and fauna assemblages. A. Control predators in native ecosystem restoration areas including use of predator-proof fences and other effective methods. B. Control and prohibit feeding of feral ungulates, feral cats, and other feral animals. C. Restore native ecosystems according to the Vegetation Management Plan (Action 6.1) D. Develop and implement a comprehensive trail plan to allow shoreline access while protecting native vegetation. Designate and monitor paths to the beach and along the coastline. Use natural buffering and other means to impede the use of inappropriate footpaths through sensitive habitat. E. Use wooden posts connected with barrier ropes to protect sensitive areas. F. Educate users, and surrounding property owners, of the impact of light pollution on native seabird populations. G. Prohibit the use of artificial lights except by permit to maintain dark skies. H. Maintain early detection and control of incipient invasive species.	70	Acre	$ 5,680.00	$ 397,600.00	$ 99,400.00	$ 497,000.00	1. Kulaokaeʻa's coastal fringe (60-acres of habitat preservation) 2. Honolua Bay (10-acres of habitat preservation within Honolua Bay's riparian forest)
Honolua Bay	7.6	Purchase the abutting 9.1-acre parcel (TMK: (2) 4-2-004:032) from ML&P.	9	Acre	$ 50,000.00	$ 450,000.00	$ 112,500.00	$ 562,500.00	
Kulaokaʻeʻa/ Līpoa Point	8.1	Restore and rehabilitate Kulaokaʻeʻaʻs agricultural lands. A. Plant the fallow agricultural lands with native shrubs, trees, and grasses. B. Remediate fallow pineapple lands of plastic, chemicals, and other contaminants.	121	Acre	$ 5,680.00	$ 687,280.00	$ 171,820.00	$ 859,100.00	

PLANNING AREA	ACTION(s)	INVESTMENTS	QTY	UNIT	UNIT COST	TOTAL ESTIMATED BUDGET\1,\2	CONTINGENCY (25%)	GRAND TOTAL ESTIMATED BUDGET	ASSUMPTIONS
Kulaokaʻeʻa/ Līpoa Point	8.3.1	Where appropriate, install predator-proof fences that are tall enough to prevent animals from jumping over, have a hood to prevent animals from climbing over, include mesh that is small enough to keep mice out, and have a skirt that prevents animals from digging under. Place pedestrian gates where the fence crosses formal trails to allow appropriate access to the coast consistent with the native ecosystem restoration plan, to include protection of existing species and vegetation, as well as reintroduction of species that have been extirpated. Where predator-proof fences are used they will be designed to manage shoreline access consistent with the comprehensive trail plan.	5,280	Linear Foot	$ 92.00	$ 485,760.00	$ 121,440.00	$ 607,200.00	
Kulaokaʻeʻa/ Līpoa Point	8.5	Reduce sedimentation into coastal waters. A. Decommission legacy pineapple roads and plant them over with native species or vetiver grass. B. Utilize water bars, bioswales, and kickouts to divert water from legacy agricultural roads to detention basins. C. Restore and enhance existing retention basins so they perform as originally intended. Add new basins as needed. D. Remove sediment deposits, head cuts, and debris from natural flow ways. E. Plant slopes susceptible to erosion with native species that will hold and stabilize the soil.	1		$ 3,000,000.00	$ 3,000,000.00	$ 750,000.00	$ 3,750,000.00	
Keonehelele'i Beach	9.8	Preserve in place State sites 50-50-01- 8533 and -8535 and prepare a Burial Treatment Plan (BTP) for these sites, in consultation with SHPD.	1	Plan	$ 14,000.00	$ 14,000.00	$ 3,500.00	$ 17,500.00	
Overall	1.5.1	Conduct surveys, as needed, to measure: 1. The number of users by activity, 2. User satisfaction, and 3. Parking demand.	4	User Survey and Report	$ 50,000.00	$ 200,000.00	$ 50,000.00	$ 250,000.00	The surveys should be conducted every five years
Overall	7.12	Using the management data collected through Action 1.5, conduct a follow-up evaluation of the visitor cap established in Subaction 7.7.1 to consider whether the visitor cap should be adjusted. In addition, evaluate whether a new shuttle parking lot located along the mauka portion of the Līpoa Point Access driveway, and intended to serve visitors to Honolua Bay, is desired. If such a parking lot is desired, use the data collected through Action 1.5 to determine the appropriate number of stalls for the parking lot.	1	Evaluation and Report	$ 35,000.00	$ 35,000.00	$ 8,750.00	$ 43,750.00	
TOTAL						**$ 7,720,140.00**	**$ 1,930,035.00**	**$ 9,650,175.00**	

1/ All costs are in 2020 dollars

2/ Investment costs do not include operating or programmatic costs

3/ 12 x 18" custom high strength aluminum sign mounted on a high strength, corrosion resistant, 8' tall

***Table 6.3**: Order-of-magnitude estimate of investment costs.*

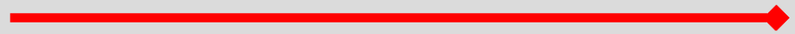
Figure 6.4: **Implementation Milestones**

Note: Derived from the complete, numbered list of HHMP actions provided in Appendix A.1.

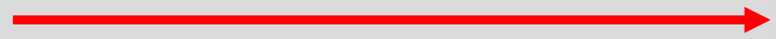
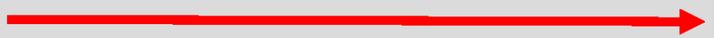
		CONCEPTUAL IMPLEMENTATION MILESTONES [1]
		PHASE 1 (1–5) · PHASE 2 (6–10) · PHASE 3 (11–15) · PHASE 4 (16–20)
1.0	**Build and maintain management capacity.**	
1.1	Issue an executive order for set asides of State to DLNR divisions for jurisdictional and management disposition.	◆
1.1.1	Develop capacity within the DLNR to ensure there is adequate personnel for onsite management, enforcement, and plan implementation.	◆———
1.1.2	Seek an appropriation from the Hawaii State Legislature for staff and funding as described in the financial plan.	Ongoing
1.1.2.1	Hire a full-time HHMP Area Manager (preference should be given to applicants with an understanding of the HHMP Area, resource management experience in Hawai'i, and experience working with native Hawaiian communities on planning and conservation issues).	◆
1.1.2.2	Hire staff to support resource management and protection, facility operations and maintenance, community outreach and education, recreation and visitor management, and enforcement.	◆———
1.1.3	Secure public private partnership(s), where appropriate, to provide stewardship in accordance with the HHMP.	Ongoing
1.2	Ensure there is public input during HHMP implementation.	
1.2.1	Conduct regular consultation with the native Hawaiian lineal descendants of the Honolua and Honokōhau ahupua'a.	
1.2.2	Conduct regular outreach meetings with stakeholders.	Ongoing
1.2.3	Consider the establishment of a representative citizen advisory committee to assist with HHMP implementation.	
1.2.4	Keep the community informed of management activities.	
1.3	Leverage community resources to support HHMP implementation.	
1.3.1	Utilize the knowledge and expertise of the lineal descendants of the Honolua and Honōkohau Ahupua'a.	
1.3.2	Partner with community-based organizations such as the Save Honolua Coalition and Mālama Maui Nui.	Ongoing
1.3.3	Use quasi-volunteer civil society programs such as AmeriCorps, Senior Corps, college internship, and high school summer and after-school student programs.	
1.3.4	Coordinate planning, management, and the sharing of studies and data with mauka landowners, watershed managers, and applicable government agencies.	
1.4	Generate funding for plan implementation.	
1.4.1	Prepare and maintain a financial plan.	
1.4.2	Develop revenue sources such as:	
1.4.2.1	Annual appropriations and grants from federal, state, and county governments.	Ongoing
1.4.2.2	Fundraising.	
1.4.2.3	Service fees.	
	A. Charge a fee for non-resident visitors to access Honolua Bay from land via the Honolua Bay Access Trail and from the sea via boat. The fees are intended to fund the parking, educational, management, and other services provided.	
	B. Charge a camping fee to support the management of the campground at Keonehelele'i Beach.	
1.5	Maintain a digital library of management data.	
1.5.1	Conduct surveys, as needed, to measure: 1. The number of users by activity, 2. User satisfaction, and 3. Parking demand.	◆ ◆ ◆ ◆
1.5.2	Continue to measure the health and resiliency of the HHMP Area's natural, cultural, and social resources.	Ongoing
1.6	Obtain required permits (shoreline management area, archaeological, flood zone, etc.) prior to implementation to ensure an effective, orderly implementation process.	◆———
1.7	Topographic studies: Prepare topographic studies of the Honolua Bay Parking Area, Honolua Bay Access Trail, Lpīoa Point Access Driveway, and Keonehelele'i Beach Access Driveway.	◆
1.8	Continue to procure services for landscaping, trash and litter disposal, and related activities until long-term staffing is secured and programs developed.	◆———
1.9	Secure base yard and office space to support HHMP operations.	◆
1.10	Procure heavy equipment and landscaping tools for grounds and trail maintenance.	◆
1.11	Establish a DLNR Working Group, comprised of key DLNR staff responsible for HHMP Area management, to meet regularly to coordinate HHMP implementation.	◆———

		CONCEPTUAL IMPLEMENTATION MILESTONES [1]
		PHASE 1 (1 2 3 4 5) · PHASE 2 (6 7 8 9 10) · PHASE 3 (11 12 13 14 15) · PHASE 4 (16 17 18 19 20)
2.0	**Protect the sense-of-place.**	
2.1	Work with governmental agencies and the community to:	
2.1.1	Discourage upland land uses that may threaten the HHML Planning Area's cultural, natural, and aesthetic resources.	Ongoing
2.1.2	Ensure that infrastructure and facilities are appropriate (context sensitive) and will not spur urbanization of the HHMP Area and diminish its sense-of-place.	
2.1.3	Encourage the preservation of the Honolua Bridge as a one-lane bridge in keeping with the bridge's historic character.	
2.1.4	Prepare a comprehensive signage plan to ensure that signs are installed in a coordinated fashion and are designed to be respectful of the HHMP Area's sense-of-place.	◆
2.1.5	Foster and maintain wild and scenic character.	Ongoing
2.1.6	Minimize improvements, construction, and development.	Ongoing
3.0	**Create a safer environment.**	
3.1	Natural hazards	
3.1.1	Ensure that lands within the HHMP Area are within audible range of a tsunami warning siren.	◆
3.1.2	Install context sensitive signage in low-lying areas to alert users to move uphill in case of a tsunami or earthquake. Signs near Honolua Bay should indicate what direction on the highway is a preferred evacuation route.	◆
3.1.3	Install context sensitive signage in flood-prone areas to warn users of the risks associated with flash floods.	◆
3.2	Marine hazards	
3.2.1	Understand how the seasons affect the ocean activities for swimmers. For example, the risk for shark bites is highest during the Manō's pupping season which occurs in the late summer and fall months. Traditional Hawaiian ecological knowledge warns of danger for swimmers during these months.	Ongoing
3.2.2	Install context sensitive signage warning users of: A. Ocean hazards such as swell, currents, rogue waves, and strong winds; and B. Risks associated with swimming in tide pools.	◆
3.3	Trails and vegetation	
3.3.1	Install context sensitive signage to direct users away from steep slopes and unauthorized trails.	◆
3.3.2	In consultation with an arborist, regularly trim trees that may pose a safety hazard.	Ongoing
3.3.3	Prepare a comprehensive trails plan. Some trails may be developed and maintained, while other trails may remain un-improved.	◆
3.3.4	Develop a trail maintenance program to keep trails safe, and to discourage hikers from wandering off trails and into hazardous as well as culturally sensitive areas.	◆
4.0	**Manage the impact of human activities.**	
4.1	Manage the number of people using the HHMP Area.	
4.1.1	Limit the number of non-residents visiting Honolua Bay to appropriate levels.	◆
4.1.2	Prepare and adopt administrative rules to establish criteria and procedures to limit commercial activities to the following: A. Governmental agencies and nonprofit organizations conducting the activity for the primary purpose of generating revenue to support HHMP implementation. B. Organizations contracted by the State of Hawaii, or its authorized representative, to perform services supporting HHMP Implementation or the management of the HHMP Area (landscaping, parking management, maintenance, etc.).	◆
4.2	Increase user security.	
4.2.1	Provide on-site management to discourage property theft, trespassing, squatting, and other undesirable activities.	Ongoing
4.2.2	Create a hotline for reporting issues, concerns, and complaints.	◆
4.2.3	Limit user access to appropriate locations and hours with exceptions for legally protected native Hawaiian traditional and customary practices.	◆
4.2.4	Encourage State funding for additional DOCARE staff to support enforcement activities.	◆
4.3	Educate users of responsible stewardship behavior.	
4.3.1	Provide context sensitive signage with DLNR kokua rules, public access hours, and emergency phone numbers.	◆
4.3.2	Develop digital and on-site context sensitive signage to educate users of stewardship best practices.	◆

		CONCEPTUAL IMPLEMENTATION MILESTONES [1]
		PHASE 1 (1 2 3 4 5) · PHASE 2 (6 7 8 9 10) · PHASE 3 (11 12 13 14 15) · PHASE 4 (16 17 18 19 20)
4.3.3	Train and support citizen volunteers to conduct citizen patrols.	
4.3.4	Consider establishing a docent and ambassador program to assist with education.	
4.3.5	Establish an interpretive program to educate users of the HHMP Area's historical, cultural, and natural importance.	
4.4	Keep the HHMP Planning Area free of trash and litter.	
4.4.1	Provide context sensitive signage to discourage littering and dumping.	
4.4.2	Provide rodent-proof trash cans that incorporate source separation for recyclables.	
4.4.3	Continue to support programs for regular trash removal and disposal of bulky items.	Ongoing
4.4.3.1	Organize community-based vollunteer cleanups.	
4.4.3.2	Work with the Maui County Department of Environmental Management to address regional needs for bulky item disposal.	
4.5	Encourage the State DOT to manage bicycling along Honoapi'iland Highway so the cyclists do not jeopardize public safety.	Ongoing
5.0	**Protect and Restore Cultural Resources.**	
5.1	Gather the names of the Wahi Pana. Document the meaning and significance of the names. Utilize context sensitive signage to educate users of the meaning and significance of the place names.	
5.2	Use Hawaiian language place names, rather than english monikers, whenever possible.	
5.3	Restore and perpetuate the generational knowledge of the Kanaka Maoli starting with outreach to and education of Hawaii's keiki.	
5.4	Consider stewardship agreements and/or partnerships to re-establish mahi'ai traditions of the Honolua area (e.g. 'uala, kalo).	Ongoing
5.5	Identify, re-establish, and revitalize areas historically important for Kanaka Maoli gathering.	
5.6	Recognize the traditional connection between Halawa Moloka'i and Punalau (Keonehelele'i) regarding schools of mano and hihimanu and the importance Keonehelele'i as a hammerhead and hihimanu nursery.	
5.7	Prepare an archaeological monitoring plan for Honolua Bay, and have it reviewed by the SHPD, prior to any work in the Honolua Bay area.	
5.8	Consider stewardship agreements and/or partnerships for care taking and maintaining the archaeological sites within the HHMP area.	Ongoing
5.9	Within both the Honolua Bay area, and the coastal fringe of Kulaoka'e'a, undertake archaeological monitoring as a precautionary measure during construction-related ground altering activities.	Ongoing
6.0	**Protect and Restore Natural Resources.**	
6.1	Prepare a vegetation management plan that will provide the following: A. Detailed mapping of appropriate areas for flora and fauna protection and restoration; and B. Strategies, actions, and cost estimates to: 1. Protect and restore native ecosystems along the coastal fringe from Honolula Bay to Honokōhau Bay. 2. Reintroduce appropriate native and canoe plants in the riparian forest of Honolua Bay. 3. Plant appropriate vegetation for the restoration of Honolua Stream and to manage sediment. 4. Manage hazardous trees. 5. Restore Kulaokae'a's fallow agricultural land through the planting of native grasses and shrubs and other appropriate vegetation to reduce erosion and the discharge of sediment into Honolua Bay.	
6.2	Prepare a seabird habitat restoration plan to identify and map areas for seabird habitat restoration, identify appropriate areas for predator-proof fencing, and prepare a detailed work program and budget to support plan implementation.	

	CONCEPTUAL IMPLEMENTATION MILESTONES [1]
	PHASE 1 (1 2 3 4 5) · PHASE 2 (6 7 8 9 10) · PHASE 3 (11 12 13 14 15) · PHASE 4 (16 17 18 19 20)
6.3 Actively protect and restore native flora and fauna assemblages. A.Control predators in native ecosystem restoration areas including use of predator-proof fences and other effective methods. B.Control and prohibit feeding of feral ungulates, feral cats, and other feral animals. C.Restore native ecosystems according to the Vegetation Management Plan (Action 6.1) D.Develop and implement a comprehensive trails plan to allow shoreline access while protecting native vegetation. Designate and monitor paths to the beach and along the coastline. Use natural buffering and other means to impede the use of inappropriate footpaths through sensitive habitat. E.Use wooden posts connected with barrier ropes to protect sensitive areas. F.Educate users, and surrounding property owners, of the impact of light pollution on native seabird populations. G.Prohibit the use of artificial lights except by permit to maintain dark skies. H.Maintain early detection and control of incipient invasive species.	
6.4 Support the protection and restoration of marine ecosystems. 6.4.1 Support the implementation of the Honolua-Mokulē'ia MLCD Conservation Action Plan (CAP). 6.4.2 Improve coastal water quality. 6.4.2.1 Minimize sources of land-based pollution into the Honolua - Mokulē'ia Marine Life Conservation District (MLCD) and other coastal waters.	Ongoing
6.4.2.2 Work with watershed managers to develop data on the frequency, quantity, and quality of freshwater flow from the Honokōhau watershed including the Pōhakupule and Punaha gulches. 6.4.2.3 Work with watershed managers to determine the primary sources of sediment and nutrient inputs into Honolua Bay. Implement measures to reduce erosion and sedimentation through vegetation management and other means identified through the "Honolua Bay / 6.4.2.4 Līpoa Point Erosion and Sedimentation Stormwater Management Report" and the "WEST MAUI WATERSHED PLAN: Kahana, Honokahua and Honolua Watersheds Strategies and Implementation Report."	Ongoing
6.5 Education	
6.5.1 Establish a program to educate local keiki and ocean recreationists of appropriate stewardship practices.	
6.5.2 Provide adequate context sensitive signage to promote proper stewardship of the HHML Planning Areas's flora, fauna, marine ecology, and other environmental resources.	
6.5.3 Use digital media and other means to illustrate the important functions of the HHML Planning Area's natural resources and explain proper stewardship practices and activities that should be avoided.	Ongoing
6.6 Seek and develop opportunities to acquire fee title to adjacent lands to support and improve the success of the HHMP.	Ongoing
7.0 Strengthen Honolua Bay's cultural integrity and resilience while providing managed, safe access.	
7.1 Partner with the lineal descendants of Honolua and Honokōhau, the Save Honolua Coalition, and other interested parties to: 7.1.1 Re-establish the traditional landscape and connections between Honua'ula Heiau and Honolua Bay while understanding that the modern landscape and environment has evolved from the time of the kupuna. 7.1.2 Remove the non-indigenous trees and plants and simultaneously replace them with appropriate native plants (e.g. popolo, aalii, lauhala, pohuehue, ilima, naupaka) used in laau lapaau and other traditional uses. 7.1.3 Where appropriate, establish and restore lo'i kalo for food production and sediment retention within the riparian zone of Honolua Stream.	

		CONCEPTUAL IMPLEMENTATION MILESTONES [1]
		PHASE 1 (1 2 3 4 5) · PHASE 2 (6 7 8 9 10) · PHASE 3 (11 12 13 14 15) · PHASE 4 (16 17 18 19 20)
7.2	Establish a controlled, interpretive, and environmentally sustainable pathway from the parking lot to Honolua Bay. Where appropriate, portions of the pathway may be in the form of an elevated boardwalk to minimize erosion and protect environmental resources. A. Include a component to educate users of Honolua Bay's history, cultural significance, and restoration area values and functions. The interpretive pathway may include theme plantings for educational and cultural considerations, such as a canoe plant grouping and a grouping of endemic and indigenous plants that are used for kanaka maoli sustenance and handicrafts. B. Control pedestrian use along the pathway with existing java plum logs, posts, rope, context sensitive signage, native vegetation, and exclusion barriers (stumps, snags, branches). The intent is to prevent pedestrians from wandering off the pathway and trampling sensitive cultural and natural resources. C. Decommission the informal trails leading from Honoapi'ilani Highway and plant the trails over with native vegetation or vetiver. D. Where appropriate, place signs at the beginning of decommissioned trails explaining why the trails are not access points to Honolua Bay and providing directions to the interpretive pathway and controlled trail(s).	
7.3	Identify and address safety issues associated with the ongoing use of the boat ramp by swimmers and snorkelers.	
7.4	Provide Hawaiian culture and marine education opportunities.	
7.5	Protect and restore Honolua stream.	
7.5.1	Plant the northern bank of Honolua Stream, from the access parking lot to the mouth of Honolua Bay, with appropriate vegetation to slow sheet flow from the access trail, and to capture sediment before it enters the stream. Restore the stream's natural biota. This subaction should be accomplished in accordance with the Vegetation Management Plan.	Ongoing
7.5.2	Work with mauka landowners to identify and remediate sources of sediment in Papua Gulch, which connects to Honolua stream mauka of Honoapi'ilani Highway, and is a major contributor of sediment to Honolua Bay.	Ongoing
7.6	Purchase the abutting 9.1-acre parcel (TMK: (2) 4-2-004:032) from ML&P.	
7.7	Manage the number of people accessing Honolua Bay to protect the area's resources and to protect the user experience.	
7.7.1	Using the input collected through the HHMP planning process, establish a daily cap on the number of non-resident visitors accessing the bay from Honoapi'ilani Highway to ensure visitor use doesn't exceed the bay's available infrastructure, burden Honolua and Honokōhau residents, and diminish the area's sense-of-place. Other tools to manage the number of people using the bay may include parking capacity limits, reservations, service fees coupled with an entrance gate where the number of users is counted and controlled, and other similar management tools.	
7.7.2	Consider establishing a system to warn drivers before they arrive at Honolua Bay of the availability of parking.	
7.8	Consider management approaches to close Honolua Bay for defined periods to "rest" the natural environment, and to provide Hawaii State residents with an opportunity to enjoy a less congested and more peaceful user experience.	
7.9	Manage parking areas to protect resources and public safety. A. Improve the existing parking area with low impact design (LID) techniques and a drainage swale to capture sediment from the parking area. B. Accommodate Americans with Disability Act (ADA) accessible stalls for management staff and an active loading zone within the existing parking area.	
	C. Strictly prohibit and enforce any commercial activities, tours, and buses from entering the parking area or otherwise dropping visitors at the HHMP Area.	Ongoing
7.10	Coordinate with the State Department of Transportation (DOT) to use signage and pavement striping to discourage illegal parking along Honoapi'ilani Highway.	
7.11	Encourage the Maui County Police Department to ticket, or tow, vehicles parked illegally along Honoapi'ilani Highway.	
7.12	Using the management data collected through Action 1.5, conduct a follow-up evaluation of the visitor cap established in Subaction 7.7.1 to consider whether the visitor cap should be adjusted. In addition, evaluate whether a new shuttle parking lot located along the mauka portion of the Līpoa Point Access driveway, and intended to serve visitors to Honolua Bay, is desired. If such a parking lot is desired, use the data collected through Action 1.5 to determine the appropriate number of stalls for the parking lot.	
7.13	Provide ADA accessible portable toilents at the Honolua Bay access parking lot.	Ongoing
7.14	Add covered or rodent-proof trash cans that incorporate source separation for recyclables, at the Honolua Bay access parking lot and at the bay.	

		CONCEPTUAL IMPLEMENTATION MILESTONES [1]
		PHASE 1 (1 2 3 4 5) · PHASE 2 (6 7 8 9 10) · PHASE 3 (11 12 13 14 15) · PHASE 4 (16 17 18 19 20)
8.0	**Kulaokaʻeʻa & Līpoa Point – heal and restore the area's natural and cultural resources and improve its resilience to climate change**	
8.1	Restore and rehabilitate Kulaokaʻeʻaʻs agricultural lands. A. Plant the fallow agricultural lands with native shrubs, trees, and grassess. B. Remediate fallow pineapple lands of plastic, chemicals, and other contaminants.	
8.2	Flora Restoration A. Restore and protect native plant communities along the coastal fringe from Pōhakupule to Punalau, at Punalau Point, and at Kamane. This subaction should be accomplished in accordance with the Vegetation Management Plan (subaction 6.1). B. Remove aggressive non-native ironwood trees around the richest pockets of remnant plants, and institute a selective weeding program. C. Provide supplemental plantings of native species from nearby coastal areas to increase the area's plant diversity. D. Install adequate context sensitive signage to educate the public of the importance of native plants and proper stewardship practices. E. At Kamane, selectively trim naupaka to help the target plants in the area, including native panicum grass (Panicum fauriei var. fauriei) and schiedea (Schiedea globose).	
8.3	Seabird habitat restoration. Establish seabird restoration areas to protect and restore native seabird colonies along the coastal fringe. This subaction should be accomplished in accordance with the comprehensive management plan for the protection and restoration of native ecosystems (subaction 6.2). A. Remove predators from seabird restoration areas. B. Utilize social attraction techniques such as decoys, bird calls, and man-made burrows to attract native birds to the restoration area. C. Utilize technology such as game cameras to track visits by birds and predators. D. Prohibit lighting in the project area that would disrupt seabird populations.	
8.3.1	Where appropriate, install predator-proof fences that are tall enough to prevent animals from jumping over, have a hood to prevent animals from climbing over, include mesh that is small enough to keep mice out, and have a skirt that prevents animals from digging under. Place pedestrian gates where the fence crosses formal trails to allow appropriate access to the coast consistent with the vegetation management plan, to include protection of existing species and vegetation, as well as reintroduction of species that have been extirpated. Where predator-proof fences are used they will be designed to manage shoreline access consistent with the comprehensive trails plan.	
8.4	Manage Access to Kulaokaʻeʻaʻs coastal fringe and tableland to protect sensitive natural and archaeological resources.	Ongoing
8.4.1	Provide marked trails needed to support management activities and the protection of native flora and fauna, archeological features, and other sensitive resources. Decommission inappropriate trails by blocking them with stags, and planting them with native vegetation, or vetiver grass, to discourage their use.	
8.4.2	Place signs at the beginning of decommissioned trails notifying the public that the trails are closed.	
8.5	Reduce sedimentation into coastal waters. A. Decommission legacy pineapple roads and plant them over with native species or vetiver grass. B. Utilize water bars, bioswales, and kickouts to divert water from legacy agricultural roads to detention basins. C. Restore and enhance existing retention basins so they perform as originally intended. Add new basins as needed. D. Remove sediment deposits, head cuts, and debris from natural flow ways. E. Plant slopes susceptible to erosion with native species that will hold and stabilize the soil.	

		CONCEPTUAL IMPLEMENTATION MILESTONES [1]
		PHASE 1: 1 2 3 4 5 | PHASE 2: 6 7 8 9 10 | PHASE 3: 11 12 13 14 15 | PHASE 4: 16 17 18 19 20
8.6	Improve the Līpoa Point Access Driveway and parking with Low Impact Development (LID) techniques. A. Grade the driveway and parking away from the cliff so the water and sediment flow away from Honolua Bay and so the driveway is better protected from erosion. Provide a path between the makai side of the driveway's parallel parking, and the cliff, to accommodate pedestrians with surfboards. Maintain roughly the same number of parking stalls as exist prior to the driveway improvements. B. Install water bars for roughly every six feet of elevation drop to direct water and sediment away from Honolua Bay. C. Install a bioswale on the makai side of the access driveway to capture and filter water collected from the driveway. Install a berm on the mauka side of the driveway to direct stormwater away from the ocean. D. Install kickouts and detention basins within Kulaoka'e'a, northeast of the driveway, to capture water and sediment diverted into the bioswale. E. Plant native grasses, shrubs, or vetiver on the makai side of the driveway along the top of the cliff to stabilize the cliff, filter water, and capture sediment. F. Enhance driveway ingress and egress from Honoapi'ilani Highway, particularly for emergency vehicles.	
8.7	Place signs at strategic locations to: (a). discourage snorkelers from accessing Honolua Bay from cliffside trails along the Līpoa Point Access Driveway; and (b). inform the public that the cliff-side trails from the Līpoa Point Access Driveway to Honolua Bay are hazardous and that those using the trails do so at their own risk.	
8.8	Place new ADA accessible portable toilets at an appropriate location along the Līpoa Point Access Driveway.	
8.9	Add covered or rodent-proof trash cans that incorporate source separation for recyclables at appropriate locations along the Līpoa Point Access Driveway.	
8.10	Provide a helipad for emergency evacuations, in an appropriate location.	
9.0	**Protect and restore Keonehelele'i Beach's natural and cultural resources while providing managed, safe access.**	
9.1	Improve the Keonehelele'i Beach Access Driveway and parking with Low Impact Development (LID) techniques and a bioswale to capture sediment.	
9.2	Support a small, well-managed campground, with priority access for Hawaii residents.	Ongoing
9.3	Restore native flora. This subaction should be accomplished in accordance with the Vegetation Management Plan (subaction 6.1). A. Restore and protect the endangered awiwi (Schenkia sebaeoides), the ulei (Osteomeles anthyllidifolia), and other native plants. B. Remove ironwood, guinea grass, and other invasive plants and weeds and create an ongoing weeding program. C. Supplement the existing native plants with additional native plants to promote plant diversity.	
9.4	Mitigate shoreline erosion. A. Remove ironwoods, and other invasive trees along Keonehelele'i Beach, and simultaneously replant the area with climate-adapted shade species such as milo or beach heliotrope. B. Plant appropriate native plants and bushes to stabilize the shoreline.	
9.5	Reduce Sedimentation. A. Camping area. 1. Plant naupaka, or other appropriate native shoreline vegetation, at the edge of the camping area. 2. Decommission informal trails by blocking them with stags and replanting them with native vegetation to discourage their continued use. 3. Designate and design appropriate access trails to the beach. 4. Plant the edges of the campground walking path with native vegetation or vetiver to slow sheet flow and capture sediment. B. Plant the hillslope with appropriate native vegetation to anchor the soil.	
9.6	Provide covered or rodent-proof trash cans that incorporate source separation for recyclables.	
9.7	Provide ADA accessible portable toilet(s).	
9.8	Preserve in place State sites 50-50-01- 8533 and -8535 and prepare a Burial Treatment Plan (BTP) for these sites, in consultation with SHPD.	
	1. Estimated milestones are conceptual, and subject to change based on available funding.	**LEGEND:** Ongoing Action; An Action with an Estimated Start and Stop Date; Estimated Year an Action is Completed

7.0 MONITORING AND EVALUATION

This section includes a set of eight objectives to monitor progress toward achieving the HHMP's vision, strategies, and actions (Table 7-1). An objective, oftentimes measurable or quantifiable, serves as a benchmark to monitor the achievement of an HHMP Strategy. Each objective includes indicators to help managers measure the progress made towards achieving objectives over time. The data that feeds into each indicator should be updated periodically over the HHMP's life. Managers should prepare a monitoring report at least every five years to evaluate trends in each indicator to reveal whether the HHMP's objectives are being exceeded, attained, or not being met. Periodic monitoring provides the opportunity to consider the need for new or revised strategies or implementation measures to better meet the Plan's objectives.

Monitoring and evaluation programs require a significant commitment of time and resources to data collection and management. The HHMP leverages existing data collection efforts to achieve more efficient data collection. Several objectives and indicators identified in this plan have been borrowed from the Honolua-Mokulēʻia MLCD Conservation Action Plan. It is intended that HHMP monitoring be done in collaboration with the monitoring conducted by the Honolua-Mokulēʻia MLCD CAP Team. To the extent possible the indicators are based on available and reliable data to ensure their usefulness throughout the 20-year planning horizon. However, the indicators can be modified and updated as new data becomes available.

Please see Appendix A.2 for additional monitoring and evaluation tools developed through the Honolua-Mokulēʻia MLCD Conservation Action Plan.

HHMP Monitoring for Key Indicators

Objective	Indicators	Methods	Who	Frequency
1. Starting now, reduce annual sediment input into Honolua Bay from 2016 levels (91 metric tons/year) by 50% by 2030, and by 90% by 2040.[1]	Coral cover	Belt transect surveys	DAR	Annual
	Water clarity/turbidity	DOH quality assured coastal water quality methods	Hui O Ka Wai Ola	Every 3 weeks
		Analyze R2R's shorelinecamera data	TBD	TBD
2. Sustain long-term community benefits by increasing the biomass of reef fish outside the MLCD boundary from Makāluapuna Point to Līpoa Point by 300% by 2030.[1]	Total reef fish biomass inside/outside MLCD	Belt transect surveys	DAR	Annual
3. Understand and protect conditions needed for protected species (Hawaiian spinner dolphins, reef manta rays, and sea turtles) to engage in optimal behaviors in the MLCD by 2025.[1]	Size of spinner dolphin pod and frequency; number of reef manta rays and frequency	Drone surveys	TBD	Daily
4. Increase and maintain community involvement in MLCD management by 2022.[1]	Existence and continuance of stakeholder advisory group	Presence/absence	DLNR	Annual
	Number of people involved in MLCD management opportunities	Counts per event	TBD	Ongoing
5. Reduce the number of people within the MLCD and surrounding areas at peak times to a sustainable level (to be determined by carrying capacity study) by 2025 to reduce negative impacts to resources and people.[1]	Number of people at peak use times	Count number of people from overlook	DLNR	8 randomly selected days per month
6. Understand and create conditions needed for seabird habitat restoration within the HHMP Area by 2030.[2]	Number of active and successful burrows[2]	Bird surveys	DOFAW	Quarterly
7. Understand and create conditions needed for native terrestrial bird restoration within the HHMP Area by 2030.	Number of native terrestrial species	Quadrant bird surveys	DOFAW	Annual
	Abundance of native terrestrial birds by species	Quadrant bird surveys	DOFAW	Annual
8. Increase the diversity and abundance of native plant species throughout the coastal fringe between Līpoa Point and Keonehelele'i Beach by 2030.	Percent of cover/canopy comprising native species	Quadrant flora surveys Line intercept transects	DOFAW	Annual
	Native plant species richness and diversity within the HHMP Area's coastal fringe			
	Floristic composition (# of native plant species as a percent of total plant species			
9. Reduce the prevalence of invasive ironwood trees by 2030.	Location and number of invasive ironwood trees	Ironwood tree survey	DOFAW	Annual
10. Within the Honolua Bay Planning Area, strive to achieve more than 75% user satisfaction by 2025, more than 80% user satisfaction by 2030, and more that 85% user satisfaction by 2035.	Percentage of survey respondents (resident and visitor) who rate their user experience as satisfactory or more than satisfactory	Exit survey	State Parks	At least every 5 years

[1]Indicators taken from the Honolua-Mokulēʻia Marine Life Conservation District Conservation Action Plan
[2]Seabirds such as Wedge-tailed Shearwater, Hawaiian Petrel, Bulwer's Petrel, Newell's Shearwater, Laysan Albatross, Black-footed Albatross, White-tailed Tropicbird, Red-tailed Tropicbird, and Black Noddy

***Table 7.1**: HHMP objectives and key indicators.*

APPENDICES

Appendix A.1: Manager's Matrix of the HHMP's Vision, Guiding Principles, and Numbered Strategies and Actions

VISION	**HONOLUA TO HONOKŌHAU MANAGEMENT PLAN AREA** **The HHMP Area is known for its natural beauty. The area is sacred to native Hawaiians who maintain their traditional and customary practices and find the area to be a source of spiritual and physical sustenance. The HHMP Area is resilient to the effects of climate change and coastal erosion, it is protected from overuse, and its resources are well-managed. Its coastal waters are rich in marine life, and its coral reefs are healthy and diverse. The area's coastline supports rare and endangered flora and is an important nesting site for native seabirds. The HHMP Area is cherished and respected by the Maui community for its cultural, natural, and recreational resources; open space; and healthy ecosystems.**	
GUIDING PRINCIPLES	***Native Hawaiian Traditional and Customary Rights***. Recognize and support the traditional relationship native Hawaiians have with the land and the importance of maintaining that relationship. Ensure native Hawaiian legal rights to practice cultural, religious, and subsistence activities are recognized and encouraged.	
	Mauka to Makai. Use ahupua'a concepts of resource management that are built around an understanding of the interconnected and interdependent relationship between land and ocean ecosystems, and the reciprocal relationship between people and the environment. Make management decisions within the context of how those decisions will affect mauka and makai lands, waters, and the people of the area.	
	Future Generations. Consider the impact of management decisions on future generations, and emphasize best management practices, to foster wiser decisions that are sustainable and durable over long periods of time.	
	Aloha 'Āina. Respect and practice love for the land. The preservation of natural resources, cultural resources, and the area's sense-of-place should be prioritized over improvements to infrastructure, recreation, and the economy.	
	Resilience. Protect and strengthen natural ecosystems so they are less vulnerable to, and can recover quicker from, unanticipated natural and human impacts (e.g. natural disasters, disease, influx of people, climate change).	
	Community Based. Ensure a strong emphasis on community engagement and participation during the implementation of the HHMP. Local stakeholders are acutely aware of potential implications that may result from implementation activities. Community-based implementation will capture stakeholder desires more effectively leading to a more engaged and active community committed to successful plan implementation.	
	Adaptive Management. Use management and decision-making approaches that are responsive to new challenges, changes, and information that may necessitate alternative ways to achieve the HHMP's vision and key actions.	
	Resident Access. Ensure the desires of Hawai'i's residents to sustainably access, use, and enjoy the HHMP Area are given special consideration. Strongly discourage actions that may result in the displacement (gentrification) of residents to visitors.	
	Stewardship Education. Integrate educational opportunities into the user experience to provide users with a better understanding of their surroundings and to foster informed and responsible behavior towards native Hawaiian culture and the environment.	
CORE STRATEGY	**1.0 Build and maintain management capacity.**	
ACTIONS	1.1	Issue an executive order for set asides of State land to DLNR divisions for jurisdictional and management disposition.
	1.1.1	Develop capacity within the DLNR to ensure there is adequate personnel for onsite management, enforcement, and plan implementation.
	1.1.2	Seek an appropriation from the Hawai'i State Legislature for staff and funding as described in the financial plan.
	1.1.3	Secure public private partnership(s), where appropriate, to provide stewardship in accordance with the HHMP.
	1.2	Ensure there is public input during HHMP implementation.
	1.2.1	Conduct regular consultation with the native Hawaiian lineal descendants of the Honolua and Honokōhau ahupua'a.
	1.2.2	Conduct regular outreach meetings with stakeholders.
	1.2.3	Consider the establishment of a representative citizen advisory committee to assist with HHMP implementation.
	1.2.4	Keep the community informed of management activities.
	1.3	Leverage community resources to support HHMP implementation.
	1.3.1	Utilize the knowledge and expertise of the lineal descendants of the Honolua and Honōkohau Ahupua'a.
	1.3.2	Partner with community-based organizations such as the Save Honolua Coalition and Mālama Maui Nui.
	1.3.3	Leverage quasi-volunteer civil society programs such as AmeriCorps, Senior Corps, college internship, and high school summer and after-school student programs.
	1.3.4	Coordinate planning, management, and the sharing of studies and data with mauka landowners, watershed managers, and applicable government agencies.
	1.4	Generate funding for HHMP implementation.
	1.4.1	Prepare and maintain a financial plan.
	1.4.2	Develop revenue sources such as:
	1.4.2.1	Annual appropriations and grants from federal, state, and county governments.
	1.4.2.2	Fundraising.
	1.4.2.3	Service fees. A. Charge a fee for non-resident visitors to access Honolua Bay from land and the sea. The fees are intended to fund visitor parking, educational programs, management, and other services provided. B. Charge a camping fee to support the management of the campground at Keonehelele'i Beach.
	1.5	Maintain a digital library of management data.
	1.5.1	Conduct surveys, as needed, to measure: 1. The number of users by activity, 2. User satisfaction, and 3. Parking demand.
	1.5.2	Continue to measure the health and resiliency of the HHMP Area's natural, cultural, and social resources.
	1.6	Obtain required permits (shoreline management area, archaeological, flood zone, etc.) prior to implementation to ensure an effective, orderly implementation process.
	1.7	Topographic studies: Prepare topographic studies of the Honolua Bay Parking Area, Honolua Bay Access Trail, Līpoa Point Access Driveway, and Keonehelele'i Beach Access Driveway.

	1.8	Continue to procure services for landscaping, trash and litter disposal, and related activities until long-term staffing is secured and programs developed.
	1.9	Secure base yard and office space to support HHMP operations.
	1.10	Procure heavy equipment and landscaping tools for grounds and trail maintenance.
	1.11	Establish a DLNR Working Group, comprised of key DLNR staff responsible for HHMP Area management, to meet regularly to coordinate HHMP implementation.
CORE STRATEGY	**2.0 Protect the sense-of-place.**	
ACTIONS	2.1	Work with governmental agencies and the community to:
	2.1.1	Discourage upland land uses that may threaten the HHMP Area's cultural, natural, and aesthetic resources.
	2.1.2	Ensure that infrastructure and facilities are appropriate (context sensitive) and will not spur urbanization of the HHMP Area and diminish its sense-of-place.
	2.1.3	Encourage the preservation of the Honolua Bridge as a one-lane bridge in keeping with the bridge's historic character.
	2.1.4	Prepare a comprehensive signage plan to ensure that signs are installed in a coordinated fashion and are designed to be respectful of the HHMP Area's sense-of-place.
	2.1.5	Foster and maintain wild and scenic character.
	2.1.6	Minimize improvements, construction, and development.
CORE STRATEGY	**3.0 Create a safer environment.**	
ACTIONS	3.1	Natural hazards
	3.1.1	Ensure that lands within the HHMP Area within audible range of a tsunami warning siren.
	3.1.2	Install context sensitive signage in low-lying areas to alert users to move uphill in case of a tsunami or earthquake. Signs near Honolua Bay should indicate what direction on the highway is a preferred evacuation route.
	3.1.3	Install context sensitive signage in flood-prone areas to warn users of the risks associated with flash floods.
	3.2	Marine hazards
	3.2.1	Understand how the seasons affect the ocean activities for swimmers. For example, the risk for shark bites is highest during the Manō's pupping season which occurs in the late summer and fall months. Traditional Hawaiian ecological knowledge warns of danger for swimmers during these months.
	3.2.2	Install context sensitive signage warning users of: A. Ocean hazards including swell, currents, rogue waves, and strong winds; and B. Risks associated with swimming in tide pools.
	3.3	Trails and vegetation
	3.3.1	Install context sensitive signage to direct users away from steep slopes and unauthorized trails.
	3.3.2	In consultation with an arborist, regularly trim trees that may pose a safety hazard.
	3.3.3	Prepare a comprehensive trails plan. Some trails may be developed and maintained, while other trails may remain unimproved.
	3.3.4	Develop a trail maintenance program to keep trails safe, and to discourage hikers from wandering off trails and into hazardous as well as culturally sensitive areas.
CORE STRATEGY	**4.0 Manage the impact of human activities.**	
ACTIONS	4.1	Manage the number of people using the HHMP Area.
	4.1.1	Limit the number of non-residents visiting Honolua Bay to appropriate levels.
	4.1.2	Prepare and adopt administrative rules to establish criteria and procedures to limit commercial activities to the following: A. Governmental agencies and nonprofit organizations conducting the activity for the primary purpose of generating revenue to support HHMP implementation. B. Organizations contracted by the State of Hawai'i, or its authorized representative, to perform services supporting HHMP Implementation or the management of the HHMP Area (landscaping, parking management, maintenance, etc.).
	4.2	Increase user security.
	4.2.1	Provide on-site management to discourage property theft, trespassing, squatting, and other undesirable activities.
	4.2.2	Create a hotline for reporting concerns and complaints.
	4.2.3	Limit user access to appropriate locations and hours with exceptions for legally protected native Hawaiian traditional and customary practices.
	4.2.4	Encourage State funding for additional DOCARE staff to support enforcement activities.
	4.3	Educate users of responsible stewardship behavior.
	4.3.1	Provide adequate context sensitive signage with DLNR kokua rules, public access hours, and emergency phone numbers.
	4.3.2	Develop digital and on-site context sensitive signage to educate users of stewardship best practices.
	4.3.3	Train and support citizen volunteers to conduct citizen patrols.
	4.3.4	Consider establishing a docent and ambassador program to assist with education.
	4.3.5	Establish an interpretive program to educate users of the HHMP Area's historical, cultural, and natural importance.
	4.4	Keep the HHMP Area free of trash and litter.
	4.4.1	Provide context sensitive signage to discourage littering and dumping.

	4.4.2	Provide rodent-proof trash cans that incorporate source separation for recyclables.
	4.4.3	Continue to support programs for regular trash removal and disposal of bulky items.
	4.4.3.1	Organize community-based vollunteer cleanups.
	4.4.3.2	Work with the Maui County Department of Environmental Management to address regional needs for bulky item disposal.
	4.5	Encourage the State DOT to manage bicycling along Honoapiʻilani Highway so the cyclists do not jeopardize public safety.
CORE STRATEGY	**5.0 Protect and Restore Cultural Resources.**	
ACTIONS	5.1	Gather the names of the Wahi Pana. Document the meaning and significance of the names. Utilize context sensitive signage to educate users of the meaning and significance of the place names.
	5.2	Use Hawaiian language place names, rather than English monikers, whenever possible.
	5.3	Restore and perpetuate the generational knowledge of the native Hawaiian starting with outreach to and education of Hawaiʻi's local keiki.
	5.4	Consider stewardship agreements and/or partnerships to re-establish mahiʻai traditions of the Honolua area (e.g. ʻuala, kalo).
	5.5	Identify, re-establish, and revitalize areas historically important for native Hawaiian gathering.
	5.6	Recognize the traditional connection between Halawa Molokaʻi and Punalau (Keonehelele'i) regarding schools of mano and hihimanu and the importance Keonehelele'i as a hammerhead and hihimanu nursery.
	5.7	Prepare an archaeological monitoring plan for Honolua Bay, and have it reviewed by the SHPD, prior to any work in the Honolua Bay area.
	5.8	Consider stewardship agreements and/or partnerships for care taking and maintaining the archaeological sites within the HHMP Area.
	5.9	Within both the Honolua Bay area, and the coastal fringe of Kulaokaʻeʻa, undertake archaeological monitoring as a precautionary measure during construction-related ground altering activities.
CORE STRATEGY	**6.0 Protect and Restore Natural Resources.**	
ACTIONS	6.1	Prepare a vegetation management plan that will provide the following: A. Detailed mapping of appropriate areas for flora and fauna protection and restoration. B. Strategies, actions, and cost estimates to: 1. Protect and restore native ecosystems along the coastal fringe from Honolula Bay to Honokōhau Bay. 2. Reintroduce appropriate native and canoe plants in the riparian forest of Honolua Bay. 3. Plant appropriate vegetation for the restoration of Honolua Stream and to manage sediment. 4. Manage hazardous trees. 5. Restore Kulaokaeʻa's fallow agricultural land through the planting of native grasses and shrubs and other appropriate vegetation to reduce erosion and the discharge of sediment into Honolua Bay.
	6.2	Prepare a seabird habitat restoration plan to identify and map areas for seabird habitat restoration, identify appropriate areas for predator-proof fencing, and prepare a detailed work program and budget to support plan implementation.
	6.3	Actively protect and restore native flora and fauna assemblages. A. Control predators in native ecosystem restoration areas including use of predator-proof fences and other effective methods. B. Control and prohibit feeding of feral ungulates, feral cats, and other feral animals. C. Restore native ecosystems according to the Vegetation Management Plan (Action 6.1) D. Develop and implement a comprehensive trails plan to allow shoreline access while protecting native vegetation. Designate and monitor paths to the beach and along the coastline. Use natural buffering and other means to impede the use of inappropriate footpaths through sensitive habitat. E. Use wooden posts connected with barrier ropes to protect sensitive areas. F. Educate users, and surrounding property owners, of the impact of light pollution on native seabird populations. G. Prohibit the use of artificial lights except by permit to maintain dark skies. H. Maintain early detection and control of incipient invasive species.
	6.4	Support the protection and restoration of marine ecosystems.
	6.4.1	Support the implementation of the Honolua-Mokulēʻia MLCD Conservation Action Plan (CAP). See Appendix A.2.
	6.4.2	Improve coastal water quality.
	6.4.2.1	Minimize sources of land-based pollution into the Honolua - Mokulēʻia MLCD and other coastal waters.
	6.4.2.2	Work with watershed managers to develop data on the frequency, quantity, and quality of freshwater flow from the Honokōhau watershed including the Pōhakupule and Punaha gulches.
	6.4.2.3	Work with watershed managers to determine the primary sources of sediment and nutrient inputs into Honolua Bay.
	6.4.2.4	Implement measures to reduce erosion and sedimentation through vegetation management and other means identified through the "Honolua Bay / Līpoa Point Erosion and Sedimentation Stormwater Management Report" and the "WEST MAUI WATERSHED PLAN: Kahana, Honokahua and Honolua Watersheds Strategies and Implementation Report."
	6.5	Education
	6.5.1	Establish a program to educate local keiki and ocean recreationists of appropriate stewardship practices.
	6.5.2	Provide context sensitive signage to promote proper stewardship of the HHMP Planning Area's natural resources.
	6.5.3	Use digital media and other means to illustrate the important functions of the HHMP Area's natural resources and explain proper stewardship practices and activities that should be avoided.
	6.6	Seek and develop opportunities to acquire fee title to adjacent lands to support and improve the success of the HHMP.

VISION	**HONOLUA BAY PLANNING AREA** **The traditional landscape and connections between Honua'ula Heiau and Honolua Bay have been restored. Honolua Stream brings life to native Hawaiian mahi'ai traditions and practices. The stream's biota has been restored. Invasive trees and plants have been replaced with plants important for habitat restoration and native Hawaiian traditional and customary practices. Honolua Bay's waters are clean and provide a nursery for marine life.** **Access to the bay is managed. The bay is peaceful, quiet, and resilient. Residents and visitors enjoy Honolua Bay's beauty, while respecting the bay's historical, cultural, and natural wonders. Honolua Bay is revered for its clean water. Honolua touches our hearts and educates us about Hawaiian culture and ecology. Honolua is a shining example of how to restore an ahupua'a.**	
CORE STRATEGY	**7.0 Strengthen Honolua Bay's cultural integrity and resilience while providing managed, safe access.**	
ACTIONS	7.1	Partner with the lineal descendants of Honolua and Honokōhau, the Save Honolua Coalition, and other interested parties to:
	7.1.1	Re-establish the traditional landscape and connections between Honua'ula Heiau and Honolua Bay while understanding that the modern landscape and environment has evolved from the time of the kupuna.
	7.1.2	Remove the non-indigenous trees and plants and simultaneously replace them with appropriate native plants (e.g., popolo, aalii, lauhala, pohuehue, ilima, naupaka) used in laau lapaau and other traditional uses.
	7.1.3	Where appropriate, establish and restore lo'i kalo for food production and sediment retention within the riparian zone of Honolua Stream.
	7.2	Establish a controlled, interpretive, and environmentally sustainable pathway from the parking lot to Honolua Bay. Where appropriate, portions of the pathway may be in the form of an elevated boardwalk to minimize erosion and protect environmental resources. A. Include a component to educate users of Honolua Bay's history, cultural significance, and restoration area values and functions. The interpretive pathway may include theme plantings for educational and cultural considerations, such as a canoe plant grouping and a grouping of endemic and indigenous plants that are used for native Hawaiian sustenance and handicrafts. B. Control pedestrian use along the pathway with existing java plum logs, posts, rope, context sensitive signage, native vegetation, and exclusion barriers (stumps, snags, branches). The intent is to prevent pedestrians from wandering off the pathway and trampling sensitive cultural and natural resources. C. Decommission the informal trails leading from Honoapi'ilani Highway and plant the trails over with native vegetation or vetiver. D. Where appropriate, place signs at the beginning of decommissioned trails explaining why the trails are not access points to Honolua Bay and providing directions to the interpretive pathway and controlled trail(s).
	7.3	Identify and address safety issues associated with the ongoing use of the boat ramp by swimmers and snorkelers.
	7.4	Provide Hawaiian culture and marine education opportunities.
	7.5	Protect and restore Honolua stream.
	7.5.1	Plant the northern bank of Honolua Stream, from the access parking lot to the mouth of Honolua Bay, with appropriate vegetation to slow sheet flow from the access trail, and to capture sediment before it enters the stream. Restore the stream's natural biota. This subaction should be accomplished in accordance with the Vegetation Management Plan.
	7.5.2	Work with mauka landowners to identify and remediate sources of sediment in Papua Gulch, which connects to Honolua stream mauka of Honoapi'ilani Highway, and is a major contributor of sediment to Honolua Bay.
	7.6	Purchase the abutting 9.1-acre parcel (TMK: (2) 4-2-004:032) from ML&P.
	7.7	Manage the number of people accessing Honolua Bay to protect the area's resources and to protect the user experience.
	7.7.1	Using the input collected through the HHMP planning process, establish a daily cap on the number of non-resident visitors accessing the bay from Honoapi'ilani Highway to ensure visitor use does not exceed the bay's available infrastructure, burden Honolua and Honokōhau residents, and diminish the area's sense-of-place. Other tools to manage the number of people using the bay may include parking capacity limits, reservations, service fees coupled with an entrance gate where the number of users is counted and controlled, and other similar management tools.
	7.7.2	Consider establishing a system to warn drivers before they arrive at Honolua Bay of the availability of parking.
	7.8	Consider management approaches to close Honolua Bay for defined periods to "rest" the natural environment, and to provide Hawai'i State residents with an opportunity to enjoy a less congested and more peaceful user experience.
	7.9	Manage parking areas to protect resources and public safety. A. Improve the existing parking area with low impact design (LID) techniques and a drainage swale to capture sediment from the parking area. B. Accommodate Americans with Disability Act (ADA) accessible stalls for management staff, and an active loading zone within the existing parking area. C. Strictly prohibit and enforce any commercial activities, tours, and buses from entering the parking area or otherwise dropping visitors at the HHMP Area.
	7.10	Coordinate with the State Department of Transportation (DOT) to use signage and pavement striping to discourage illegal parking along Honoapi'ilani Highway.
	7.11	Encourage the Maui County Police Department to ticket, or tow, vehicles parked illegally along Honoapi'ilani Highway.
	7.12	Using the management data collected through Action 1.5, conduct a follow-up evaluation of the visitor cap established in Subaction 7.7.1 to consider whether the visitor cap should be adjusted. In addition, evaluate whether a new shuttle parking lot located along the mauka portion of the Līpoa Point Access driveway, and intended to serve visitors to Honolua Bay, is desired. If such a parking lot is desired, use the data collected through Action 1.5 to determine the appropriate number of stalls for the parking lot.
	7.13	Provide ADA accessible portable toilents at the Honolua Bay access parking lot.
	7.14	Add covered or rodent-proof trash cans that incorporate source separation for recyclables, at the Honolua Bay access parking lot and at the bay.

VISION	**KULAOKA‘E‘A & LĪPOA POINT PLANNING AREA** **Kulaoka‘e‘a is a place of natural, windswept beauty. Native shrubs and grasses manage soil erosion, restore soil quality, and provide a refuge for native wildlife.** **Kulaoka‘e‘a is an important place for traditional gathering and cultural practices. Kulaoka‘e‘a’s coastal fringe is a popular nesting site for endangered native seabirds. This coastline is rich in native coastal plants and is known as a model restoration site.**	
CORE STRATEGY	**8.0 Kulaoka‘e‘a & Līpoa Point – heal and restore the area’s natural and cultural resources and improve its resilience to climate change.**	
ACTIONS	8.1	Restore and rehabilitate Kulaoka‘e‘a‘s agricultural lands. A. Plant the fallow agricultural lands with native shrubs, trees, and grassess. B. Remediate fallow pineapple lands of plastic, chemicals, and other contaminants.
	8.2	Flora Restoration A. Restore and protect native plant communities along the coastal fringe from Pōhakupule to Punalau, at Punalau Point, and at Kamane. This subaction should be accomplished in accordance with the Vegetation Management Plan (subaction 6.1). B. Remove aggressive non-native ironwood trees around the richest pockets of remnant plants, and institute a selective weeding program. C. Provide supplemental plantings of native species from nearby coastal areas to increase the area’s plant diversity. D. Install adequate context sensitive signage to educate the public of the importance of native plants and proper stewardship practices. E. At Kamane, selectively trim naupaka to help the target plants in the area, including native panicum grass (Panicum fauriei var. fauriei) and schiedea (Schiedea globose).
	8.3	Seabird habitat restoration. Establish seabird restoration areas to protect and restore native seabird colonies along the coastal fringe. This subaction should be accomplished in accordance with the Seabird Habitat Restoration Plan (Subaction 6.2). A. Remove predators from seabird restoration areas. B. Utilize social attraction techniques such as decoys, bird calls, and man-made burrows to attract native birds to the restoration area. C. Utilize technology such as game cameras to track visits by birds and predators. D. Prohibit lighting in the project area that would disrupt seabird populations.
	8.3.1	Where appropriate, install predator-proof fences that are tall enough to prevent animals from jumping over, have a hood to prevent animals from climbing over, include mesh that is small enough to keep mice out, and have a skirt that prevents animals from digging under. Place pedestrian gates where the fence crosses formal trails to allow appropriate access to the coast consistent with the vegetation management plan, to include protection of existing species and vegetation, as well as reintroduction of species that have been extirpated. Where predator-proof fences are used they will be designed to manage shoreline access consistent with the comprehensive trails plan.
	8.4	Manage access to Kulaoka‘e‘a’s coastal fringe and tableland to protect sensitive natural and archaeological resources.
	8.4.1	Provide marked trails needed to support management activities and the protection of native flora and fauna, archeological features, and other sensitive resources. Decommission inappropriate trails by blocking them with stags, and planting them with native vegetation, or vetiver grass, to discourage their use.
	8.4.2	Place signs at the beginning of decommissioned trails notifying the public that the trails are closed.
	8.5	Reduce sedimentation into coastal waters. A. Decommission legacy pineapple roads and plant them over with native species or vetiver grass. B. Utilize water bars, bioswales, and kickouts to divert water from legacy agricultural roads to detention basins. C. Restore and enhance existing retention basins so they perform as originally intended. Add new basins as needed. D. Remove sediment deposits, head cuts, and debris from natural flow ways. E. Plant slopes susceptible to erosion with native species that will hold and stabilize the soil.
	8.6	Improve the Līpoa Point Access Driveway and parking with Low Impact Development (LID) techniques. A. Grade the driveway and parking away from the cliff so the water and sediment flow away from Honolua Bay and so the driveway is better protected from erosion. Provide a path between the makai side of the driveway’s parallel parking, and the cliff, to accommodate pedestrians with surfboards. Maintain roughly the same number of parking stalls as exist prior to the driveway improvements. B. Install water bars for roughly every six feet of elevation drop to direct water and sediment away from Honolua Bay. C. Install a bioswale on the makai side of the access driveway to capture and filter water collected from the driveway. Install a berm on the mauka side of the driveway to direct stormwater away from the ocean. D. Install kickouts and detention basins within Kulaoka‘e‘a, northeast of the driveway, to capture water and sediment diverted into the bioswale. E. Plant native grasses, shrubs, or vetiver on the makai side of the driveway along the top of the cliff to stabilize the cliff, filter water, and capture sediment. F. Enhance driveway ingress and egress from Honoapi‘ilani Highway, particularly for emergency vehicles.
	8.7	Place signs at strategic locations to: (a). discourage snorkelers from accessing Honolua Bay from cliffside trails along the Līpoa Point Access Driveway; and (b). inform the public that the cliff-side trails from the Līpoa Point Access Driveway to Honolua Bay are hazardous and that those using the trails do so at their own risk.
	8.8	Place new ADA accessible portable toilets at an appropriate location along the Līpoa Point Access Driveway.
	8.9	Add covered or rodent-proof trash cans that incorporate source separation for recyclables at appropriate locations along the Līpoa Point Access Driveway.
	8.10	Provide a helipad for emergency evacuations, in an appropriate location.

VISION	KEONEHELELE‘I BEACH PLANNING AREA Keonehelele‘i Beach is a serene, wilderness beach with a sandy shoreline. Native plants thrive along the low cliffs east of the beach. The carefully managed beach provides a peaceful respite for fishing, native Hawaiian gathering, picnicking, camping, and relaxing.	
CORE STRATEGY	**9.0 Protect and restore Keonehelele‘i Beach’s natural and cultural resources while providing managed, safe access.**	
ACTIONS	9.1	Improve the Keonehelele‘i Beach Access Driveway and parking with Low Impact Development (LID) techniques and a bioswale to capture sediment.
	9.2	Support a small, well-managed campground, with priority access for Hawai‘i residents.
	9.3	Restore native flora. This subaction should be accomplished in accordance with the Vegetation Management Plan (subaction 6.1). A. Restore and protect the endangered awiwi (Schenkia sebaeoides), the ulei (Osteomeles anthyllidifolia), and other native plants. B. Remove ironwood, guinea grass, and other invasive plants and weeds and create an ongoing weeding program. C. Supplement the existing native plants with additional native plants to promote plant diversity.
	9.4	Mitigate shoreline erosion. A. Remove ironwoods, and other invasive trees along Keonehelele‘i Beach, and simultaneously replant the area with climate-adapted shade species such as milo or beach heliotrope. B. Plant appropriate native plants and bushes to stabilize the shoreline.
	9.5	Reduce Sedimentation. A. Camping area. 1. Plant naupaka, or other appropriate native shoreline vegetation, at the edge of the camping area. 2. Decommission informal trails by blocking them with stags and replanting them with native vegetation to discourage their continued use. 3. Designate and design appropriate access trails to the beach. 4. Plant the edges of the campground walking path with native vegetation or vetiver to slow sheet flow and capture sediment. B. Plant the hillslope with appropriate native vegetation to anchor the soil.
	9.6	Provide covered or rodent-proof trash cans that incorporate source separation for recyclables.
	9.7	Provide ADA accessible portable toilet(s).
	9.8	Preserve in place State sites 50-50-01- 8533 and -8535 and prepare a Burial Treatment Plan (BTP) for these sites, in consultation with SHPD.

Appendix A.2: Target Viability, Indicators, and Condition

(The following monitoring and evaluation indicators were developed through the 2020 Honolua-Mokulēʻia MLCD Conservation Action Plan.)

1. Reef Habitat: Key Ecological Attributes, Indicators, and Ranking

Key Attribute	Indicator	Poor Condition	Good Condition	Current Condition
Coral cover	% coral cover on hard bottom at CRAMP sites	0-10%	40-74%	Poor
Coral health	Coral disease/mortality	Lots of coral disease, bleaching, partial colony mortality	Some/low coral disease, bleaching, partial colony mortality	Fair
Coral recruitment	Average density	> 5 baby corals	17-30 baby corals	Poor
Reef builder ratio	Ratio of calcifying species to non-calcifying species	< 1:25	> 1:1	Fair
Structural complexity	Rugosity	1	3 to 4	Good
Water clarity	Water clarity/ turbidity	< 50% of time clear. ≤ 30ft visibility	80% of time clear. 50-80ft visibility	Fair
	% days/year the water is brown	30-100% of the time	5-15% of the time	Poor
	Metric tons of sediment entering Honolua Bay/yr	≥ 90 metric tons of sediment/yr	≤ 22 metric tons of sediment/yr	Poor
Fresh water inputs	Subsurface and Surface Flow	0-10%	Consistently fresh water flowing	Good

2. Fish: Key Ecological Attributes, Indicators, and Ranking

Key Attribute	Indicator	Poor Condition	Good Condition	Current Condition
Total reef fish biomass inside MLCD	Grams/meter^2 inside MLCD	> ~40	~80-120	Good
Total reef fish biomass outside MLCD	Grams/meter^2 outside MLCD	> ~40	~80-120	Poor
Fish size class structure (includes prime spawners)	Grams/meter^2	> 7	~15-25	Good
Herbivore Biomass	Grams/meter^2	≥ 10	30-80	Good
Reef Predator Biomass	Grams/meter^2	0-0.25	0.75-2	Fair
Akule Abundance/Frequency	School size and frequency	Infrequent/small school size	Frequent, large school size	Fair

3. Protected Species: Key Ecological Attributes, Indicators, and Ranking

Key Attribute	Indicator	Poor Condition	Good Condition	Current Condition
Size of dolphin pod, duration and consistency of time in the bay	Observation of pod; size of pod; duration and consistency of time spent in bay	Dolphin pods are rarely or sporadically sighted in bay for short periods	Dolphin pods spotted in the bay much (e.g. 50%) of the year; pod size	Fair
Size of reef manta ray group, duration and consistency of time in the bay	Observation of group; size of group; duration and consistency of time spent in bay	Manta rays are rarely or sporadically sighted in bay for short periods	Manta rays spotted in the bay much (e.g. 50%) of the year; group size 12	Good
Size of sea turtle (green and hawksbill) group, duration and consistency of time in the bay and tumor prevalence	Observation of group; size of group; duration and consistency of time spent in bay	Sea turtles are rarely or sporadically sighted in bay for short periods	Sea turtles spotted in the bay much (e.g. 50%) of the year; group size 20	Good
Presence/absence of tumors on sea turtles	Tumor prevalence	Tumors regularly (> 25%) seen on turtles	Tumors sometimes (> 5%) seen on turtles	Good
Presence/Absence of Active Cleaning Station(s)	Presence/Absence of cleaner wrasses	Cleaner wrasses are absent from the bay	Cleaner wrasses present in the bay	Good

4. **Natural and Cultural Experience:** Key Ecological Attributes, Indicators, and Ranking

Key Attribute	Indicator	Poor Condition	Good Condition	Current Condition
Calm, quiet enjoyment	Degree of crowding: # of people (not surfers) in water at any given time at peak use time	Majority of users (> 50%) report crowding conditions	Few users (< 10%) report crowding conditions	Poor
	Degree of crowding: # of commercial tour boats in the water at peak use time	Majority of users (> 50%) report crowding conditions	Few users (< 10%) report crowding conditions	Poor
	Degree of anthropogenic noise at peak use time	Users oftendon't hear noises of nature (e.g. waves, wind, birds); loud or intrusive noises often present	Users mostly hear sounds of nature (e.g. waves, wind, birds); loud or intrusive noises rarely heard	Fair
Resident public access/condition	Degree of access of Maui residents at peak use time	Majority of users report inabilityto access the area (parking, moorings, trail)	Majority of users report ability to access the area (parking, moorings, trail)	Fair
User knowledge of natural and cultural history, practices, and protocols	Basic knowledge of key ecosystem processes, species, place names, and cultural heritage	Most users (>75%)donot have basic knowledge of most factors	Most users (> 75%)have basic knowledge of most factors	Poor
Opportunity for cultural use	Presence/absence of Hawaiiancultural practitioners	Hawaiian cultural practitioners have very limited or no access to area	Hawaiian cultural practitioners have abilityto access area	Fair
	Priority accessfor voyaging canoes	Voyaging canoes do not have access to area	Voyaging canoes have priority access to area	Fair
	Inter-generational learning taking place	Hawaiian families connected to that placesdon't teach kids bc crowded	Hawaiian families teach kids aboutplace and resources	Fair

Appendix A.3: The Place Name Meanings of the HHMP Area

The following excerpt is from cultural and historical research conducted by ʻĀina Archaeology in support of the preparation of the HHMP.

> “A study of the place name meanings for the study area may yield some insightinto the stories, patterns of life and land use within Honolua and Honokōhau Ahupuaʻa (Figure 3-3). The place names listed below are for land areas, fisheries, land divisions, markers, and otherresources specific to Honolua and Honokōhau. These areas were identified through research of the Māhele ʻĀina documents and other available historic literary resources which include the Hawaiian Government and Territorial Survey Maps (Dodge 1885; Ho 1940), the USGS Topographic 7-Minute and 15-Minute Series Maps (U.S. Geological Survey 1992, 1997), as well as, consultation with *kamaʻāina* and *kūpuna* of the region. Unless indicated otherwise, the spelling, orthography, and definitions are derived from Pukui and others (1974).
>
> While the *kaona* (hidden meaning) and literal definitions of many of the place names seem to have been lost to time, the definition for place names that we do have help to add to an understanding of the environment and resources of Honolua and Honokōhau. Many of the placenames include species of plants that may have been gathered for household or supplementary subsistence purposes such as Huakukui, Kahauiki, Kamani/Kamane, Kaohe, and Kiula. Referencesto the abundance of the ocean and nearshore environments are also reflected in names that incorporate species of *limu* like Līpoa and Lipu/Lipuʻu, types of fish like Kalaepiha, or characteristics of the shoreline like Keawalua, Kepuhi, Honolua, and Honkōhau. The agricultural abundance and variety of cultigens of the area may also be noted in the place name of Ohiapoko/ʻŌhiʻapoko and Puʻu Kāʻeo, as well as a particularly interesting tree species that couldeither be poisonous or a type of pepper plant (Pānīoi). Finally, reverence to the spiritual realm isnoted in overall name of Kahalawai for the West Maui mountain range and the place named forKanaloa, one of the four principle gods of Hawaiian religion who is associated with the sea and voyaging (Beckwith 1970:61-62)”.
>
> **ʻĀina Archaeology, *(2019)***

PLACE NAME	PLACE NAME MEANING
ʻApōpō	A possible reference to “tomorrow”, perhaps related to pō, night,since the Hawaiian “day” began at nightfall (Pukui and Elbert 1986)
Alaelae (*lae*)	Having a number of capes or points (Pukui and Elbert 1986)
Anakaluahine (*gulch*)	*Lit*. Cave [of] the old lady
Elekini (*ʻili*)	An *ʻili* name associated with LCA 4743:1, Makaukau; LCA 6145-PNapuaihe; LCA 5610:2 Kalama; no currently known definition
Haua	To whip or to chastise (Andrews, 1922). *Lit*. smitten
Hikiapo (*ʻili*)	An *ʻili* name associated with LCA 3924:3 Nakupala; no currentlyknown definition
Honokōhau (*ahupuaʻa, village, stream, falls, bay, and hill*)	*Lit*. bay drawing dew
Honolua *(land section, village, bay, winter surfing area, stream, mountain)*	*Lit*. Two harbors
Huakukui	Candlenut fruit (Pukui and Elbert 1986)
Kaakepa	Kaakepa – diagonal; to avoid, shy away from, take a short cut (Pukuiand Elbert 1986)
Kaapilopilo	Pilopilo – polluted water (Pukui and Elbert 1986)
Kaea / Kaʻea?	Point in Honolua. Also called Ka Lae o Kaʻea; an *ʻili* name associatedwith LCA 4708:1, Mahuka; no currently known definition
Kahalawai (*mauna*)	The center or principal point of; a place where the *kahuna*, priests, performed his official duties, offered prayers; regions in the unseen where the gods are supposed to abide (Andrews 1922:235).Kahalawai is the name of the mountain range commonly referred to as West Maui Mountains
Kahauiki (gulch, *ʻili*)	*Lit*. the small *hau* tree ; An *ʻili* name associated with LCA 5139:1, Lala
Kahikinui (*ʻili*)	An *ʻili* name associated with LCA 4743:2, Lala; no currently knowndefinition

PLACE NAME	PLACE NAME MEANING
Kahooulu	*Wahi ʻinoa* (place name), no currently known definition
Kaimoʻoaliʻi, Kamoʻouli, or Kuimoʻoaliʻi	Associated with LCA 5665:1 to Keaweiki but has also been written as Kamoʻouli like in claims associated with LCA 7250:1 to Malule and Kuimoʻoaliʻi in claim associated with LCA 5760; no currently known definition
Kalaepiha Point	Perhaps at this point, there was an abundance of this type of fishLae – point (Pukui and Elbert 1986) Piha – A type of fish (*Spratelloʻides delicatulus*) (Pukui and Elbert 1986)
Kalaulaula (Kalaulaolao?)	*Wahi ʻinoa*, no currently known definition; possibly another spelling of Kalaulaolao which is the name of the flatlands Honokōhau to the east of Honokōhau River (see Section 3.1.2)
Kalili / Kalila?	*Lit*. the jealousy
Kaluanui	*Lit*. the big pit
Kamane	Coastal area in Honolua; possible variation of *kamani* (*Calophylluminophyllum*)
Kamani (*ʻili*)	A slow growing canoe plant and member of the mangosteen family (*Calophyllum inophyllum*) that grows along sandy shores and lowlandforests; an *ʻili* name associated with LCA 7383, Paniani; 6145-U:2, Kenui; 4744:1, Mailou.
Kamoouli	Perhaps a reference to a particular type of *kalo* was grown Moo – a narrow strip of land, smaller than an *ʻili* (Pukui and Elbert1986) Uli – A variety of dark or brown taro (Andrews 1922)
Kanaloa	Named for Kanaloa, one of the four principle gods of Hawaiianreligion
Kaneloa (*ʻili*)	Tall kāne; An *ʻili* name associated with LCA 7250:1 Kaahupahao, LCA5619:2, Kaahaku
Kaneneilio	An *ʻili* name associated with LCA 6145-U::1, Kenui; no currently knowndefinition
Kanounou Point	*Lit*. the pelting (as of the sea)
Kaohe (*ʻili*)	*Lit*. The bamboo ; An *ʻili* name associated with LCA3802:3; 3692:1; 6602:2
Kapaeulua	*Wahi ʻinoa*, no currently known definition
Kaua	An *ʻili* name associated with LCA6139:2, Napeahi; 5776:2, Kaahanui; the term *kaua* is a reference to warfare or fighting between two armies (Andrews 1922)
Kaulanakoloa	Kaulana – resting place (Pukui and Elbert 1986) Koloa – Hawaiian duck (*Anas wyvilliana*) (Pukui and Elbert 1986)
Kauwahine	A maid servant (Andrews 1922); perhaps a variation of *wāhine kaua* who were women who were trained in warfare and accompanied their men into battle or *kāula wāhine* who were prophets and extremely rare in Hawaiian society (Pukui et al. 1972:110)
Keahau (*ʻili*)	An *ʻili* name associated with LCA 5768:4 Kalalau; LCA 6145-P:1; 5927:1, Palaualelo; LCA 5776:1 Kaahanui; no currently known definition
Keahua (*ʻili*)	*Lit.* The mound ; An *ʻili* name associated with LCA 5826:2; LCA 6031:1(noted as Keahua I); 5826:1, Kamaka
Keauhou	*Lit*. the new era or the new current
Keawalua	*Lit*. the double channel
Kepuhi	*Lit*. the blowhole (Clark 2002)

PLACE NAME	PLACE NAME MEANING
Kikalahai	*Wahi ʻinoa*, no currently known definition
Kiki	*Wahi ʻinoa*, no currently known definition
Kiula	Perhaps a reference to a particular type of *ki* (*Cordyline fruticosa*)Ki – ti Ula - red
Kumukea	Perhaps in reference to the *kea* tree (*Mezoneuron kauaiense*) (Pukuiand Elbert 1986)
Līpoa	Named for certain brown seaweeds
Lipu / Lipuʻu	Perhaps short for *lipuupuu* an edible green seaweed (V*alonia utricularis*) also known as *kukae-o-Kamapuaa* (Pukui and Elbert 1986);An *ʻili* name associated with LCA 5927:2, Palaualelo; 6145-N:2, Napauna.
Makaa (*ʻili*)	Definition varies depending on placement of diacritical markings
Malili	To be withered as fruit or to be calmed as a storm (Andrews 1922)
Maluaka	An *ʻili* name associated with LCA 6145-N:1, Napauna; no currentlyknown definition
Manokiei	*Wahi ʻinoa*, no currently known definition
Manokiekie	*Wahi ʻinoa*, no currently known definition
Mi*loʻi*ki	*Wahi ʻinoa*, no currently known definition
Mokuleia / Mokulēʻia	*Lit*. Isle [of] abundance
Moomaka / Moʻomuku?	Cut off land section
Nakalele Point	*Lit*. the leaning
Niula (*ʻili*)	An *ʻili* name associated with LCA 6145-M:1, Helee; no currently knowndefinition
Ohiapoko / ʻŌhiʻapoko	Perhaps short *ʻōhiʻa*; a variety of taro, native variety of sugar cane, ora reference to food patches during famine where people lived off of upland *ʻōhiʻa ʻai* (mountain apple), ti, and sweet potato; also a possible reference to the *ʻōhiʻa lehua* tree.
Pahihi	*Lit*. entangled enclosure, to stream, as water over a cliff (Pukui and Elbert 1986); native testimony for claim 4243-C refers to the *ʻili* as Pahihi in Honolua
Pahua	Downtrodden, as grass where cattle have stamped (Pukui and Elbert1986), perhaps a historic era *wahi inoa*
Pakahea (*ʻili*)	An *ʻili* name associated with LCA 4243-C Kauwewahine; no currentlyknown definition
Pakihi (*gulch*)	Pakihi – border fence, to touch lightly in passing
Pānīoi	Pa – an enclosure (Pukui and Elbert 1986) Nioi – a tree that is said to be poisonous, could also be a pepper plant(Andrews 1922) An *ʻili* name associated with LCA 6145-H, Aua; LCA 5129, Kino; LCA5761, Kamakaipooa;LCA 4698:1-2, Laelua; LCA 5211, Pahia; LCA 4743:2, Makaukau
Papahao (*ʻili*)	An *ʻili* name associated with LCA 4243-D:4, Makaole; no currentlyknown definition
Papua (*gulch*)	*Lit*. flower enclosure or baby fish enclosure
Pauoa	A fern (*Dryopteris squamigera*) (Pukui and Elbert 1986)
Pelekane (*ʻili*)	An *ʻili* name associated with LCA 6137(9):1, Napeahi; no currentlyknown definition

PLACE NAME	PLACE NAME MEANING
Pohakilele	
Pohakupule (*gulch*)	*Lit*. prayer rock ; boundary corner between Honolua and HonokōhauAhupua‘a
Pu‘u Kā‘eo	*Lit.* Full, as a food calabash. *Fig*., full of knowledge (Pukui and Elbert1986)
Pu‘u Kīlea	*Lit*. small but conspicuous hill
Pu‘u Kukui	*Lit*. candlenut hill; may be also a poetic reference to the appearance of the planet Venus rising over the highest point of the West Maui (Mr. Foster Ampong, personal communication)
Puaakea	Perhaps referring to white clouds the covered the mountain summit Pua‘a – while *pua‘a* translates to pig, a second meaning refers to *pua‘a* as banks of fog or clouds, often as gathered over a mountain summit (Pukui and Elbert, 1986) Kea – white (Pukui and Elbert 1986); an *‘ili* name associated with withLCA 3931 to Naiwimawaho which is located *makai* in the Honolua Ahupua‘a
Puiwa / Pū‘iwa	*Lit*. Startled
Punaha (*gulch*)	*Lit*. broken conch
Punalau (*wahi ‘inoa*, *‘ili*)	*Lit*. Many springs : LCA 6138:2; 6145-R:1
Puu o Kaopuu	*Lit*. the budding hill
Puuloli (*‘ili*)	An *‘ili* name associated with LCA 7391 and 5593 to Paaoao and Kapulerespectively; o currently known definition
Waioio (*‘ili*)	An *‘ili* name associated with LCA 3692:2 to Manuwa; o currentlyknown definition
Maumea	*Wahi ‘inoa*, no currently known definition
Kauila	*Wahi ‘inoa*, no currently known definition
Keaukaia	*Wahi ‘inoa*, no currently known definition
Kahooulu	*Wahi ‘inoa*, no currently known definition
Pelekane (*‘ili*)	An *‘ili* name associated with LCA 6137(9):1, Napeahi; no currentlyknown definition
Pohakilele	
Pohakupule (*gulch*)	*Lit*. prayer rock ; boundary corner between Honolua and HonokōhauAhupua‘a
Pu‘u Kā‘eo	*Lit.* Full, as a food calabash. *Fig*., full of knowledge (Pukui and Elbert1986)
Pu‘u Kīlea	*Lit*. small but conspicuous hill
Pu‘u Kukui	*Lit*. candlenut hill; may be also a poetic reference to the appearance of the planet Venus rising over the highest point of the West Maui (Mr. Foster Ampong, personal communication)
Puaakea	Perhaps referring to white clouds the covered the mountain summit Pua‘a – while *pua‘a* translates to pig, a second meaning refers to *pua‘a* as banks of fog or clouds, often as gathered over a mountain summit (Pukui and Elbert, 1986) Kea – white (Pukui and Elbert 1986); an *‘ili* name associated with withLCA 3931 to Naiwimawaho which is located *makai* in the Honolua Ahupua‘a

PLACE NAME	PLACE NAME MEANING
Puiwa / Pūʻiwa	*Lit*. Startled
Punaha (*gulch*)	*Lit*. broken conch
Punalau (*wahi ʻinoa, ʻili*)	*Lit*. Many springs : LCA 6138:2; 6145-R:1
Puu o Kaopuu	*Lit*. the budding hill
Puuloli (*ʻili*)	An *ʻili* name associated with LCA 7391 and 5593 to Paaoao and Kapulerespectively; o currently known definition
Waioio (*ʻili*)	An *ʻili* name associated with LCA 3692:2 to Manuwa; o currentlyknown definition

Table A.3-1: *Table of place names and their associated meanings. From* ʻĀina Archaeology, 2019.

Figure A.3-1: *Aerial photo (Esri et al. 2018) showing currently known place names within and adjacent to the HHMP Area. From* ʻĀina Archaeology, 2019.

Appendix A.4:

Honolua-Mokulēʻia
Marine Life Conservation District

Conservation Action Plan

A guidance document for adaptive management

Table of Contents

Acknowledgments

The Conservation Action Planning project team deeply thanks all those involved in the planning process, including community members, scientists, agency representatives, and conservationists. Without their continued support, valuable input, and feedback, we could not have captured the collaborative vision for the sustainable future of Honolua-Mokulēʻia Marine Life Conservation District presented here.

Mahalo To Our Funders

The Nature Conservancy, Hawaiʻi Tourism Authority, County of Maui Office of Economic Development, and the National Oceanic and Atmospheric Administration's Coral Reef Conservation Program.

The development of this report was supported by The Nature Conservancy under awards NA16NOS4820106 and NA17NOS4820073 from the National Oceanic and Atmospheric Administration's (NOAA) Coral Reef Conservation Program, U.S. Department of Commerce. The statements, findings, conclusions, and recommendations are those of the author(s) and do not necessarily reflect the views of NOAA, the Coral Reef Conservation Program, or the U.S. Department of Commerce.

Suggested Citation

Division of Aquatic Resources. 2020. Honolua-Mokulēiʻa Marine Life Conservation District Conservation Action Plan. State of Hawaiʻi, Department of Land and Natural Resources, Division of Aquatic Resources. Wailuku, Hawaiʻi.

Executive Summary

This Conservation Action Plan was developed using The Open Standards for the Practice of Conservation, a science-based approach for planning, implementing, and measuring the impacts of management activities supported by a worldwide network of conservation coaches. It reflects our current best thinking and highest priorities and will be adapted to changing circumstances to improve strategy effectiveness and achieve greater impacts.

Designated as a Marine Life Conservation District (MLCD) in 1978, Honolua and Mokulēʻia Bays are adjacent bays along the northwestern coast of Maui. The MLCD protects 45 acres of nearshore marine habitat where protected species, the beautiful coral reef, and abundant fish attract high levels of human use. Long-term trends at the MLCD suggest that important features and qualities of the area are changing and are cause for concern.

Five conservation targets on which to focus management efforts were identified:

1. Reef habitat
2. Fish
3. Protected species
4. Community relationship with the MLCD
5. Natural and cultural experience

To improve the conservation targets, the four highest rated threats were determined:

1. Increased ocean temperature
2. Legacy in-stream sediment
3. Overcrowding and high human use
4. Overfishing in surrounding areas

Priority conservation objectives and actions were developed to improve targets and address threats laid out in this plan:

IMPROVE REEF HABITAT

Objective 1: Starting now, reduce annual sediment input into Honolua Bay from 2016 levels (91 metric tons/year) by 50% by 2030, and by 90% by 2040.

INCREASE FISH ABUNDANCE, BIOMASS, AND DIVERSITY

Objective 2: Sustain long-term community benefits by increasing the biomass of reef fish outside the MLCD boundary from Makāluapuna Point to Līpoa Point by 300% by 2030.

REDUCE IMPACTS TO PROTECTED SPECIES

Objective 3: Understand and protect conditions needed for protected species (Hawaiian spinner dolphins, reef manta rays, and sea turtles) to engage in optimal behaviors in the MLCD by 2025.

IMPROVE COMMUNITY MLCD ENGAGEMENT

Objective 4: Increase and maintain community involvement in MLCD management by 2022.

IMPROVE NATURAL AND CULTURAL EXPERIENCE

Objective 5: Reduce the number of people within the MLCD and surrounding areas at peak times to a sustainable level (to be determined by carrying capacity study) by 2025 in order to reduce negative impacts to resources and people.

Vision

The development of this Conservation Action Plan was guided by this vision:

"We want to see a future MLCD that has clean water flowing from the mountains, is a peaceful place for community to gather and enjoy, and where marine resources are abundant and reflective of a healthy ecosystem benefitting from management."

Guiding Principles

The Honolua-Mokulēʻia MLCD is part of an initiative to effectively manage Hawaiʻi's nearshore waters, including improving the capacity and coverage of enforcement, strengthening the State's marine management infrastructure, supporting community-based marine management, and systematizing marine monitoring. Thus, the development of this CAP was also inspired by the State of Hawaiʻi's Marine 30x30 Guiding Principles to achieve effective management of 30% of Hawaiʻi's nearshore ocean waters by 2030.

STATE OF HAWAIʻI'S MARINE 30X30 GUIDING PRINCIPLES

Economic

Prioritize areas and resources that are important to the livelihoods and food supply of residents • Maintain access to places key to sustainable subsistence and/or livelihood pursuits • Support and develop sustainable and diverse ocean-based economies when consistent with effective management • Minimize conflicts between current and future economic use in the nearshore environment by recognizing and upholding the public trust • Build coastal resilience through natural resource protection

Social

Manage resources guided by Native Hawaiian traditions, beliefs, practices, and values • Ensure equitable access to sustainable marine resource use and enjoyment • Manage natural resources that are important to the cultural heritage of Hawai'i • Promote sustainable use to ensure the long-term enjoyment of ocean recreation for local residents • Manage in a way that promotes social cohesion and resilience • Recognize the diverse intangible benefits that the ocean provides

Ecological

Protect habitats and species with key functional roles • Protect habitats and species likely to be more resilient to climate change • Care for special or unique habitats and areas • Protect areas that are important to focal species during all life stages • Protect a diversity of habitats • Integrate marine managed areas within a broader management framework • Integrate local expertise, traditional knowledge, and understanding of the ecology into planning • Consider ecological and cultural connectivity between mauka and makai • Give special consideration to species that are vulnerable to over-exploitation

Governance

Recognize and consider the interests of all ocean stakeholders • Recognize the needs, values, and interests of the broader society and future generations consistent with the public trust doctrine • Use an open, transparent, consultative process • Manage areas with clear, appropriate, transparent, and consistent rules • Manage adaptively by tracking progress, evaluating results, and refining actions accordingly • Ensure sufficient human, financial, and other resources for management and enforcement • Build in conflict resolution systems • Ensure easy violation reporting and rapid response by enforcement officers • Provide opportunities for direct public involvement in effective management • Promote coordination and knowledge sharing among stakeholders, partners, and sites within the network

Planning Process

The Hawaiʻi Department of Land and Natural Resources (DLNR), Division of Aquatic Resources (DAR) on Maui is the lead agency on this Conservation Action Plan. DAR's mission is to manage, conserve, and restore Hawaiʻi's unique aquatic resources and ecosystems for present and future generations. The planning process was coached by staff from The Nature Conservancy (TNC) and Applied Conservation LLC, with support from the Hawaiʻi Tourism Authority, Office of Economic Development, and the National Oceanic Atmospheric Administration's Coral Reef Conservation Program. This plan was developed by a multidisciplinary project team who convened at three workshops from December 2018 to April 2019 as part of a peer planning and learning process with two other marine sites, Mānele-Hulopoʻe Marine Life Conservation District and a proposed marine management area in Lāhaina, to increase effective management of Hawaiʻi's marine areas.

The project team used the Open Standards for the Practice of Conservation (OS) to develop this Conservation Action Plan (CAP), a powerful process to guide conservation teams to develop focused strategies and measures of success. Utilizing the CAP/OS process provided practitioners with a common approach and language for conservation planning and the opportunity for candid exchange and peer review. It allowed for an objective, consistent, and transparent accounting of conservation actions and the intended and actual outcomes of conservation projects. It will enable project staff to adapt their actions to improve strategy effectiveness and achieve greater conservation impacts.

Photo: TNC (Manuel Mejia)

Honolua-Mokulēʻia MLCD CAP Team Members

The project team members are: Russell Sparks, DAR; Ronald Cahill, Division of Conservation and Resource Enforcement (DOCARE); Paul Sensano, Division of Boating and Ocean Recreation (DOBOR); Tova Callender, West Maui Ridge to Reef Initiative (R2R); Kerrie Littlejohn, University of Hawaiʻi and DAR; Ananda Stone, Save Honolua Coalition; Kainoa Pestana, Puʻu Kukui Watershed Preserve; and Pomaikaʻi Kaniaupio-Crozier, Puʻu Kukui Watershed Preserve. Emily Fielding and Alana Yurkanin of TNC convened the group and provided process coaching and document preparation.

Photo: TNC (Manuel Mejia)

Site Description

Honolua-Mokulēʻia MLCD General Area Description

Honolua and Mokulēʻia Bays are adjacent bays along the northwestern coast of Maui. The area was designated as a Marine Life Conservation District in 1978 and protects 45 acres of nearshore marine habitat. The MLCD is located in the Honolua Ahupuaʻa which is part of the Kāʻanapali Moku (**Figure 1**).

Coral Reef Ecosystem

Within Honolua Bay, fringing reefs extend along the northern and southern shorelines between depths of 10-40ft (3-13m). Lobe corals (*Porites* spp.) are abundant along the northern shoreline, and rice corals (*Montipora* spp.) are more commonly found along the southern shoreline. A gradually sloping sand channel sits in the middle of the bay between the fringing reefs, reaching a depth of about 60ft (20m) at the mouth of the bay. An area of silt, sand, and boulders extends across the shoreline and shallow waters. There is surface freshwater discharge from the perennial Honolua Stream and from Papua Gulch, which is dry except during periods of high rainfall. There is normally a continuous ground water discharge near the edges of the fringing reefs on both sides of the bay (Sparks et al., 2015).

Mokulēʻia Bay is southwest and adjacent to Honolua Bay and the bottom is mostly sand with submerged boulders and fingers of lava rock occurring on both points. The shoreline alternates between a sandy beach with a shallow sand bar extending well out into the bay and a rock beach with a rocky substrate, the latter state being the result of winter storms which wash away the sand that collects within the bay during the summer.

Photo: TNC (Chad Wiggins)

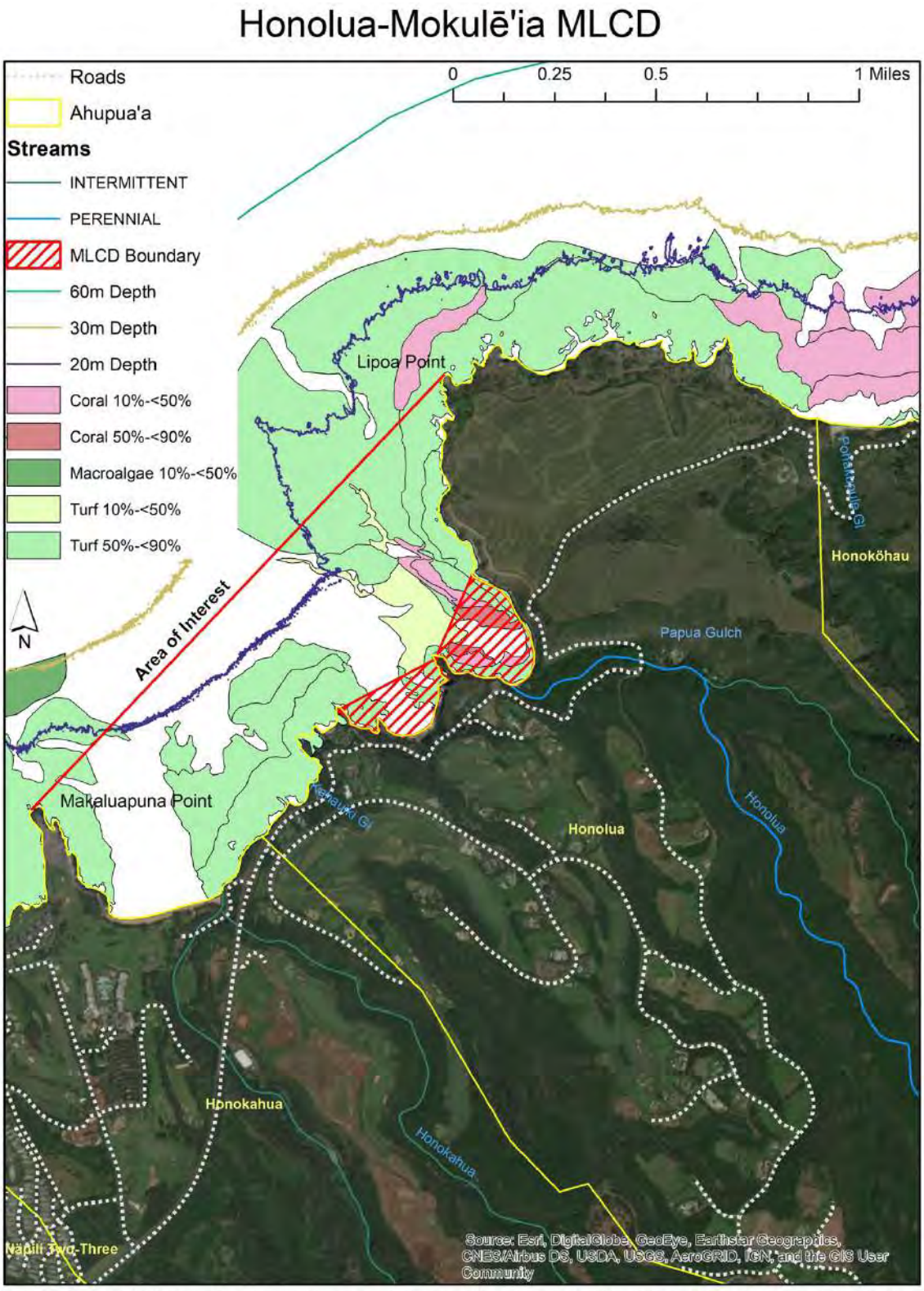
Shoreline Uses

The protected species, beautiful coral reef, and abundant fish attract high levels of human use within and around the MLCD. Surveys conducted in 2005-2006 found that visitors to Honolua Bay by land are mostly (93.5 percent) non-residents from the mainland U.S. and a few from other countries, not counting surfers. Visitors engage in commercial and non-commercial recreational activities, accessing the bay by land and sea (Courtney, 2007).

Highly dependent on weather and sea conditions, the primary recreational activities at Honolua Bay are snorkeling, SCUBA diving, and surfing, with minimal kayaking and sailboat activity. Whereas snorkelers and beach goers prefer visiting in summer months, surfers frequent Honolua in the winter and typically access the surf from Līpoa Point (Courtney, 2007). Commercial tour boats regularly visit and moor at Honolua Bay. The bays are an important gathering place for Native Hawaiian lineal descendants of the area and local families. There are no public restroom facilities, freshwater, electricity, or public telephone. Access to the bay is limited due to a lack of legal parking.

Fishing is fully prohibited within the Honolua-Mokulēʻia MLCD. Poaching is likely to occur, but there are no data regarding how often it occurs and whether or not it is a significant threat to the fish resources in the area. Fishing is a legal and a common activity along Līpoa Point just north of the MLCD boundary and that could have impacts on some of the fish within the MLCD which likely move back and forth across this boundary.

Figure 1. Map of the Honolua-Mokulēʻia MLCD, the area of interest covered in this CAP, and surrounding area including benthic marine habitat and stream types.



Citations: Maui County, DLNR Division of Aquatic Resources & Division of Forestry and Wildlife, Office of Hawaiian Affairs, NOAA 2007, USGS
Map by Roxie Sylva (Feb. 2020)

Honolua-Mokulēiʻa MLCD Rules

Permitted activities:

- To possess aboard any boat or watercraft any legal fishing gear and fish or other aquatic life taken outside of the District.
- To possess in the water any knife and any shark billy, bang stick, powerhead or carbon dioxide injector.
- With a permit, to bag and remove akule netted outside of the District, provided the net is moved only over the sandy bottom areas of the District, and to engage in activities otherwise prohibited by law for scientific, propagation, or other purposes.

Prohibited activities:

- To fish for, take or injure any marine life (including eggs), or possess in the water any device that may be used for the taking of marine life, except as indicated in permitted activities above.
- To take or alter any sand, coral, or other geological feature or specimen, or possess in the water any device that may be used for that purpose.

History

Honolua, meaning "two bays," is an area of significant cultural and historical importance. Archaeological artifacts and structural remains from both early Hawaiian habitation and plantation use have been extensively studied and mapped out by the Bishop Museum in 1974 and re-surveyed in 2006 (Komoto, 2009). Thirteen sites have been identified in Honolua including the Honuaʻula Heiau in Honolua, boulders with grinding surfaces, house platforms/burial mounds, agricultural terraces/house platforms, and midden deposits containing evidence of human settlement. Findings indicate that the early Hawaiian inhabitants of Honolua Valley conducted dry-land agriculture and harvested the productive inshore marine resources of the area during a time when ahupuaʻa management sustained the livelihoods of Hawaiian families. The plateau overlooking Honolua Bay was called "Kulaokaʻeʻa" meaning "plain of dust". This area was once a hill with a hōlua slide until it was graded for growing pineapple (DLNR-DOSP, 2018).

By the early 1900s, the Honolua Plantation camp was established within Honolua Valley, and people there farmed crops such as coffee beans, aloe, mango, and taro. During this time the bay was heavily used as a port for Honolua Ranch, which operated a slaughterhouse and pig farm on the hill between Honolua and Mokulēʻia Bays. By 1920, the ranch and plantation were renamed Baldwin Packers, establishing themselves as the largest private label producer of pineapples and pineapple juice in the United States with over 9,000 acres of pineapple in cultivation (Kapalua Land Company, 2017). In three short years, Baldwin Packers came to own and manage over 22,000 acres in west Maui. In 1969, Maui Land and Pineapple Company was created after Baldwin Packers merged with Maui Pineapple Company.

Photo: TNC (Alana Yurkanin)

1976 was a historic year for Honolua Bay as the location where the voyaging canoe, Hōkūleʻa, set sail on her maiden journey for Tahiti with master navigator Mau Pialiug and crew using traditional voyaging techniques to cross over 2,500 miles of ocean in 31 days. Hōkūleʻa was welcomed in Papeete by a crowd of 17,000 Tahitians celebrating their long-distance journey, and the revitalization of a 600-year dormant voyaging heritage (PVS, 2020).

Photo: TNC (Alana Yurkanin)

In 1978, 45 acres of Honolua and Mokulēiʻa Bays were designated as a Marine Life Conservation District. The same year, Kapalua Resort was established. Ten years later, 8,304 acres of land including Puʻu Kukui, the highest point of Mauna Kahālāwai (West Maui Mountains), were placed into conservation by Maui Land and Pineapple Company who granted a permanent conservation easement to The Nature Conservancy, creating Hawaiʻi's largest privately-owned nature preserve.

Photo: Russell Sparks

Prior to 1978, Honolua and Mokulēiʻa Bays were an important fishing ground for local residents and Native Hawaiians. A thriving commercial akule fishing operation was also successfully run out of Honolua Bay for several years in the mid-1900s (DLNR-DOSP, 2018).

Beloved by residents and visitors alike, in 2007, the local community formed Save Honolua Coalition to protect lands at Honolua and Līpoa Point from the threat of the development of 40 luxury homes and a golf course. Over the next seven years, the community worked alongside Hawaiian Islands Land Trust, Surfrider Foundation, ʻAha Moku o Kāʻanapali, the County of Maui, and several politicians to pass a bill authorizing the purchase of the area (DLNR-DOSP, 2018).

In 2014, the State of Hawaiʻi purchased the 244-acre Līpoa Point property from Maui Land and Pineapple Company for $19.5 million (HILT, 2014). DLNR, with leadership from the Division of State Parks and a private consulting firm, is in the process of developing a Management Plan for the Makai Lands of Honolua and Honokōhau Ahupuaʻa (DLNR-DOSP, 2018). A stakeholder working group and DLNR Divisions were convened in four working group meetings between June and August 2019. Next steps include reviewing a draft plan with the stakeholder working group and DLNR Divisions, followed by a public open house and comment period. The plan will assist DLNR in establishing management objectives and policies and in identifying appropriate agencies and organizations to consult with in the implementation of management. Since the scope of the planning process does not include the MLCD, this CAP and the Management Plan for the Makai Lands of Honolua and Honokōhau Ahupuaʻa are expected to complement one another.

Purpose and Need

Long-term trends at Honolua-Mokulēi'a MLCD suggest that important qualities of the area are changing and are cause for concern. For instance, on reefs monitored in west Maui, there have been declines in coral cover of approximately 30-75% over the past 30 years and associated increases in macroalgal and turf algal cover (Chaston & Oberding 2007; Jokiel et al., 2004), the greatest surveyed decline being in Honolua Bay. According to the Coral Reef Assessment and Monitoring Program (CRAMP) and DLNR-DAR (1999-2007), between 1995 and 2005, coral cover decreased from 42% to 9% within the Honolua-Mokulēi'a MLCD.

Photo: Don McLeish

Photo: David L. Moore

Photo: TNC (Chad Wiggins)

High turbidity and sedimentation in the bay has been observed consistently since 1974 (Chaston & Oberding, 2007), diminishing water quality, which in turn is believed to contribute to several negative long-term impacts, such as the decrease in coral cover and the diminished success of larval recruitment (Brown, 2004; PIFSC, 2017).

When the Bays are not turbid, up to 800 visitors a day have been observed recreating in the waters, raising concerns over crowding, overuse, and the detrimental effect that has on the experiences of both residents and visitors, the cultural and natural landscape of the area, and the MLCD's ability to withstand natural and anthropogenic stressors (PIFSC, 2017), including impacts from climate change.

Fish abundance and biomass, while high in the MLCD, is poor in surrounding areas of interest, which negatively affects fishing catch (Minton et al., 2020).

Within the Honolua-Mokulē'ia MLCD, the largest management challenges are associated with climate change, sedimentation, overcrowding, and resource extraction, which contribute to reductions in water quality, marine resource abundance, the quality of a peaceful place-based experience, and overall coral reef health (Friedlander et al., 2018). This plan seeks to revisit and revitalize management efforts to reduce the decline in the vitality of the coral reef ecosystem and cultural landscape that make the Honolua- Mokulē'ia MLCD so unique and special.

Targets: What We Are Protecting

Within the Honolua-Mokulēʻia MLCD and surrounding areas of interest (**Figure 1**), five conservation targets (the features, ecosystems, species, and processes of the area that are the primary focus of management) were identified: reef habitat, fish, protected species, community relationship with the MLCD, and natural and cultural experience. Nested targets are the species and other entities that would benefit from protecting the conservation targets. The status of each conservation target was assessed according to key ecological attributes (KEAs) that are essential for long-term viability and health (**Appendix A**). Viability was assessed by assigning values along a three-part scale: poor, fair, and good. Each target is assigned a current ranking as well as a future ranking with and without effective action (**Table 1**). This CAP focuses on actions to move the target from its present state to a preferred future state.

Table 1. The five priority conservation targets, nested targets, and current and projected future status with and without action. This CAP focuses on changing the current status of these targets to the future health with effective action.

Targets	Nested Targets	Current Status	Future Health Without Action	Future Health With Action
Reef Habitat	Coral, sandy bottom, rock, boulder, punawai, and muliwai habitat	Fair/Poor	Poor	Good/Fair
Fish	Inside MLCD reef fish and nearshore pelagic fish assemblages	Good	Fair	Good
	Outside MLCD reef fish and nearshore pelagic fish assemblages	Poor	Poor	Good/Fair
Protected Species	Spinner dolphins, reef manta rays, and green and hawksbill sea turtles	Good/Fair	Fair	Good
Community Relationship with MLCD	Governance	Good/Fair	Good/Fair	Good
Natural and Cultural Experience	Calm, quiet enjoyment of natural and cultural landscape (place names, archaeology, natural process, physical sites, historical events), resident access, cultural practice, and voyaging canoe use	Fair/Poor	Poor	Good/Fair

Target 1: Reef Habitat

This conservation target extends from the shore to between 60-90ft (20-30m) in depth. Nested targets include coral reef, sandy bottom, rock, boulder, punawai (springs), and muliwai (estuary) habitats. The MLCD reef environment is considered to be extremely diverse and productive and has been hailed as an excellent example of coral reef development on the northwestern side of the island. A study by Friedlander et al. (2006) found that 12% of the submerged land in the MLCD is covered in coral, equating to nearly 5.4 acres – one of the highest coral coverage sites on the island of Maui. The other predominant benthic habitats are categorized as 41% turf algae, 35% sand/silt, and 6% macroalgae. The study also found total coral cover was higher in the MLCD than in the surveyed open area by 4%, due to higher percent cover of *Porites lobata* in the MLCD (Friedlander et al., 2006). Honolua Bay may also be a sink for coral larvae originating from Olowalu (Storlazzi & Field, 2008) during favorable conditions and seasons, given the bay's orientation. However, Honolua has experienced a dramatic (~75%) decline in live coral cover since 1990, appearing to be a gradual drop in health due to consistent stressors, as opposed to the result of a single event (Chaston & Oberding, 2007; Dollar & Grigg, 2004; PIFSC, 2017).

Photo: TNC (Chad Wiggins)

Target 2: Fish

Fish live throughout the MLCD and surrounding areas. Nested targets include reef fish and nearshore pelagic fish like akule. The area's extensive and complex coral reef habitat serves as important recruitment grounds for reef fish, growing in abundance and size within the MLCD and "spilling-over" to surrounding areas open to fishing. The Honolua-Mokulēiʻa MLCD is considered to have one of the highest measures of fish biomass compared to other areas surveyed in west Maui (Minton et al., 2020). Herbivores, like parrot fish and surgeon fish, account for 61% of fish biomass, followed by 36% carnivorous and omnivorous species, and 3% apex predators like jacks and sharks, the latter being ten times greater within the MLCD than open areas. Species richness, biomass, and diversity was found to be higher within the MLCD compared to surrounding areas open to fishing across all habitat types, with biomass being almost twice as high in the MLCD, especially over colonized hardbottom areas (Friedlander et al., 2006).

Photo: TNC (Chad Wiggins)

Photo: Russell Sparks

Photo: Trilogy Excursions

Photo: Dan Dennison

Photo: Hawaiian Paddle Sports

Target 3: Protected Species

Spinner dolphins, reef manta rays, and green and hawksbill sea turtles are protected species that frequent the MLCD. Hawaiian spinner dolphins (*Stenella longirostris*) spend their nights feeding offshore and their days in coastal waters and sheltered bays to rest and recuperate, nurture their young, and socialize behaviors that support population health. This behavior makes them one of the most easily encountered cetaceans in Hawaiian waters, consequently making them vulnerable to disturbance and harassment (NOAA, 2016). Hawai'i's threatened green sea turtles (*Chelonia mydas*) rest in several areas along the north and south reefs, with most observed along the northwestern section of Honolua Bay on the reef crest just inside the MLCD boundary (DLNR-DOSP, 2018). Reef manta rays (*Mobula alfredi*) are another protected species that may be vulnerable to human disturbance and precautionary management is recommended in areas with growing tourism and human use (Venables et al., 2016).

Target 4: Community Relationship with the MLCD

Community involvement is essential to conservation success. Thus, this target is focused on active and meaningful engagement of the community in stewardship of the MLCD, including families with ancestral connections. One of the ways the community can be involved in resource management is through an active, diverse, and organized stakeholder advisory group.

Target 5: Natural and Cultural Experience

What are people's natural and cultural experience at the MLCD - Do they experience calm, quiet enjoyment? Are residents able to access the area in addition to visitors? Do residents and visitors appreciate the cultural landscape (e.g. history of the area, place names, archaeological sites)? Do they have basic knowledge of key ecosytem processes, species, Hawaiian place names, and cultural heritage? Because of the high levels of human use in the MLCD, it is imperitive to maintain opportunities for quiet, calm access by Hawaiian cultural practitioners and for local familial practices of passing on knowledge of the place to the next generation, as well as accessibility for Hawaiian/Polynesian voyaging canoes. The natural and cultural experience is a target focusing on revitalizing and protecting the conditions that once made Honolua and Mokulēʻia Bays places where traditional and customary practices were respected, and where all people experience calm, quiet enjoyment and learning, benefitting both people and place.

Threats to Our Targets

Each conservation target is impacted by specific threats. Twelve threats were identified and ranked using specific criteria (**Table 2**). The four highest rated threats were: increased ocean temperature, legacy in-stream sediment, overcrowding and high human use, and overfishing in surrounding areas. Strategies to address local stressors are designed to also increase the area's resilience to climate change. We used in depth threat analyses to help identify priorities for developing conservation strategies.

Table 2. Threat Ranking for the twelve threats identified across priority conservation targets.

Threats Across Targets	Reef Habitat	Fish	Protected Species	Natural and Cultural Experiences	Community Relationship with MLCD	Overall Threat Rank
Increasing temperature/coral bleaching	Very High		High			High
Legacy in-stream sediment + storms/drought	Very High		High			High
Noise from people/ boats in the water			Medium	Very High		High
Number of boats in the water			Medium	Very High		High
Number of people in the water			Medium	Very High		High
Legal fishing within a mile of the MLCD		Very High				High
Overcrowding/high human use		Low	High	High		High
Continued loss of reef habitat		High	Medium			Medium
Increasing pH	High					Medium
Nearshore sediment resuspension	High					Medium
More people diving at cleaning stations			High			Medium
Ungulate-induced sediment	Medium					Low

*The stress is rated in terms of the severity (the level of damage the resource could reasonably expect within 10 years under the current circumstance), and the scope (very widespread to very localized that would be expected within 10 years under the current circumstance). The source of the stress was rated in terms of contribution (is the source acting alone to cause the stress or is it a low contributor to the particular stress?), and irreversibility (the degree to which the effects of a source of stress can be restored). Each of the criteria (severity, scope, contribution, and irreversibility) was ranked on a four-point scale: low, medium, high, and very high.

Threat 1: Increased Ocean Temperature

One of the major characteristics of climate change that can impact the marine resources within the MLCD is increasing sea surface temperature (SST). Increasing SSTs due to climate change have increased the frequency and severity of coral bleaching events in Hawaiʻi and globally. In Hawaiʻi, SSTs have increased 0.22 °F per decade, and this number is likely to rise (SOEST, 2008). When coral is under severe stress, it turns white from the loss of its symbiotic, photosynthetic algae called zooxanthellae, a condition referred to as "bleaching" (Hoegh-Guldberg, 1999). Zooxanthellae provide corals with over 90% of their energy and loss of symbionts can result in reduced growth and reproduction, and potentially death (NOAA, 2020). Peak SSTs in 2015 resulted in significant coral bleaching and mortality, reducing coral cover by over 30%, and surveys conducted in 2019, another summer that experienced elevated SSTs, found ~10% of corals were bleached (Oliver et al., unpublished data; Winston et al., 2020). By mitigating the threats of sediment, high human use, and overharvest, we help the MLCD increase resiliency to withstand and persist through globally driven climate changes.

Threat 2: Legacy In-Stream Sediment

Since 1974, consistent high turbidity and sediment deposits in Honolua's inner bay have been observed and recorded (Chaston & Oberding, 2007). Honolua Bay is a sink for storm runoff and sediment eroded from upland areas deposited by Honolua Stream, its tributaries, and Papua Gulch.

Photo: Bill Rathfon

While Honolua Stream is considered perennial with continuous flow, Papua Gulch is an intermittent tributary that drains into Honolua Stream about 50% of the year (DLNR-DOSP, 2018). A recent Honolua Bay and Līpoa Point Scoping Report (DLNR-DOSP, 2018) reveals that "inferior agricultural soil management practices over the last century have led to significant contributions of sediment into the bay and legacy sediment accumulation in gulches that may still contribute to turbidity and water quality impairment." Former agricultural fields, unimproved roads, and bank erosion from historic terraces are likely the largest source of sediment plumes in west Maui (Stock et al., 2015). With this in mind, Papua Gulch is believed to consist of about five miles of impacted gulch, acting as a major source of loose sediment making its way to Honolua Bay during major rainstorm events.

Based on an assessment using empirical data and understanding of geomorphic processes, the USGS estimates that an annual storm would introduce 91 tons of sediment per year, while a decadal storm would introduce 180 tons of sediment into the bay (Stock, publishing pending review). An additional analysis by Kim Falinski used InVEST modeling to estimate that annual sediment exports were on average 600 tons per year, out of a total of 4,100 tons for west Maui watersheds (K. Falinski, personal communication, May 1, 2020). The model results did not explicitly consider legacy sediments, but did consider historical land use as a predictor for poor current cover conditions.

Hui O Ka Wai Ola, a community-based group that regularly monitors water quality at fixed sites, helped to identify and target sites in west Maui with high levels of turbidity and nutrients. Between 2016 and 2018, their data found Honolua Bay to greatly exceed the Hawaiʻi State standard for turbidity of 0.2 NTU (Nephelometric Turbidity Unit) with a geometric mean of 8.33 NTU (**Figure 2**). Honolua Bay also measured the highest values for west Maui, exceeding 50 NTU five times since 2017, even though samples were not specifically timed to correlate with storm events (Falinski et al., 2020)(**Figure 3**).

Figure 2. Hui O Ka Wai Ola water quality findings for Honolua Bay and other west Maui sites.

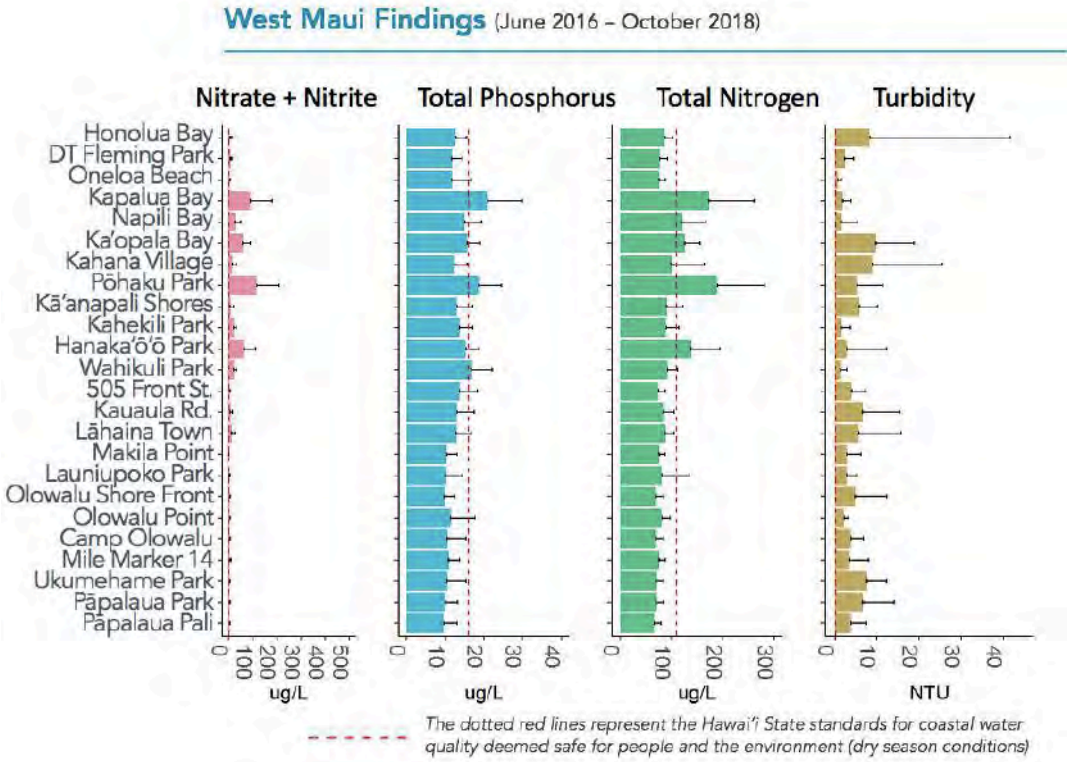
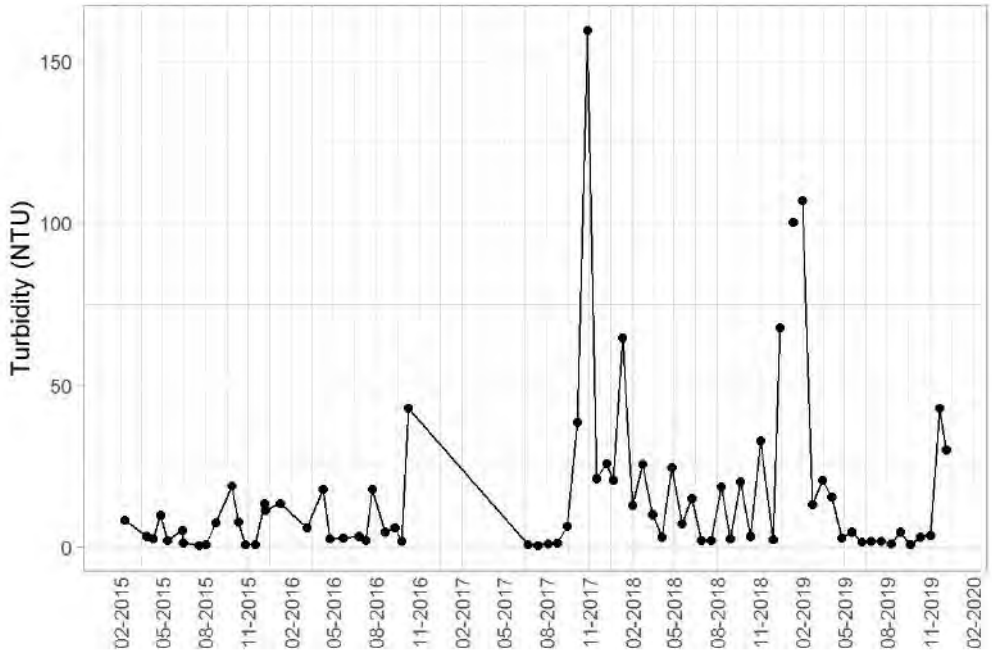


Figure 3. Turbidity over time at Honolua Bay.



Threat 3: Overcrowding and High Human Use

Over 90% of people visiting Honolua Bay are likely visitors (Courtney, 2007). Across the board, increased tourism has led to more commercial and recreational use of coral reefs and nearshore waters, threatening enjoyment and traditional use by local residents. Beaches that were once peaceful are now congested with tourists and water activity rental

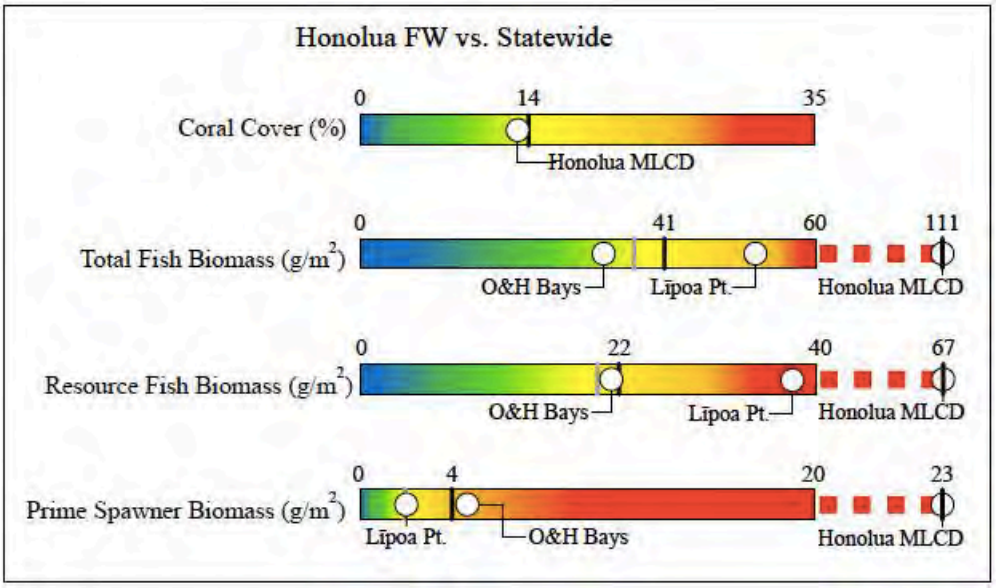
operations, limiting parking and beach access. In addition, recreational and commercial activities such as stand-up paddle boarding, kayaking, snorkeling, diving, and surfing can also result in more direct "strikes" to reefs that damage corals, and can potentially alter marine life behavior (Filous et al., 2017; Gulko et al., 2000; Koike et al., 2018).

Recreational use surveys conducted in the MLCD in 2005 and 2006 found the average number of snorkelers per hour during summer months was 50.7, equaling over 400 snorkelers in an 8-hour day (Komoto, 2009). Records from Honolua Bay naturalists during the summers of 2007-2009 reported 700-800 visitors arriving during six-hour timeframes on numerous occasions (Komoto, 2009). SCUBA divers were observed at 1.6 divers per hour with a maximum of 17 divers observed at one time. Also observed during Courtney's 2005-2006 study were ten 49-passenger commercial tour boats from Kāʻanapali regularly mooring at Honolua Bay, usually visiting between 9am and 2pm for 1.5 to 2 hours. Peak use seasons are February to April, June to July, and November to December. There are 4 legal moorings in the MLCD intended for bow and stern tie ups, but the number of legal and illegal moorings can often double the number of vessels moored in the bays at a time. Studies on displacement effects of human use on coral reef predators (Filous et al., 2017) and Hawaiian spinner dolphins (Courbis & Timmel, 2009) further highlights some negative impacts of tourism.

Threat 4: Overfishing in Surrounding Areas

The West Maui Atlas (Minton et al., 2020) recently pulled together data from surveys conducted by numerous public and private organizations between 1999 and 2018, finding that the Honolua-Mokulēʻia MLCD had the highest total fish biomass - over twice that of the average - for surveyed west Maui sites (**Figure 4**). The effect of the Honolua-Mokulēʻia MLCD on surrounding areas was detectable in the reef fish community, indicating that the harvest regulations within the MLCD are working (Minton et al., 2020). While the MLCD appears to benefit fishes inside the MLCD, and with some resource fish spillover into adjacent reef tracts, fish biomass outside of the MLCD is significantly lower, suggesting overharvest along the border of the MLCD and in surrounding areas.

Figure 4. West Maui Atlas comparison of reef tracts in the Honolua Focus Window (FW) to statewide averages (black vertical line/value) for coral cover and fish biomass. "O&H Bays" stands for Oneloa and Honokahua Bays to the south of Mokulēʻia. (Minton et al., 2020)



Objectives and Strategies

The following five objectives and their subsequent strategies seek to address priority threats and improve the status of reef habitat, fish, protected species, the community relationship with the MLCD, and natural and cultural experience conservation targets.

IMPROVE REEF HABITAT **Objective 1:** Starting now, reduce annual sediment input into Honolua Bay from 2016 levels (91 metric tons/year) by 50% by 2030, and by 90% by 2040.	***Strategies:*** 1.1 Remove legacy sediments from lower Papua Gulch. a. Map out and model opportunities for mechanical removal of bank sediment in concert with micro-basin or other terraced sediment catchment opportunities in lower Papua Gulch (thereby avoiding the amount of sediment-laden water that would mobilize to the ocean), to determine if this would be an effective strategy. b. If this is determined to be an effective intervention, then implement this strategy with landowners and other partners. 1.2 Conduct sediment reduction activities in Papua Gulch, Honolua Stream, and priority surrounding areas. a. Conduct a small-scale pilot project at lower Papua Gulch using bank stabilization methods already researched for use in west Maui to determine if it is feasible and effective for larger scale implementation. b. Plant native species on seven acres at Field 52, and hydro-mulch and/or plant agriculture push piles and barren land along Papua Gulch and Honolua Stream to prevent more soil from washing into streams and gulches. c. Maintain Puʻu Kukui Watershed Preserve's Honolua boundary fence at 400ft elevation and conduct feral ungulate control within the fenced area to prevent soil erosion from the watershed. d. Continue to work with managers of State lands surrounding the MLCD to reduce and prevent sedimentation (see DLNR's Management Plan for the Makai Lands of Honolua and Honokōhau Ahupuaʻa when completed). 1.3 Conduct monitoring to measure changes over time. a. Conduct long-term consistent coral reef monitoring. b. Conduct long-term consistent water quality and turbidity monitoring.

INCREASE FISH ABUNDANCE, BIOMASS, AND DIVERSITY **Objective 2:** Sustain long-term community benefits by increasing the biomass of reef fish outside the MLCD boundary from Makāluapuna Point to Līpoa Point by 300% by 2030.	***Strategies:*** 2.1 Improve reef fish biomass in and around the MLCD. a. Work with community and other stakeholders to establish a potential marine management area adjacent to MLCD from Makāluapuna Point to Līpoa Point (area of interest), emphasizing the role of the MLCD as a beneficial source of spill-over into this area. 2.2 Monitor changes over time to inform management. a. Sustain annual in-water visual survey monitoring efforts of the reef and reef fish both inside and outside the MLCD to measure change over time. b. Conduct fisheries intercept surveys in the areas surrounding the MLCD to inform data-driven management decisions for a potential marine management area.

REDUCE IMPACTS TO PROTECTED SPECIES **Objective 3:** Understand and protect conditions needed for protected species (Hawaiian spinner dolphins, reef manta rays, and sea turtles) to engage in optimal behaviors in the MLCD by 2025.	***Strategies:*** 3.1 Conduct a study to understand behaviors of Hawaiian spinner dolphin pods, reef manta rays, and sea turtles in the MLCD and surrounding areas. 3.2 Understand how human use impacts the behaviors of protected species. 3.3 Incorporate findings into the commercial use permit system, guidance to boaters, educational and outreach guidance for visitors to the MLCD, and other management actions as needed.

IMPROVE COMMUNITY MLCD ENGAGEMENT **Objective 4:** Increase and maintain community involvement in MLCD management by 2022.	***Strategies:*** 4.1 Formalize community involvement in resource management in the MLCD by organizing a stakeholder advisory group to work with DLNR on a regular and ongoing basis (in coordination with DLNR's Management Plan for the Makai Lands of Honolua and Honokōhau Ahupuaʻa). 4.2 Provide opportunities for the community to be involved in meaningful resource management within the MLCD and surrounding lands (in coordination with DLNR's Management Plan for the Makai Lands of Honolua and Honokōhau Ahupuaʻa).

IMPROVE NATURAL AND CULTURAL EXPERIENCE **Objective 5:** Reduce the number of people within the MLCD and surrounding areas at peak times to a sustainable level (to be determined by carrying capacity study) by 2025 in order to reduce negative impacts to resources and people.	***Strategies:*** 5.1 Conduct studies to determine and establish appropriate levels of use and visitation. a. Conduct a social carrying capacity study for the MLCD, balancing the user perceptions of residents, cultural practitioners, and visitors. b. Conduct a study that measures ecological responses of key species to levels of human use in MLCD. c. Conduct a cultural and historical study of the area (using both primary and secondary sources of information). 5.2 Reduce crowding through management tools aimed at lessening stress to marine life and the people who visit the MLCD. a. Develop and implement a Honolua-Mokulēiʻa MLCD commercial use permit system. i. Set boat size and passenger limits. ii. Set maximum limit for number of boats at any given time. iii. Prohibit anchoring by commercial boat operators. iv. Address the need for dedicated non-commercial day-use moorings. v. Develop a system to give preferential treatment for periodic visits by Polynesian/Hawaiian voyaging canoes. vi. Develop materials to educate and encourage commercial operator compliance with permit system. vii. Regulate activities, noise, and other concerns as appropriate. 5.3 Work to reduce human impacts to natural and cultural experience and resources (in coordination with DLNR's Management Plan for the Makai Lands of Honolua and Honokōhau Ahupuaʻa). a. Engage experts and community members to develop and disseminate educational materials and a code of conduct to minimize impact and increase appreciation and awareness of the area and MLCD. b. Explore weekly day(s) of rest for Honolua and Mokulēʻia Bays for all users (e.g. no commercial use on Sundays and holidays following the County's example). c. Explore days where community-engaged stewardship activities take place (e.g. Kuleana Days). d. Explore a community group-State partnership to provide on-site education and management potentially funded by a user fee following a Makai Watch model. e. Explore a limited parking plan.

Monitoring and Evaluation

DLNR-DAR on Maui, the project lead, is supported by the multi-disciplinary CAP team. The CAP team will convene at least once a year through 2025 to develop an annual work plan, oversee implementation activities, review the results of monitoring efforts, and adaptively manage based on the information generated. As needed the team will coordinate with DLNR on the Management Plan for the Makai Lands of Honolua and Honokōhau Ahupuaʻa. The CAP team is committed to both monitoring (assessing progress) and learning (analyzing, adapting, and sharing lessons) to improve conservation in and around the MLCD.

This project seeks to actively monitor changes over time related to both target status and management actions, and to assess whether these changes are achieving our conservation objectives. To this end, the CAP team and partners are collecting and will continue to collect data on a number of indicators that gauge the status of a target, change in a threat, or progress towards an objective. These indicators inform us of the progress made towards accomplishing our objectives over time (**Table 3**). This process enables us to periodically evaluate this CAP and adaptively manage the MLCD by allowing for adjustments to be made based on what we learn from monitoring and implementation. This in turn permits us to capitalize on changing circumstances and crises and contribute new insights and ideas to management.

In five years, the CAP team will review the overall performance of the CAP with respect to stated targets and objectives: identify specific accomplishments, identify failures and shortcomings in the execution of the CAP, assess the validity of the conservation mechanisms and strategies, and formulate recommendations for future action.

Photo: TNC (Manuel Mejia)

Table 3. Monitoring for biophysical and social-cultural indicators.

Honolua–Mokulēʻia MLCD Monitoring for Key Indicators				
Objective	Indicators	Methods	Who	Frequency
1. Starting now, reduce annual sediment input into Honolua Bay from 2016 levels (91 metric tons/year) by 50% by 2030, and by 90% by 2040.	Coral cover	Belt transect surveys	DAR	Annual
	Water clarity/turbidity	DOH quality assured coastal water quality methods	Hui O Ka Wai Ola	Every 3 weeks
		Analyze R2R's shoreline camera data	TBD	TBD
2. Sustain long-term community benefits by increasing the biomass of reef fish outside the MLCD boundary from Makāluapuna Point to Līpoa Point by 300% by 2030.	Total reef fish biomass inside/outside MLCD	Belt transect surveys	DAR	Annual
3. Understand and protect conditions needed for protected species (Hawaiian spinner dolphins, reef manta rays, and sea turtles) to engage in optimal behaviors in the MLCD by 2025.	Size of spinner dolphin pod and frequency; number of reef manta rays and frequency	Drone surveys	TBD	Daily
4. Increase and maintain community involvement in MLCD management by 2022.	Existence and continuance of stakeholder advisory group	Presence/absence	DLNR	Annual
	Number of people involved in MLCD management opportunities	Counts per event	TBD	Ongoing
5. Reduce the number of people within the MLCD and surrounding areas at peak times to a sustainable level (to be determined by carrying capacity study) by 2025 in order to reduce negative impacts to resources and people.	Number of people at peak use times	Count number of people from overlook	DLNR	8 randomly selected days per month

Appendix A: Target Viability, Indicators, and Condition

1. Reef Habitat: Key Ecological Attributes, Indicators, and Ranking

Key Attribute	Indicator	Poor Condition	Good Condition	Current Condition
Coral cover	% coral cover on hard bottom at CRAMP sites	0-10%	40-74%	Poor
Coral health	Coral disease/mortality	Lots of coral disease, bleaching, partial colony mortality	Some/low coral disease, bleaching, partial colony mortality	Fair
Coral recruitment	Average density	> 5 baby corals	17-30 baby corals	Poor
Reef builder ratio	Ratio of calcifying species to non-calcifying species	< 1:25	> 1:1	Fair
Structural complexity	Rugosity	1	3 to 4	Good
Water clarity	Water clarity/ turbidity	< 50% of time clear. ≤ 30ft visibility	80% of time clear. 50-80ft visibility	Fair
	% days/year the water is brown	30-100% of the time	5-15% of the time	Poor
	Metric tons of sediment entering Honolua Bay/yr	≥ 90 metric tons of sediment/yr	≤ 22 metric tons of sediment/yr	Poor
Fresh water inputs	Subsurface and Surface Flow	0-10%	Consistently fresh water flowing	Good

2. Fish: Key Ecological Attributes, Indicators, and Ranking

Key Attribute	Indicator	Poor Condition	Good Condition	Current Condition
Total reef fish biomass inside MLCD	Grams/meter^2 inside MLCD	> ~40	~80-120	Good
Total reef fish biomass outside MLCD	Grams/meter^2 outside MLCD	> ~40	~80-120	Poor
Fish size class structure (includes prime spawners)	Grams/meter^2	> 7	~15-25	Good
Herbivore Biomass	Grams/meter^2	≥ 10	30-80	Good
Reef Predator Biomass	Grams/meter^2	0-0.25	0.75-2	Fair
Akule Abundance/Frequency	School size and frequency	Infrequent/small school size	Frequent, large school size	Fair

3. Protected Species: Key Ecological Attributes, Indicators, and Ranking

Key Attribute	Indicator	Poor Condition	Good Condition	Current Condition
Size of dolphin pod, duration and consistency of time in the bay	Observation of pod; size of pod; duration and consistency of time spent in bay	Dolphin pods are rarely or sporadically sighted in bay for short periods	Dolphin pods spotted in the bay much (e.g. 50%) of the year; pod size _____	Fair
Size of reef manta ray group, duration and consistency of time in the bay	Observation of group; size of group; duration and consistency of time spent in bay	Manta rays are rarely or sporadically sighted in bay for short periods	Manta rays spotted in the bay much (e.g. 50%) of the year; group size 12	Good
Size of sea turtle (green and hawksbill) group, duration and consistency of time in the bay and tumor prevalence	Observation of group; size of group; duration and consistency of time spent in bay	Sea turtles are rarely or sporadically sighted in bay for short periods	Sea turtles spotted in the bay much (e.g. 50%) of the year; group size 20	Good
Presence/absence of tumors on sea turtles	Tumor prevalence	Tumors regularly (> 25%) seen on turtles	Tumors sometimes (> 5%) seen on turtles	Good
Presence/Absence of Active Cleaning Station(s)	Presence/Absence of cleaner wrasses	Cleaner wrasses are absent from the bay	Cleaner wrasses present in the bay	Good

4. Community Relationship with MLCD: Key Ecological Attributes, Indicators, and Ranking

Key Attribute	Indicator	Poor Condition	Good Condition	Current Condition
Community involvement and engagement	Active community participation in stewardship	No active community engagement	Community actively and meaningfully engaged, including families with ancestral connections	Good
Community involvement in resource management	Stakeholder advisory group is recognized, organized	No advisory group	Active and diverse stakeholder advisory group working with DLNR	Fair

5. Natural and Cultural Experience: Key Ecological Attributes, Indicators, and Ranking

Key Attribute	Indicator	Poor Condition	Good Condition	Current Condition
Calm, quiet enjoyment	Degree of crowding: # of people (not surfers) in water at any given time at peak use time	Majority of users (> 50%) report crowding conditions	Few users (< 10%) report crowding conditions	Poor
	Degree of crowding: # of commercial tour boats in the water at peak use time	Majority of users (> 50%) report crowding conditions	Few users (< 10%) report crowding conditions	Poor
	Degree of anthropogenic noise at peak use time	Users often don't hear noises of nature (e.g. waves, wind, birds); loud or intrusive noises often present	Users mostly hear sounds of nature (e.g. waves, wind, birds); loud or intrusive noises rarely heard	Fair
Resident public access/condition	Degree of access of Maui residents at peak use time	Majority of users report inability to access the area (parking, moorings, trail)	Majority of users report ability to access the area (parking, moorings, trail)	Fair
User knowledge of natural and cultural history, practices, and protocols	Basic knowledge of key ecosystem processes, species, place names, and cultural heritage	Most users (> 75%) do not have basic knowledge of most factors	Most users (> 75%) have basic knowledge of most factors	Poor
Opportunity for cultural use	Presence/absence of Hawaiian cultural practitioners	Hawaiian cultural practitioners have very limited or no access to area	Hawaiian cultural practitioners have ability to access area	Fair
	Priority access for voyaging canoes	Voyaging canoes do not have access to area	Voyaging canoes have priority access to area	Fair
	Inter-generational learning taking place	Hawaiian families connected to that places don't teach kids bc crowded	Hawaiian families teach kids about place and resources	Fair

References

Brown, E. 2004. Reef Coral Populations: Spatial and Temporal Differences Observed on Six Reefs off West Maui. Unpublished Dissertation, University of Hawaii Manoa, Honolulu.

Chaston, K., & Oberding, T. 2007. Honolua Bay Review: A review and analysis of available marine, terrestrial and land-use information in the Honolua Ahupuaʻa Maui 1970–2007. Prepared for Hawaii's Land-based Pollution Threats to Coral Reefs Local Action Strategy. State of Hawaii.

Courbis, S., & Timmel, G. 2009. Effects of vessels and swimmers on behavior of Hawaiian spinner dolphins (Stenella longirostris) in Kealakeʻakua, Honaunau, and Kauhako bays, Hawaiʻi. *Marine Mammal Science*, *25*(2), 430-440. https://doi.org/10.1111/j.1748-7692.2008.00254.x

Courtney, C. A. 2007. Recreational Carrying Capacity Evaluation of Honolua Bay. Prepared for Maui, Land and Pineapple Inc by Tetra Tech Inc. 125pp.

Dollar, S.J. & Grigg, R.W. 2004. Anthropogenic and Natural Stresses on Selected Coral Reefs in Hawaii: A Multidecade Synthesis of Impact and Recovery. Pacific Science, 58(2), 281-304.

Department of Land and Natural Resources, Division of State Parks (DLNR-DOSP). 2018. Honolua Bay and Līpoa Point Scoping Report. Prepared by Planning Consultants Hawaiʻi, LLC for the Department of Land and Natural Resources, Division of State Parks. Retrieved from: https://dlnr.hawaii.gov/wp-content/uploads/2019/01/121718Final-Scoping-Report.pdf

Falinski, K., Reed, D., Callender, T., Fielding, E., Newbold, R., & Yurkanin, A. 2020. Hui O Ka Wai Ola Water Quality Data [Data set]. Zenodo. http://doi.org/10.5281/zenodo.1173717

Filous, A., Friedlander, A.M., Koike, H., Lammers, M., Wong, A., Stone, K., & Sparks, R.T. 2017. Displacement effects of heavy human use on coral reef predators within the Molokini Marine Life Conservation District, Marine Pollution Bulletin, 121(1-2), pp. 274-281.

Friedlander, A.M., Brown, E., Monaco, M.E., and Clark, A. 2006. Fish Habitat Utilization Patterns and Evaluation of the Efficacy of Marine Protected Areas in Hawaii: Integration of NOAA Digital Benthic Habitats Mapping and Coral Reef Ecological Studies. Silver Spring, MD.

Friedlander, A.M., Donovan, M.K., Koike, H., Murakawa, P., & Goodell, W. 2018. Characteristics of effective marine protected areas in Hawaiʻi. Aquatic Conservation: Marine and Freshwater Ecosystems, 29, pp. 103-117.

Gulko, D., Maragos, J.E., Friedlander, A.M., Hunter, C.L., & Brainard, R.E. 2000. The status of coral reefs in the Hawaiian archipelago. In: Status of Coral Reefs of the World: 2000. Wilkinson, C., Ed. Australian Institute of Marine Science, Dampier, Western Australia, pp. 219-238.

Hawaiian Islands Land Trust (HILT). 2014. Honolua/Lipoa Point. Retrieved from https://www.hilt.org/honolualipoa-point

Hoegh-Guldberg, O. 1999. Climate change, coral bleaching and the future of the world's coral reefs. Marine and Freshwater Research, 50, 839-866.

Jokiel, P.L., Brown, E., Friedlander, A., Rodgers, S.K., & Smith, W.R. 2004. Hawaii coral reef assessment and monitoring program: spatial patterns and temporal dynamics in reef coral communities. Pacific Science, 58(2), pp. 159–174.

Kapalua Land Company. 2017. "Our Plantation Heritage" from the following website: http://www.kapalua.com/about/our-plantation-heritage. 2017

Koike, H., Lindsey, E., Sylva, R., Nakagawa-Castro, L., Fielding, E., and Conklin, E. 2018. Polanui Creel & Human Use Survey: Final Report. The Nature Conservancy Hawai'i. 19 pp.

Komoto, J. 2009. Maui marine protected areas recreational management analysis. Prepared by Summit to Sea Conservation for the Coral Reef Alliance. Retrieved from https://repository.library.noaa.gov/view/noaa/602

Minton, D., Carr, R., Fielding, E., & Conklin, E. 2020. Atlas of the Reefs of West Maui. The Nature Conservancy Hawai'i. 221 pp.

National Oceanic and Atmospheric Administration (NOAA). 2016. Enhancing Protections for Hawaiian Spinner Dolphins. National Oceanic and Atmospheric Administration. Retrieved from https://www.fisheries.noaa.gov/action/enhancing-protections-hawaiian-spinner-dolphins

National Oceanic and Atmospheric Administration (NOAA) – National Ocean Service. 2020. Zooxanthellae...What's That? Available from: https://oceanservice.noaa.gov/education/tutorial_corals/coral02_zooxanthellae.html.

Oliver et al., unpublished data.

Pacific Islands Fisheries Science Center (PIFSC). 2017. Baseline assessments for coral reef community structure and demographics on west Maui. Data Report. NOAA Fisheries Pacific Science Center, PIFSC Special Publication, SP-17-001, 44p. https://doi.org/10.7289/V5/SP-PIFSC-17-001.

Polynesian Voyaging Society (PVS). 2020, April 20. Retrieved from http://www.hokulea.com/voyages/our-story/

SOEST Coastal Geology Group. 2008. Sea Level Rise Hawaii. Hawaii's Changing Climate. Retrieved from http://www.soest.hawaii.edu/coasts/sealevel/.

Sparks, R. et. al. 2015. Maui and Lānaʻi Monitoring Report (Includes monitoring data from 1998-2015). DLNR DAR. December 2015. Department of Land and Natural Resources Division of Aquatic Resources, Maui Office 130 Mahalani Street Wailuku, HI 96768 .

Stock, J.D., Falinksi, K.A., & Callender, T. 2015. Reconnaissance sediment budget for selected watersheds of West Maui, Hawaiʻi: U.S. Geological Survey Open-File Report 2015–1190, 42 p., http://www.dx.doi.org/10.3133/ofr20151190.

Stock, publishing pending review.

Storlazzi, C. D., & Field, M. E. 2008. Winds, waves, tides, and the resulting flow patterns and fluxes of water, sediment, and coral larvae off West Maui, Hawaiʻi. US Geological Survey.

Venables, S., McGregor, F., Brain, L., & van Keulen, M. 2016. Manta ray tourism management, precautionary strategies for a growing industry: a case study from the Ningaloo Marine Park, Western Australia. Pacific Conservation Biology 22, 295-300.

Winston, M., Couch, C., Huntingon, B., Vargas-Angel, B., Suka, R., Oliver, T., Halperin, A., Gray, A., McCoy, K., Asbury, M., Barkley, H., Gove, J., Smith, N., Kramer, L., Rose, J., Conklin, E., Sukhraj, N., & Morioka, J. 2020. Preliminary Results of Patterns of 2019 Thermal Stress and Coral Bleaching Across the Hawaiian Archipelago. NOAA Admin Rep. H-20-04, 13 pp.

RESOURCES

The following sources of information were used in the preparation of this document:

‘Āina Archaeology, March 2019. Draft Cultural Historical Research for the Līpoa Point Management Plan.

Amato DW, Bishop JM, Glenn CR, Dulai H, Smith CM (2016) Impact of Submarine Groundwater Discharge on Marine Water Quality and Reef Biota of Maui. PLoS ONE11(11): e0165825. https://doi.org/10.1371/journal.pone.0165825.

AMEC, 2014. Phase I Environmental Site Assessment prepared for the Department of Land and Natural Resources Land Division by AMEC Environment & Infrastructure Honolulu, HI. April 2014. Page 25.

Anderson, M., & Ashdown, I. M. (2016). *The storied places of West Maui: history, legends, and place names of the sunset side of Maui*. Lahaina, Maui, Hawai‘i: North Beach-West Maui Benefit Fund Inc.

Ashdown, Inez (1978), *History of the Honolua Ranch (unpublished paper).*

Carpenter, E and Dega, M., 2019. Addendum Archaeological Inventory Survey of 244.12 Acres of Land at Līpoa Point Honolua and Honokōhau Ahupua‘a Lahaina (Formerly Kā‘anaplai) District Maui Island, Hawai‘i. Scientific Consultant Services. January 2019.

Chaston K., & Oberding, T., 2007a. Honolua Bay Review: A review and analysis of available marine, terrestrial and land use information in the Honolua Ahupua‘a Maui 1970-2007.

Chaston K., & Oberding, T., 2007b. Honolua Bay Synthesis & Review. Prepared for Hawai‘i’s Land based Pollution Threats to Coral Reefs Local Action Strategy. University of Hawai‘i at Manoa Department of Natural Resources and Environmental Management December 2007.

Clark, John R.K., The Beaches of Maui County. Second Edition. University of Hawai‘i Press. Honolulu. 1989.

CSC, 2010. NOAA Coastal Services Center. Hawai‘i Tsunami Hazard Information Service, accessible at http://www.csc.noaa.gov/psc/riskmgmt/tsunami.html.

DBEDT, 2008. Report to the Policy Group Hawai`i, Ocean Resources Management Plan, State Office of Planning. April 9th, 2008, pages 5/6 accessible at http://files.Hawai‘i.gov/dbedt/op/czm/ormp/reports/ormp_report_to_policy_group_2008.pdf.

Dega, M. and Pickett, J., 2007. An archaeological inventory survey of 583-acres at Līpoa Point, Honolua ahupua’a, Lahaina (formerly Kaanapali) district, Maui Island, Hawai‘i TMK (2) 4-1-001:010; (2) 4-2-004:032; and portion of (2) 4-1-001:009. SCS Project Number 614-3. February 2007.

Division of Aquatic Resources. 2020. Honolua-Mokulēi‘a Marine Life Conservation District Conservation Action Plan. State of Hawai‘i, Department of Land and Natural Resources, Division of Aquatic Resources. Wailuku, Hawai‘i.

DLNR DAR, 2017. Marine Life Conservation Districts, Maui – Honolua – Mokule‘ia. Online at http://dlnr.Hawai‘i.gov/dar/marine-managed-areas/Hawai‘i-marine-life-conservation-districts/maui-honolua-mokuleia/.

DLNR DAR, 2020. Honolua-Mokulēi‘a Marine Life Conservation District Conservation Action Plan. State of Hawai‘i, Department of Land and Natural Resources, Division of Aquatic Resources. Wailuku, Hawai‘i.

DLNR Rare Plant Program, 2017 accessible at https:/dlnr.Hawai‘i.gov/ecosystems/rare-plants/.

DOFAW, 2015. Hawai‘i’s State Wildlife Action Plan. Prepared for DLNR DOFAW and DAR by H.T. Harvey & Associates. October 1, 2015.

Edinger, Evan and Risk, Michael J. 2011. Impacts of Sediment on Coral Reefs. In the Encyclopedia of Modern Coral Reefs. The Netherlands. Published by Springer.

Falinski, Kim, Reed, Dana, Callender, Tova, Fielding, Emily, Newbold, Robin, & Yurkanin, Alana. (2020). Hui O Ka Wai Ola Water Quality Data [Data set]. Zenodo. http://doi.org/10.5281/zenodo.1173717.

Federal Register, 2016. Endangered and Threatened Species; Identification of 14 Distinct Population Segments of the Humpback Whale (Megaptera novaeangliae) and Revision of Species-Wide Listing. 81 FR 62259, published 09/08/2016 by the National Oceanic and Atmospheric Administration, effective October 11, 2016, page 62259 of pages 62259-62320.

Fisher, Scott. (Associate Executive Director of Conservation, Hawai‘i Island Land Trust), in discussion with John Summers. March 2017.

Fletcher et. al., 2003. The Maui Shoreline Atlas produced for the County of Maui by the Coastal Geology Group, Department of Geology and Geophysics, School of Ocean and Earth Science and Technology, University of Hawai‘i at Manoa, Honolulu, HI. Online at http://www.co.maui.hi.us/index.aspx?NID=865.

Fletcher C., Boyd R., Grober-Dunsmore R, Neal W, and Tice V. 2010. On the Shores of Paradise. UH Press and online http://www.soest.Hawai‘i.edu/coasts/publications/shores/.

Fletcher et. al, (2012). National assessment of shoreline change: Historical shoreline change in the Hawaiian Islands: U.S. Geological Survey Open-File Report 2011–1051, 55 p.

Friedlander, A.M., L.M. Wedding, E. Brown, M.E. Monaco. 2010. Monitoring Hawai‘i’s Marine Protected Areas: Examining Spatial and Temporal Trends Using a Seascape Approach. NOAA Technical Memorandum NOS NCCOS 117. Prepared by the NCCOS Center for Coastal Monitoring and Assessment Biogeography Branch. Silver Spring, MD. 130 pp, pg 72, Table 25.

Group 70a, 2016. West Maui Watershed Plan. Kahana, Honokahua, and Honolua Watersheds Characterization Report. West Maui Ridge to Reef Initiative. September 2016.

Group 70b, 2016. West Maui Watershed Plan. Kahana, Honokahua, and Honolua Watersheds Strategies and Implementation Report. West Maui Ridge to Reef Initiative. September 2016.

Handy, E.S. Craighill and E.G. Handy. 1972 *Native Planters in Old Hawai'i.* Bishop Museum Bulletin 233. Honolulu. Quoted in Carpenter, E and Dega, M. Addendum Archaeological Inventory Survey of 244.12 Acres of Land at Līpoa Point Honolua and Honokōhau Ahupua'a Lahaina (Formerly Kā'anaplai) District Maui Island, Hawai'i. Scientific Consultant Services. January 2019.

HDOH, 2017. Water quality sampling data for station #707, Honolua Bay. Online at http://emdweb.doh.Hawai'i.gov/CleanWaterBranch/WaterQualityData/Default.aspx?Identifier=000707.

Hedouin et. al., 2011. Eco-toxicological approach for assessing the contamination of a Hawaiian coral reef ecosystem. Marine Environmental Research, 2011; 71(3):149-61. In Issues in Global Environment – Freshwater and Marine Environments: 2012 Edition. Chapter 7, Marine Research.

Herring, David. Climate Change: Global Temperature Projections. NOAA Website. https://www.climate.gov/news-features/understanding-climate/climate-change-global-temperature-projections (2012).

HIHW NMS, 2017. Hawaiian Islands Humpback Whale National Marine Sanctuary Resource Protection Regulations (https://Hawai'iHumpbackwhale.noaa.gov/res/regulations.html).

Hobdy, Robert. W. 2005 Biological Resource Survey for the Līpoa Point Project Honolua and Honokōhau, Maui, Hawai'i. Prepared for Kapalua Land Company. 24pp.

IPCC, 2007. Climate Change 2007: The Physical Science Basis, Summary for Policymakers. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. 21p.

Kana'iaupuni, Malia Shawn and Nolan, Malone. This Land is my Land: The Role of Place in Native Hawaiian Identify. Hülili: Multidisciplinary Research on Hawaiian Well-Being Vol.3 No.1 (2006) Copyright © 2006 by Kamehameha Schools.

Kapalua Land Company. "Our Plantation Heritage" from the following website: http://www.kapalua.com/about/our-plantation-heritage. 2017.

Komoto, J. 2009. Maui marine protected areas recreational management analysis. Prepared by Summit to Sea Conservation for the Coral Reef Alliance. Retrieved from https://repository.library.noaa.gov/view/noaa/602.

Macdonald, Gordon A., Agatin Townsend Abbott and Frank L. Peterson. 1983 *Volcanoes in the Sea : The Geology of Hawai'i*. 2nd ed., pg. 387, University of Hawai'i Press: Honolulu, HI. Quoted in Tanya Lee-Grieg, Draft Cultural Historical Research for the Līpoa Point Management Plan. 'Āina Archaeology. March 2019, 2.

Mak, J., Ebel,R.D., and Bonham, C. June 18, 2020. How Can the State Government Restore Fiscal Balance? The Economic Research Organization and the University of Hawai'i (UHERO).

Maui Environmental Consulting, LLC (b). 2019. Honolua Bay / Lipoa Point / Keonehelele'i Parking Survey Report. 2019.

Maui Environmental Consulting, LLC (a). 2019. Honolua Bay / Lipoa Point / Keonehelele'i Recreational Area User Survey Report. 2019.

Maui Environmental Consulting, LLC. 2018. Honolua Bay / Lipoa Point Erosion and Sedimentation Stormwater Management Report. 2018.

MNMRC, 2015. Maui's Coral Reefs Declining Trends Maui Nui Marine Resource Council, October 2015. Accessible at: http://www.mnmrc.org/mauis-coral-reefs-declining-trends-report.

Moore, Kenneth. R. 1974 Archaeological Survey of Honolua Valley, Maui. Prepared for Maui Land & Pineapple Co., Ltd. Kahului, Maui. Department of Anthropology, Bernice P. Bishop Museum, Honolulu, Hawai'i.

NOAA NOS, 2009. Coral Reef Habitat Assessment for U.S. Marine Protected Areas: State of Hawai'i: NW and Main Hawaiian Islands. NOAA NOS Management & Budget Office, Special Projects. February 2009.

NOAA, 2017. NOAA Nautical Charts with Sanctuary Boundaries, Chart 19347. Accessible at https://Hawai'ihumpbackwhale.noaa.gov/documents/maps.html#charts.

Norcross-Nu'u, Z., Abbott, T., and Fletcher, C. 2008. The Beach Management Plan for Maui, 2nd Edition. University of Hawai'i Sea Grant College Program, SOEST, Publication #UNIHI-SEAGRANT-BA-07-01.

PDC, 2012. Hurricane tracks in Hawai'i. Pacific Disaster Center.

PIFSC. 2017. Baseline assessments for coral reef community structure and demographics on west Maui. Data Report. NOAA Fisheries Pacific Science Center, PIFSC Special Publication, SP-17-001, 44p. https://doi.org/10.7289/V5/SP-PIFSC-17-001.

Polynesian Voyaging Society. The Story of Hōkūle'a. Polynesian Voyaging Society website: http://www.hokulea.com/voyages/our-story/).

Pratt, Linda W. and Samuel M. Gon III. 1998 Terrestrial Ecosystems. In *Atlas of Hawai'i*, edited by S. P. Juvik and J. O. Juvik. Third ed. University of Hawai'i Press, Honolulu, HI. Quoted in Tanya Lee-Grieg, Draft Cultural Historical Research for the Līpoa Point Management Plan. 'Āina Archaeology. March 2019, 2.

Rodriguez et. al., 2016. Effects of Trace Metal Concentrations on the Growth of the Coral Endosymbiont Symbiodinium kawagutii. Frontiers in Microbiology. 2016; 7:82.

Scientific Consultant Services, Inc. (2007). An Archaeological Inventory Survey of 583-Acres at Līpoa Point, Honolua Ahupua'a, Lāhainā (Formerly Kā'anapali) District, Maui Island, Hawai'i. [TMK: : (2) 4-1-001:010; (2) 4-2-004:032; AND PORTION OF (2) 4-1-001:009].

Sheiner, L. and Campbell, S. September 24, 2020. Brookings. How much is COVID-19 hurting state and local revenues? Retrieved from https://www.brookings.edu/blog/up-front/2020/09/24/how-much-is-covid-19-hurting-state-and-local-revenues/#:~:text=We project that state and, to hospitals and higher education.

Sparks, Russell et. al., 2015. Maui and Lāna‘i Monitoring Report (Includes monitoring data from 1998-2015). DLNR DAR. December 2015. Department of Land and Natural Resources Division of Aquatic Resources, Maui Office 130 Mahalani Street Wailuku, HI 96768.

Starr, F. and Starr,K. Botanical and Faunal Servey, Lipoa Point, Honolua, Maui. Starr Environmental. 2018.

State of Hawai‘i Department of Land and Natural Resources Division of Aquatic Resources (DAR). 2010. Long-Term Monitoring of Coral Reefs of the Main Hawaiian Islands Final Report 2009 NOAA Coral Reef Conservation Program State of Hawai’i Monitoring Report NA06NO S4260113 10/01/2006 - 09/30/2010. Authors: William Walsh, Russell Sparks, Camille Barnett, Courtney Couch, Stephen Cotton, Darla White, Kristy Stone, Eric Conklin. December.

Storlazzi, C. D., & Field, M. E. (2008). Winds, waves, tides, and the resulting flow patterns and fluxes of water, sediment, and coral larvae off West Maui, Hawai‘i. US Geological Survey.

Tanya Lee-Grieg, Draft Cultural Historical Research for the Līpoa Point Management Plan. ‘Āina Archaeology. March 2019, pg. 19. Quoting (Waal 1898: 60A).

Tetra Tech EM Inc., 2007. Recreational Carrying Capacity Evaluation of Honolua Bay prepared for Maui Land & Pineapple, Inc.

USGCRP, 2017: Climate Science Special Report: Fourth National Climate Assessment, Volume I[Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 470 pp.

Whittier RB, El-Kadi AI (University of Hawai‘i at Mānoa, School of Ocean and Earth Science Technology, Honolulu, HI). Human health and environmental risk ranking of on-site sewage disposal systems for the Hawaiian islands of Kaua‘i, Moloka‘i, Maui, and Hawai‘i. Honolulu (HI): State of Hawai‘i, Safe Drinking Water Branch; 2014.