

HAWAII FISH HABITAT PARTNERSHIP STRATEGIC PLAN



Table of Contents

<i>i.</i>	<i>Hawai'i Fish Habitat Partnership Steering Committee</i>	
<i>ii.</i>	<i>Executive Summary</i>	
I.	Introduction	1
II.	Vision and Mission	2
III.	Background	3
	<i>Coastal Marine, Stream, and Estuary Ecosystems of Hawai'i</i>	
	<ul style="list-style-type: none">● Coastal Marine Ecosystems● Streams and Stream-Mouth Estuaries● Anchialine Pools	
	<i>Key Plan Components</i>	
	<ul style="list-style-type: none">● Biocultural Conservation● Integrative Planning Mauka to Makai● Climate Change and Adaptative Management	
IV.	Strategic Framework: Goals, Objectives, Key Actions	9
V.	Measurement and Implementation	14
VI.	Appendices	
	A. Geographic Focus Areas	18
	B. Partners List	
	C. Organizational Structure	

Hawai'i Fish Habitat Partnership Steering Committee

<p>Brenda Asuncion Coordinator, Hui Malama Loko I'a Kua Hawai'i</p>	<p>Jon Britto Planner, Watershed Partnerships Program Division of Forestry and Wildlife Hawai'i DLNR</p>
<p>Jeff Burgett Science Coordinator, Division of Science Applications U.S. Fish and Wildlife Service</p>	<p>Eric Conklin Hawai'i Marine Science Director, The Nature Conservancy</p>
<p>Gerry Davis Assistant Regional Administrator for Habitat Conservation, NOAA Fisheries National Oceanic and Atmospheric Admin.</p>	<p>Tim Grabowski Leader, Hawai'i Cooperative Fishery Research Unit</p>
<p>Glenn Higashi Aquatic Biologist, Division of Aquatic Resources Hawai'i DLNR</p>	<p>Jennifer Higashino Biologist, Kaloko-Honkohau National Historic Park</p>
<p>Mahana Keakealani Sr. Manager, Water Resources Kamehameha Schools</p>	<p>Terrell Erickson Aquatic Ecologist Kailua, Hawai'i</p>
<p>Kaleo Manuel Deputy Director, Hawai'i DLNR Commission on Water Resource Management</p>	<p>Ryan Okano Program Manager, Division of Aquatic Resources Hawai'i DLNR</p>
<p>Kim Peyton Research Scientist, Division of Aquatic Resources Hawai'i DLNR</p>	<p>Dean Uyeno Hydrologic Program Manager, Commission on Water Resource Management Hawai'i DLNR</p>
<p>Lani Watson Marine Habitat Resource Specialist, Pacific Islands Fisheries Science Center National Oceanic and Atmospheric Admin</p>	<p>Gordon Smith Coordinator, Hawaii Fish Habitat Partnership Pacific Islands Fish and Wildlife Office</p>

Executive Summary

The Hawai'i Fish Habitat Partnership (Hawai'i FHP) was formed to address aquatic conservation challenges in streams, estuaries, and nearshore marine water in the main Hawaiian Islands. The partnership is a cooperating workgroup that funds and supports the implementation of on-the-ground habitat restoration projects that address the degradation of aquatic habitats. The partnership intends to provide leadership for integrating restoration planning on a watershed or “ridge-to-reef” scale. The Hawai'i FHP provides coordination across institutional boundaries of government agencies, non-governmental organizations, local communities, and the private sector to accelerate the development of conservation programs that will result in demonstrable success in aquatic ecosystem recovery. The Hawai'i FHP continues to grow with input and support from public and private stakeholders.

The vision of the partnership is to ensure Hawaiian stream, estuarine, and nearshore marine habitats continue to support abundant native species, support subsistence and cultural connections to their aquatic resources, and support sustainable uses through stewardship by Hawai'i FHP partners and local communities. To achieve this vision, the Hawai'i FHP will pursue cooperative development and implementation of conservation projects to benefit native aquatic life and sustainable uses of aquatic habitats with partners, including government agencies, non-governmental organizations, and communities.

This strategic plan outlines four goals with objectives, actions, and metrics that will guide the partnership to achieve significant results through 2034. Based on guidance from the Hawai'i FHP Steering Committee and award recipients, the plan prioritizes collaborations with local communities and diverse partners to advance aquatic habitat restoration through biocultural conservation practices that build ecosystem resilience to climate change and other threats. The Hawai'i FHP's multi-pronged approach seeks to promote cultural connections, food security, equitable access and community capacity-building as part of a holistic conservation strategy for the next decade.

The plan's primary objectives include the removal of structural and nonstructural barriers to restore stream flow and populations of native migratory freshwater fish and invertebrates; conservation projects that incorporate anticipated climate change impacts and build resilience; increased support for aquatic restoration efforts led by communities utilizing resources for subsistence and traditional practices; and continued capacity-building within the Hawai'i FHP to ensure delivery on its mission.

I. INTRODUCTION

The Hawaiian Island chain is one of the most geographically isolated island archipelagos in the world. The islands consist of two regions: the Main Hawaiian Islands, which are composed of high volcanic islands and have coral reefs abutting their shores, and the remote Northwestern Hawaiian Islands, which consist of widely scattered uninhabited coral atolls and banks. The larger islands (Kaua'i, Ni'ihau, O'ahu, Maui, Molokai, Lana'i, Kaho'olawe, and Hawai'i Island) together have 1,207 km of shoreline and approximately 2,526 km² of coral reef. Approximately 370 perennial streams are found across the main Hawaiian Islands, of these, over 200 of the streams form estuaries at their confluence with the sea. Human impacts due to agriculture, urbanization, and climate change have extensively altered marine and freshwater ecosystems in Hawai'i.

The Hawai'i Fish Habitat Partnership (Hawai'i FHP) was formed to address unmet needs in aquatic resource conservation. The partnership operates as a collaborative workgroup for planning and supporting on-the-ground habitat restoration programs that address the degradation of streams, estuaries, and nearshore waters. The Hawai'i FHP was established under the umbrella of the National Fish Habitat Action Plan (NFHAP), a nationwide strategy that seeks to minimize and reverse the causes of aquatic resource decline. The national plan calls for the formation of place-based fish habitat partnerships to function as the "primary work units" of NFHAP. An important goal of NFHAP is to foster cooperative conservation programs to achieve results not possible by resource agencies, non-governmental organizations, and private entities working alone. The Hawai'i FHP was awarded recognition as a fish habitat partnership by the National Fish Habitat Board on March 5, 2009.

II. VISION AND MISSION

The **vision** of the Hawai'i FHP states the desired future condition of aquatic ecosystems across the main Hawaiian Islands. *The vision of the Hawai'i Fish Habitat Partnership is:*

The Hawai'i Fish Habitat Partnership envisions healthy Hawaiian stream, estuarine, and nearshore marine habitats with increased ecological function, abundant native species, cultural connection, and sustainable use through stewardship by partners and communities.

The Hawai'i FHP's **mission** states how the partnership advances this desired future. *The mission of the Hawai'i Fish Habitat Partnership is:*

The Hawai'i Fish Habitat Partnership seeks to cooperatively develop and implement conservation projects to benefit native aquatic life and sustainable uses of streams, estuaries, and nearshore marine habitats with government agencies, non-governmental organizations, and communities.

III. BACKGROUND

COASTAL MARINE, STREAM, AND ESTUARY ECOSYSTEMS OF HAWAII

Coastal Marine Ecosystems

Coastal marine habitats in the Hawaiian Islands are composed of a variety of substrates, including lava-formed basaltic benches and boulders, coral rubble, mud, sand, and consolidated limestone. Biological communities may consist of macroalgae, algal turf, coralline algae, seagrass, and corals. Biodiversity is an important characteristic of tropical and subtropical waters and species richness is typically far higher than in temperate latitudes. At least 350 fish species and 90 stony coral species are recorded from nearshore waters of Hawai'i. Coral-dominated habitats are of particular interest for conservation planning due to high rates of endemism, overall biodiversity, and importance for fishery resources. Coral reef habitats are sensitive to human-caused degradation and are increasingly recognized to be at risk as a result of global climate change. Coral reefs provide valuable ecosystem services such as storm surge abatement, protection from ocean swell energy, and providing food for sustenance and commerce. In addition, Hawaii's coral reefs generate approximately \$800 million annually to the state's economy from marine tourism.

Threats to coastal marine habitats

Degradation of aquatic habitat caused by historical and current human land use practices extend into coastal waters, either via direct impacts (dredging, fill, or construction of seawalls) or indirectly through surface runoff and groundwater flow. Land-based sources of pollution, such as suspended sediment, nutrients and other pollutants, represent one of several factors threatening the quality of nearshore marine ecosystems in Hawai'i. Reef building corals are particularly sensitive to these impacts. The complex interrelationship of direct and indirect land-based impacts to coral reefs, water quality degradation, aquatic invasive species, and overfishing on the health and integrity of coastal marine and coral reef ecosystems is not always well understood, however, enough is known to plan and implement conservation actions that minimize land-based impacts to marine systems.

The impacts of urbanization and plantation-style agriculture have altered coastal marine habitats on all of the main Hawaiian Islands. Shoreline hardening adjacent to commercial and residential structures affects the composition of the nearshore benthic substrate. Rip-rap and cement-covered shorelines may protect buildings and other infrastructure on land, but wave energy is directed downward and transports unconsolidated material to deeper water. This is a concern on O'ahu, where over 30% of sandy beaches have been lost due to shoreline hardening and replaced with boulders and cement walls.

Non-point source pollution, particularly suspended sediment transport and deposition, continues to be a significant threat to coastal marine habitats. Historically, sugar cane and pineapple plantations and cattle ranches extended over hundreds of thousands of acres across the larger islands. The transport of soil particles from fields and grazing

lands to marine waters has greatly expanded the extent of muddy soft-bottom habitats at numerous locations such as the south shore of Molokai, as well as Pearl Harbor and Kāneʻohe Bay on Oʻahu. Non-point source pollution from agriculture and urbanization has significantly limited substrate suitable for coral settlement and, as a result, has diminished the extent of live coral cover.

The onset of global climate change is expected to bring about a marked change in subtropical and tropical coastal marine ecosystems. Coral reefs provide both a biological and geological foundation to these coastal systems. The anticipated effects of sea-level rise, ocean acidification, and increased sea surface temperature may result in accelerating changes to biological communities as well as the structure and function of coastal marine habitats.

Streams and Stream-Mouth Estuaries

Hawaii's streams are generally short in length, have steep gradients, and exhibit frequent high-flow events associated with variable rainfall carried by the locally dominant trade winds. Many streams are supported by groundwater input in upper elevations, which maintain low flows throughout periods with less rain.

The larger aquatic fauna native to Hawaiian streams includes five species of fish and three aquatic invertebrates (Table 1). These species require passage between the stream environment and the sea at two times during their life histories. Adults live and reproduce in stream habitats, newly hatched larvae are dispersed downstream to the ocean, where the larvae live until they metamorphose into the adult body form and migrate upstream. This diadromous life cycle is known as *amphidromy*, a two-part life cycle whereby migration from freshwater to the sea and back is completed during growth and development, but not specifically for reproduction.

Three of the native fish species have pelvic fins that form a ventral suction disk, which is used to cling to rock surfaces. Two of the fish species, oʻopu alamoʻo (*Lentipes concolor*) and oʻopu nopili (*Sicyopterus stimpsoni*), are strong climbers and are capable of ascending vertical or overhanging waterfalls. The endemic shrimp ʻopae kalaʻole (*Atya bisulcata*) and hihiwai snail (*Neritina granosa*) also can readily ascend steep stream channels. In some stream systems, large populations of these invertebrate species can be found above vertical waterfalls several hundred feet high.

In addition to the larger migratory stream-dwelling fish and invertebrates, a number of less-conspicuous native macroinvertebrates are resident in inland water habitats in Hawaiʻi. Many of these are endemic to Hawaiʻi, and some are limited in distribution to single islands or a single subregion within an island. These include the widespread but rare freshwater sponge (*Heteromyenia baileyi*), a diverse genus of endemic moths that have an aquatic larval stage (*Hyposmocoma* sp.), the torrent midges (*Telmatogeton* sp.), and others. Newcomb's snail (*Erinna newcombi*) is an aquatic snail with a distribution limited to a few locations on Kauai and is listed as threatened under the Endangered Species Act. Six species of endemic damselflies in the genus *Megalagrion*

are listed as endangered. Once widespread and common, these damselflies now have very limited distributions and are associated with streams, springs, and wetlands.

Of the approximately 370 perennial rivers and streams in Hawai'i, over 200 form estuaries at their confluence with the sea. Estuaries in Hawai'i are locally important because they provide juvenile nursery habitats and feeding grounds for fish that inhabit marine environments as adults. As many as 90 marine fish species opportunistically transit between brackish water and the marine environment as juveniles before moving to nearshore marine and coral reef habitats. Many of the fish that use estuarine habitats when young are recreationally or commercially important at larger sizes. Examples include jacks (Carangidae), mullet (Mugilidae), flagtails (Kuhliidae) and others.

Hawaiian fishponds represent a unique aquatic habitat type along shorelines in Hawai'i. The majority of Hawaiian fishponds have both freshwater and seawater inputs and can be broadly considered estuarine in nature. Traditional Hawaiian fishponds were once prominent along the shores of all the Hawaiian Islands. Prior to Western contact, there were more than 400 fishponds among the larger islands. These embayments were solidly constructed by a seawall made of coral or lava rock. Dozens of these structures remain on every island and are a permanent and highly visible feature of many coastal areas, particularly along the south shore of Molokai, the Kona coast of Hawai'i Island, and Kāne'ohe Bay, O'ahu. The interior of Hawaiian fishponds foster the growth of algae and support schools of herbivorous fish, particularly 'ama'ama (*Mugil cephalus*). The important operational feature of Hawaiian fishponds is a gated opening or *makaha* connecting the interior of a fishpond to the sea. In maintained fishponds, the makaha is composed of a wooden grate that allows for smaller fish to enter the pond and prevents larger fish from exiting. These fishponds provide an accessible and stable source of fish for local consumption and historically supported coastal subsistence communities. Today, the majority of Hawaiian fishponds are in disrepair; however, numerous local community organizations are working to restore Hawaiian fishponds for environmental, cultural, and educational purposes.

Threats to stream and estuary habitats

Human-caused modifications to surface and groundwater ground systems throughout Hawai'i have profoundly altered natural hydrologic regimes. In the modern era, complex irrigation conveyance systems were built primarily to support sugarcane cultivation. These diversions transfer large volumes of water out of natural watercourses and into extensive networks of ditches, tunnels, flumes, reservoirs, and ultimately, to fields. Historically, stream water diversion structures were built to be highly efficient in their ability to entrain water. Many of these structures divert all flowing stream water at moderate to low flows, leaving the stream channel below the dam completely dry.

Other human-caused alterations to streams and estuaries are equally widespread across Hawai'i and have further limited habitat available to support native aquatic life. These impacts include flood control infrastructure such as cement channels and levees that confine stream flows and disconnect streams from adjacent flood plains, sediment

and debris basins, and erosion control modifications to coastal and estuarine shorelines. Although these features alone do not reduce water volume, many result in a departure from normal hydrographic characteristics by causing increased peak flows, prolonged dry periods, and altered physical and chemical characteristics, such as increased water temperatures. Invasive riparian vegetation, especially introduced woody species such as red mangrove (*Rhizophora mangle*) and hau (*Hibiscus tiliaceus*), have significantly altered stream channels and estuary banks.

Base-flow discharge of streams in the Hawaiian Islands has declined over recent decades. The effects of global climate change are likely to continue this long-term trend. The continuous contribution of moisture carried to the islands by the tradewinds is expected to decline, while intermittent storm-driven rainfall is expected to increase. A change to the overall water budget of the Hawaiian Islands is very likely, and the resulting change to aquatic habitats will likely include lower base flows, accelerated erosion, increased sediment transport to receiving waters, and changes to wetland and riparian areas.

Table 1. Native migratory freshwater organisms of Hawaiian streams.

Organism	Scientific name	Hawaiian name
Freshwater fish (family Gobiidae)	<i>Awaous stamineus</i>	O'opu nakea
	<i>Lentipes concolor</i>	O'opu alamo'o
	<i>Stenogobius hawaiiensis</i>	O'opu naniha
	<i>Sicyopterus stimpsoni</i>	O'opu nopili
Freshwater fish (family Eleotridae)	<i>Eleotris sandwicensis</i>	O'opu akupa
Freshwater shrimp Crustacean	<i>Atyoida bisulcata</i>	'Opae kala'ole
Freshwater prawn Crustacean	<i>Macrobrachium grandimanus</i>	'Opae 'oeha'a
Freshwater snail Mollusk	<i>Neritina granosa</i>	Hihiwai
Freshwater snail Mollusk	<i>Neritina vespertina</i>	Hapawai

Anchialine Pools

Anchialine pools represent an inland waterbody type that is widespread but threatened throughout the Hawaiian Islands. The term “anchialine” is derived from Greek meaning “near the sea.” Anchialine pools are defined as land-locked bodies of water that occur near the coast in permeable substrates and which, by the presence of salt water and tidal fluctuations, show subsurface hydrologic connections both to the sea as well as the underlying freshwater table. They are characteristically brackish or saline but do not have surface connections to the open ocean. Anchialine pools are often formed in depressional areas in geologically recent lava flows along coastlines, but occasionally they are situated in coastal karsts topography composed of uplifted reef and limestone). The majority of remaining anchialine pools are located on the Kona coast and southern coastlines of the Hawai‘i Island, the southeast coast of Maui, and on several small and widely separated coastal sites on O‘ahu.

Anchialine pools contain a community of invertebrates tolerant of brackish water and variable salinity conditions. There are eight species of anchialine pool shrimp, two of which are listed as endangered. Several of these shrimp species are extremely rare and their basic biological characteristics, including life history patterns, current and historical ranges, and conservation needs are poorly known. The introduction of non-native predators (guppies and mollies in the family Poeciliidae, tilapia species, and other fish) into anchialine pools is a severe problem that has eliminated the native fauna from many anchialine pools.

Threats to anchialine pool habitats

In the islands, disturbances due to agricultural and urban land use is most concentrated along shorelines, because of this anchialine pools have been severely impacted by coastal development. Many anchialine pools were permanently filled historically and these habitats are permanently lost. The remaining pools continue to be affected by ongoing urbanization, particularly resort and golf course construction along the Kona coast of the Big Island. Withdrawal of groundwater for domestic or irrigation use, and contamination of groundwater by polluted runoff originating from expanding urban areas present an ongoing threat. Because anchialine pools are located in shoreline areas, climate change effects such as sea level rise, decreased rainfall, and saltwater intrusion into coastal water tables may further decrease the extent of these aquatic habitats.

KEY STRATEGY COMPONENTS

Biocultural Conservation

Globally, indigenous lands comprise around 20% of the planet yet contain 80% of the world’s remaining biodiversity, demonstrating the effectiveness of biocultural conservation - an approach that recognizes the intrinsic relationships between the natural environment and people, grounded in Traditional Ecological Knowledge.

Hawai‘i has a history of sophisticated social-ecological systems to access, manage, and steward aquatic ecosystems in ways that ensured long-term use across generations.

Coastal marine resources continue to play an important role in Native Hawaiian subsistence and cultural practice, and these cultural connections are integral to a healthy environment and community in Hawai'i. Hawaiian fishponds (Loko I'a) are an example of an innovative Hawaiian biocultural conservation approach that simultaneously increases ecological function and fish populations while promoting sustainable food systems and community health.

Integrating Planning Mauka to Makai

An overarching goal in aquatic resource conservation in Hawai'i is the need to integrate habitat restoration programs from *mauka* (upland) to *makai* (seaward) areas, based on traditional Hawaiian social-ecological regions such as an *ahupua'a* (traditional land division) usually aligning with watershed areas from uplands to the sea.

Because island land masses are small, there are often very short distances between land-based sources of disturbance and coastal marine environments. Degradation of aquatic habitat caused by historical and current human land use practices extends into coastal waters, either via direct impacts (dredging, filling, or construction of seawalls) or indirectly through surface runoff and reduced submarine groundwater discharge. Land-based sources of pollution, such as suspended sediment, nutrients, and other pollutants, represent one of several factors threatening the quality of nearshore marine and ground water-dependent ecosystems in Hawai'i. Reef building corals are particularly sensitive to these impacts.

The complex interrelationship of direct and indirect land-based impacts on coral reefs, water quality degradation, aquatic invasive species, and overfishing on the health and integrity of coastal marine and coral reef ecosystems is not always well understood, however, enough is known to plan and implement conservation actions that minimize land-based impacts to marine systems utilizing contemporary science and Traditional Ecological Knowledge.

Climate Change and Adaptive Management

Climate change is expected to continue affecting Hawai'i's terrestrial and aquatic environments and the human communities that depend on these natural systems. Key vulnerabilities facing the Hawaiian Islands due to climate change include changes in the availability of freshwater, changes to coastal topography due to rising sea levels, and impacts on coastal and marine ecosystems. The magnitude and temporal progress of climate change will always have an element of uncertainty. The most important planning elements required to prepare for climate change are resilience and adaptation. Through the implementation of this strategic plan, the Hawai'i FHP will seek to enhance the ability of aquatic ecosystems to respond to the effects of climate change with increased resiliency. Development of Hawai'i FHP habitat restoration projects and environmental management actions will consider appropriate spatial and temporal scales and adopt a decision-making framework that accounts for uncertainty in modeling local changes resulting from a changing climate.

To effectively plan and implement an aquatic conservation program in recognition of the unpredictable onset of climate change the Hawai'i FHP will focus on landscape-scale approaches to conservation that integrate science and management. This will include placing particular emphasis on: 1) understanding ecological systems and function, 2) applying model-based projections, 3) species-habitat linkages, 4) risk assessment, and 5) adaptive management.

V. STRATEGIC FRAMEWORK: GOALS, OBJECTIVES, KEY ACTIONS

The Hawai'i FHP Steering Committee developed a ten-year strategic framework with goals, objectives, and actions for the partnership to pursue through 2034. The plan focuses on strategic opportunities to make a significant impact in the Hawai'i FHP's niche of near-coastal and aquatic habitat restoration across the main Hawaiian Islands. Hawai'i FHP solicited input from partners and award recipients to complete and vet this ten-year framework for action, particularly because it will guide the ongoing selection of on-the-ground projects that the Hawai'i FHP will directly support annually. In addition, the plan identifies key operational needs required to ensure that the partnership continues to function as an effective organization.

The Hawai'i FHP plan identifies four strategic goals:

- 1. Healthy Water Mauka to Makai:** Improve healthy stream flows and connectivity from mauka to makai on every island through prioritizing strategic nonstructural and structural barrier removal.
- 2. Climate-Resilient Habitat Restoration:** Collaborate with communities and partners to restore or maintain stream, estuarine, wetland, and near coastal habitats and anchialine pools to increase ecological function and sustainable uses while recognizing and adapting to a changing climate and changing aquatic landscapes.
- 3. Community Partnerships:** Support connected communities that utilize resources for the subsistence of their livelihoods and traditional customary practices in restoring and maintaining healthy inland waters and aquatic habitats across Hawai'i.
- 4. Hawai'i FHP Capacity to Deliver Results:** Strengthen the Hawai'i Fish Habitat Partnership's internal capacity and funding pipeline to deliver significant results on the shared ten-year strategic plan.

Table 2 outlines the partnership's Strategic Framework with Goals, Objectives, and Actions.

Table 2.

Goal	Objective	Action
<p><u>Strategic Goal I.</u> Healthy Water Mauka to Makai</p> <p><i>Improve healthy stream flows and connectivity from mauka to makai on every island through prioritizing strategic nonstructural and structural barrier removal.</i></p>	<p><u>Objective 1:</u></p> <p>Increase nonstructural barrier removal for native migratory fish and invertebrates (e.g., vegetation removal, environmental barriers) through at least one funded project that supports community-led initiatives per the annual National Fish Habitat Partnership (NFHP) funding cycle from FY2024-2034.</p>	<p>1.1: Promote project development for vegetation removal by publicizing education and funding opportunities with communities on all islands to foster projects and support capacity for partners.</p>
		<p>1.2: Support and cooperate on at least one multi-sector workshop every two years by FY2025 to seek input amongst agencies and communities on non-structural barrier removal and upstream solutions, including guidebook development and regulatory agency coordination.</p>
		<p>1.3: Support the development of a guidebook on vegetation removal (e.g., hau and mangrove); meeting regulatory and planning requirements, e.g., state/county permitting processes; acquiring and operating equipment; managing and recording personnel hours and training by FY2028.</p>
		<p>1.4: Provide technical assistance to partners and regulatory agencies with jurisdiction over vegetation removal to address gaps and opportunities in the existing permitting processes by FY2028.</p>
	<p><u>Objective 2:</u></p> <p>Advance at least one additional project annually to address fish passage, water quality, and nonstructural and structural barrier removal through other federal and non-federal funding sources starting in FY2026</p>	<p>2.1: Develop fish passage projects with partners to leverage federal funding opportunities (e.g., US FWS National Fish Passage Program)</p>
		<p>2.2: Help establish sponsorship and support mechanisms to help smaller nonprofit organizations and local communities apply for federal fish passage funding opportunities by FY2026</p>
		<p>2.3: Assist in identifying philanthropic and private sector funding for fish passage and barrier removal to match federal funding through collaborative outreach strategies.</p>
		<p>2.4: Explore innovative mechanisms to provide a steady source of funding for community-based habitat restoration initiatives that support fish passage and barrier removal (e.g., such as conservation easements and stream mitigation banks).</p>

Goal	Objective	Action
<p><u>Strategic Goal II.</u> Climate-Resilient Habitat Restoration</p> <p><i>Collaborate with communities and partners to restore or maintain stream, estuarine, wetland, and near coastal habitats and anchialine pools to increase ecological function and sustainable uses while recognizing and adapting to a changing climate and changing aquatic landscapes.</i></p>	<p><u>Objective 1:</u></p> <p>Collaborate with communities to identify 2-4 potential projects annually aligned with Hawai'i Fish Habitat Partnership priorities with the scope and scale for meaningful overall aquatic habitat improvement to build resilience to climate change and other threats.</p>	<p>1.1: Identify and invite potential projects in priority areas that address key threats and restore aquatic habitats in stream, estuary, and wetland ecosystems and anchialine pools to apply for the HFHP annual funding opportunity.</p>
		<p>1.2: Partner on projects that support the effective management of rare native species and their habitats based on the Statewide Aquatic Conservation Strategy.</p>
		<p>1.3: Support projects that address aquatic invasive species threats through a three-tiered approach prioritizing: 1) prevention, 2) early detection and rapid response, 3) and ongoing control or eradication.</p>
		<p>1.4: Strengthen priority metrics used by the HFHP's annual funding opportunity and projects to articulate more holistic, long-term habitat function and sustainability (i.e., beyond miles of stream restoration).</p>
		<p>1.5: Support monitoring and assessments at the appropriate geographic scale (e.g., statewide barriers assessment, regional or island assessments) to inform and support priority restoration projects.</p>
	<p><u>Objective 2:</u></p> <p>Prioritize projects that address climate resilience and capacity building in the Hawai'i Fish Habitat Partnership's annual grant program through FY2034.</p>	<p>2.1: Revise project funding criteria for the Hawai'i Fish Habitat Partnership's annual Request for Proposals by FY2025 to address priority issues, particularly climate impacts and resilience for identified habitats and/or communities (e.g., assess climate screening tools and threat analyses to target strategic projects with communities in key geographical areas).</p>
		<p>2.2: Prioritize local personnel training in the annual grant program criteria, such as habitat restoration, traditional practices, and/or project development, and sharing lessons learned within or across regions.</p>

Goal	Objective	Action
		<p>2.3: Support capacity-building opportunities for climate adaptation and habitat restoration with former, current, and potential grant recipients (e.g., peer mentorship, communities of practice, and rotating representation on the Hawai'i Fish Habitat Partnership Steering Committee).</p>
<p><u>Strategic Goal III.</u> Community Partnerships</p> <p><i>Support connected communities that utilize resources for the subsistence of their livelihoods and traditional customary practices in restoring and maintaining healthy inland waters and aquatic habitats across Hawai'i.</i></p>	<p><u>Objective 1:</u></p> <p>Increase equitable access to the partnership's annual funding opportunity for small nonprofit organizations and communities leading aquatic habitat restoration by FY2025 with ongoing work to increase accessibility through FY2034.</p>	<p>1.1: Assess and revise the annual funding opportunity to reduce barriers and increase accessibility (e.g., Request for Proposals, criteria, create an online application) and ensure new, small-scale partners can apply and be successful by FY2025.</p>
		<p>1.2: Fund at least one new partner annually from an underrepresented area, particularly Native Hawaiian communities, through the Hawai'i Fish Habitat Partnership annual funding opportunity (individually or jointly with a previous or existing partner) starting in FY2025.</p>
		<p>1.3: Help establish fiscal sponsorship mechanisms by FY2025 that assist smaller nonprofit organizations and local communities in applying for the annual National Fish Habitat Partnership funding opportunity.</p>
		<p>1.4: Engage new communities in priority areas for habitat restoration projects by overlaying stated geographical focus areas with aligned community stewardship.</p>
	<p><u>Objective 2:</u></p> <p>Expand public and multi-sector engagement with the Hawai'i Fish Habitat Partnership's annual Request for Proposals and programs</p>	<p>2.1: Establish a robust online presence by launching a Hawai'i Fish Habitat Partnership website and social media platforms by FY2025 while exploring future outreach tools (e.g., dashboard).</p>
		<p>2.2: Host at least one HFHP outreach meeting or event annually by FY2024 to engage multi-sector partners and communities engaged in subsistence livelihoods and traditional customary practices and multi-sector partners on the Hawai'i FHP's funding and program opportunities.</p>

Goal	Objective	Action
	<p>by 2028 and continue steady engagement growth annually.</p>	<p>2.3: Prioritize and expand multi-sector partnerships for Hawai'i Fish Habitat Partnership across land and water use decision-making groups (e.g., Hawai'i Conservation Alliance, landowners, agriculture, community and cultural organizations, hunter/fisher groups, business, academia, philanthropy, and diverse agencies) and invite renewed partnership pledges from existing collaborators.</p> <p>2.4: Collaboratively promote habitat restoration successes with partners and networks by sharing project stories and lessons learned (e.g., social media, videos, websites, newsletters, outreach materials, webinar series, and events).</p>
<p><u>Strategic Goal IV.</u> Hawai'i FHP Capacity to Deliver Results</p> <p><i>Strengthen the Hawai'i Fish Habitat Partnership's internal capacity and funding pipeline to deliver significant results on the shared ten-year strategic plan.</i></p>	<p><u>Objective 1:</u></p> <p>Build and maintain a strong staff and leadership team with a permanent, fully-funded Coordinator, dedicated staff and internship programs, and a diverse, committed Steering Committee by FY2028 to guide the partnership's work long-term.</p> <p><u>Objective 2:</u></p>	<p>1.1: Develop a plan to ensure permanent, long-term staff funding for the Hawai'i Fish Habitat Partnership Coordinator position by FY2024.</p> <p>1.2: Diversify and strengthen the Steering Committee, including increased membership from diverse sectors and communities and established leadership structures (e.g., formal leadership roles and subcommittees, etc).</p> <p>1.3: Create a continuity and succession plan for Hawai'i Fish Habitat Partnership dedicated staff and leadership by FY2025 by convening a subcommittee.</p> <p>1.4: Partner to build ongoing internship/entry-level professional opportunities within the Hawai'i Fish Habitat Partnership that support next-generation leadership and strategically build internal and outreach capacity.</p> <p>2.1: Work with partners to increase state, philanthropic, and private sector contributions for Hawai'i Fish Habitat Partnership grant recipient projects.</p>

Goal	Objective	Action
	<p>Increase available funding for the Hawai'i Fish Habitat Partnership's work by FY2028 from the current 1:1 ratio of non-federal match with additional funding sources for inland waters and near-coastal habitat restoration.</p>	<p>2.2: Partner to pursue additional federal funding opportunities for Hawai'i aquatic habitat restoration, such as regional monitoring and assessment.</p>

V. MEASUREMENT AND IMPLEMENTATION

The Hawai'i FHP ten-year strategic plan is a dynamic document identifying top priorities to guide the Steering Committee's decision-making and implementation. Metrics are critical to measure progress and gauge success on the plan's four strategic goals and corresponding objectives. Importantly, metrics also have an important role in the Hawai'i FHP's annual funding opportunity criteria and project selection.

Program Metrics

The Steering Committee identified strengthening the annual funding program's priority metrics as a key action toward better gauging holistic, long-term habitat function and sustainability (Goal 2, Action 1.4). In addition to scoping new metrics for holistic ecological function, the Hawai'i FHP will use the following metrics to measure habitat restoration activities, management actions, assessments, and community engagement to assess progress toward Hawai'i FHP goals.

Habitat Restoration:

- Miles of instream habitat restored
- Miles of stream bank restored
- Acres of riparian habitat restored
- Miles of coastal shoreline restored
- Acres of coastal habitat restored
- Acres of wetland restored

Management Action:

- Number of barriers removed (structural and non-structural)
- Number of stream miles reopened to fish passage
- Number of population assessments or monitoring projects conducted
- Number of actions addressed in priority management plans

Monitoring and Assessments:

- Miles of shoreline and streams assessed
- Acres of estuary assessed
- Number of applied research projects completed
- Number of management plans completed

Community Engagement:

- Number of training, education and outreach events
- Number of students, community members, and volunteers engaged
- Number of community collaborations Hawai'i FHP is directly engaged in
- Number of Hawai'i FHP funding awards to communities that utilize aquatic resources for subsistence and traditional practices
- Number of Hawai'i FHP funding awards to small nonprofit organizations and communities

Partnership Benchmarks: The Hawai‘i FHP identified working benchmarks to measure progress toward the ten-year plan’s strategic goals, corresponding objectives, and key actions. Table 3 outlines FY24-34 benchmarks from across the plan’s four strategic goals to guide the Hawai‘i FHP’s implementation.

Table 3.

Partnership Benchmarks By Goal, Objective, Action	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Plan in place for a fully-funded, permanent Hawai‘i FHP Coordinator position by FY24 (<i>Goal IV, 1.1</i>)	By FY24										
Projects addressing habitat restoration, native and invasive species threats are supported annually by FY24 (<i>Goal II, 1.1-1.3</i>)	Annually starting FY24										
At least one Hawai‘i FHP outreach event is hosted annually by FY24 (<i>Goal III, 2.2</i>)	Annually starting FY24										
Hawai‘i FHP continuity and succession plan established by FY25 (<i>Goal IV, 1.3</i>)		By FY25									
The Hawai‘i FHP annual funding opportunity (e.g., Request for Proposals, criteria, online application) is updated by FY25 (<i>Goal III, 1.1</i>)		By FY25									
Hawai‘i FHP funding opportunity criteria are revised to address climate impacts, resilience, and local capacity building by FY25 (<i>Goal II, 2.1</i>)		By FY25									
Hawai‘i FHP online presence is established by FY25 (<i>Goal III, 2.1</i>)		By FY25									

Partnership Benchmarks By Goal, Objective, Action	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Fiscal sponsorship and support mechanisms for federal funding are established by FY25 (<i>Goal III, 1.3</i>)		By FY25									
At least one new partner from an underrepresented area is funded annually by FY25 through FHP funding opportunity (individually or jointly with previous or existing partner) (<i>Goal III, 1.2</i>)		Annually starting FY25									
At least one non-structural barrier removal project is funded annually by FY25 (<i>Goal 1, Objective 1</i>)		Annually starting FY25									
At least one multi-sector workshop on non-structural barrier removal hosted bi-annually by FY25 (supported by Hawai'i FHP) (<i>Goal I, 1.2</i>)		Bi-Annually starting FY25									
At least one fish passage or structural barrier project is funded annually by FY26 (<i>Goal I, Objective 2</i>)			Annually starting FY26								
Guidebook on vegetation removal is developed by FY2028 (supported by Hawai'i FHP) (<i>Goal I, 1.3</i>)					By FY28						
Technical assistance provided to partners and regulatory agencies with jurisdiction over vegetation removal to address gaps and opportunities in the existing permitting processes by FY28 (<i>Goal I, 1.4</i>)					By FY28						
Fully funded Coordinator, dedicated staff and an internship program, and a diversified Steering Committee are in place by FY28 (<i>Goal IV, Objective 1</i>)					By FY28						
Available funding increased for the Hawai'i FHP from the current 1:1 ratio of non-federal match with additional funding sources by FY28 (<i>Goal IV, Objective 2</i>)					Annually starting FY28						

Partnership Implementation

The goals and objectives outlined in this plan will serve as the basis for the conservation actions undertaken by the Hawai'i FHP through 2034. This Strategic Plan will be updated as needed in coordination with the Hawai'i FHP Steering Committee and the National Fish Habitat Board.

The organizational structure of the Hawai'i FHP will include a standing Steering Committee composed of representative partners with participation based on expertise, interest, and availability (Appendix III). The primary role of the Steering Committee is to implement the Hawai'i FHP plan and associated prioritization of stream and estuary protection, restoration, and enhancement projects. The secondary role is to foster communication between partners and work with collaborators to support the implementation of successful aquatic habitat restoration projects.

APPENDICES

Appendix I: Focus Watersheds

Several sources of information were compiled to identify priority areas for on-the-ground restoration. The *Atlas of Hawaiian Watersheds and their Aquatic Species*, which is an analytical product developed with partial support from the Hawai'i FHP, was an important data source. The Atlas, used in conjunction with the *National Hydrography Dataset*, includes a statewide stream quality rating system that incorporates stream survey data and other biological information, watershed size, hydrologic features and land use characteristics. Results from the 2010 and 2015 Hawai'i Islands portion of the *National Assessment of Fish Habitat* were used to model potential relative disturbance values of watersheds/subwatersheds on a standardized statewide basis. A draft version of the *Hawai'i Statewide Fish Passage Barriers Inventory*, another database product developed with support from the partnership, was also used to understand the potential impacts of man-made barriers to upstream migration and downstream dispersal of native freshwater organisms. An important component of partnership activity is addressing watershed-related impacts to coastal marine and coral reef areas across the freshwater/marine interface. Watersheds located adjacent to priority coral reef conservation areas identified by the Hawai'i Coral Reef Working Group in *The Hawai'i Coral Reef Strategy: Priorities for Management in the Main Hawaiian Islands* were given priority in selection of focus watersheds, addition to culturally important ancient Hawaiian coastal fishponds where estuarine productivity is of particular interest. Also incorporated are results of geospatial assessment by the Nature Conservancy which identified 65 discreet coastal areas of high biological importance. These data sources will continue to be developed and new information will be incorporated to guide selection of geographically focused partnership-supported restoration projects.

Table A-1. Focus watersheds and coastal segments selected for Hawai'i FHP fish passage and fish habitat restoration project planning and design.

Focus Watershed	Primary habitat restoration needs	Hawaii FHP Priority	Notes
East Maui Watersheds and Coastal Areas – Huelo to Nahiku	Fish passage (irrigation diversions, road crossings)	High	Partial instream flow restoration for some streams in this region
West Maui Watersheds and Coastal Areas – Wailuku to Honolulu	Fish passage (irrigation diversions, flood control)	High	Partial instream flow restoration for some streams in this region
North Shore Kauai Watersheds and Coastal Areas – Hanalei to Limahuli	Fish passage (irrigation diversions, road crossings), riparian vegetation control	Mid	Impacts of stream diversions on migratory animals not well known in this locale
Kahana Watershed and Bay, O'ahu	Invasive riparian vegetation control	Mid	Invasive trees in lower watershed

Focus Watershed	Primary habitat restoration needs	Hawaii FHP Priority	Notes
Waikapu – Central Maui Watershed	Channel continuity, adjacent wetlands	Low	Includes Kealia National Wildlife Refuge and coastal dune habitat
Nearshore Areas of Biological Significance	Water quality, sedimentation, benthic habitat structure, live coral cover	Low	Multiple complex causes of habitat impairment
Ko'olaupoko Watersheds – Kahalu'u to Hakipu'u, O'ahu	Invasive riparian vegetation control, wetland, stream channel alteration	Low	Support integration of inland and coastal restoration efforts
Estuary-Fishpond Complexes (ancient Hawaiian fishponds)	Invasive riparian vegetation control, invasive fish removal, benthic substrate, water quality impacts	Low	Culturally-important, highly productive waterbodies
Big Island Anchialine Pools	Invasive riparian vegetation control, invasive fish removal, benthic substrate restoration	Low	Anchialine pools are found throughout the coastal plain but are poorly mapped

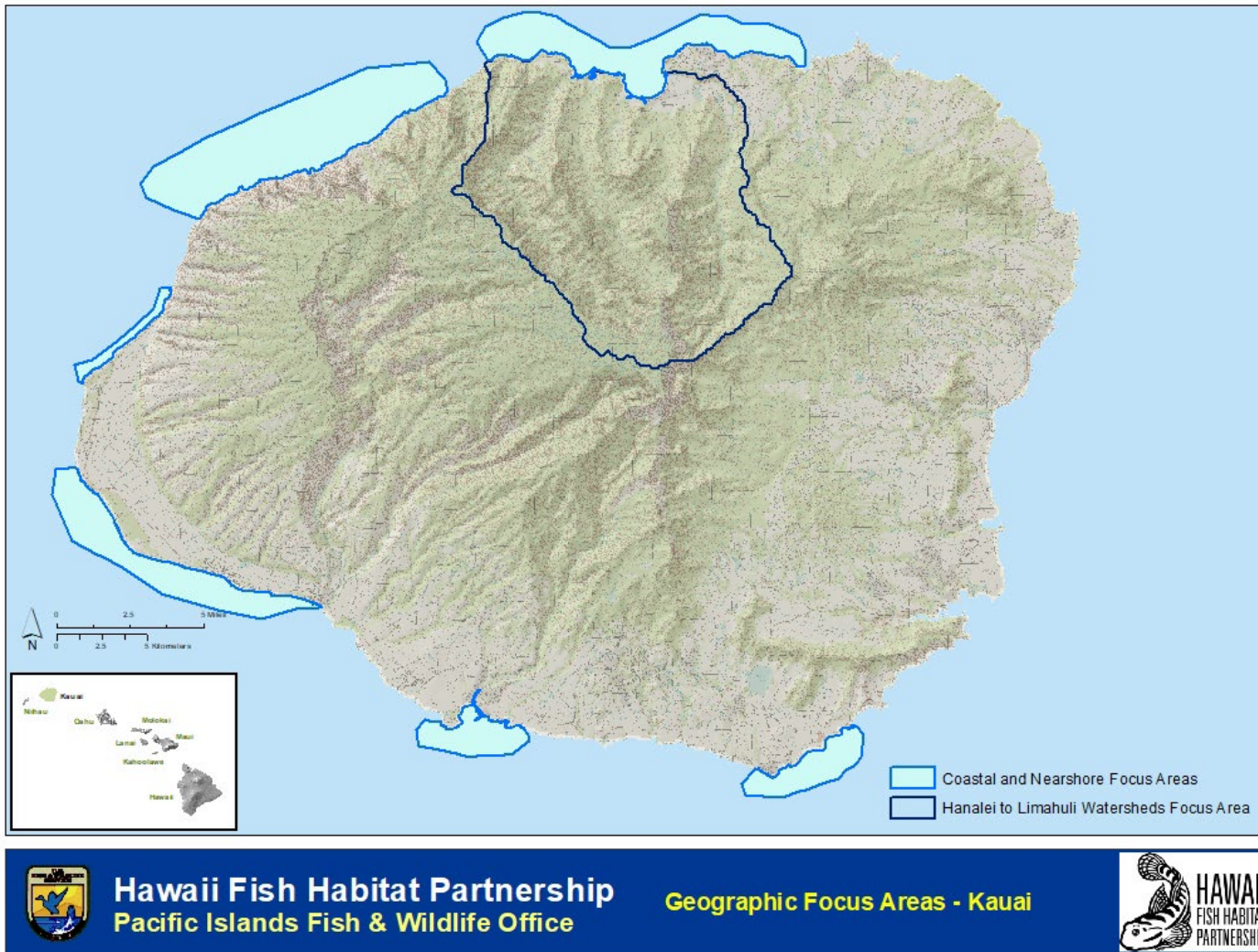


Figure 1. Geographic Focus Areas – Kauai

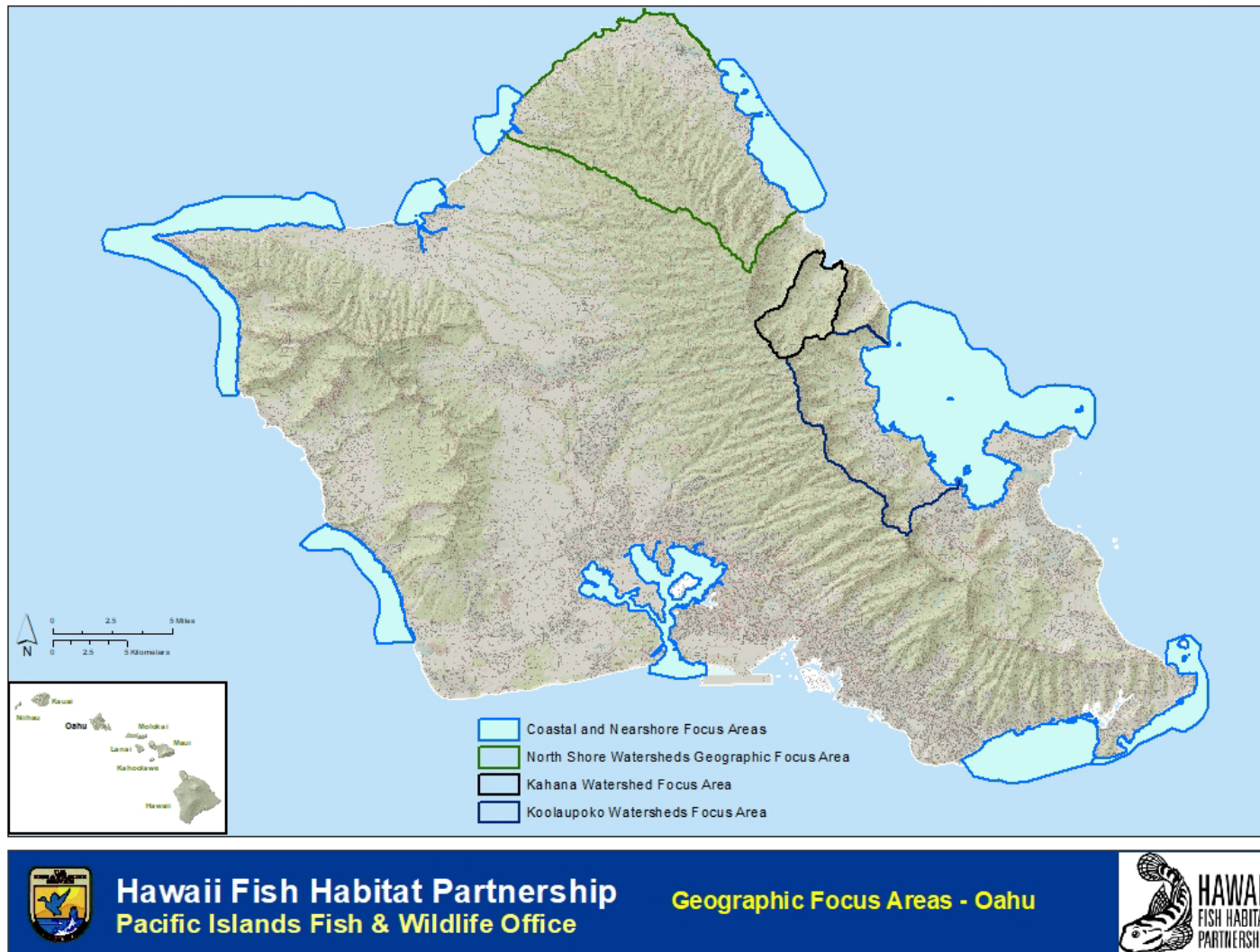


Figure 2. Geographic Focus Areas – O’ahu

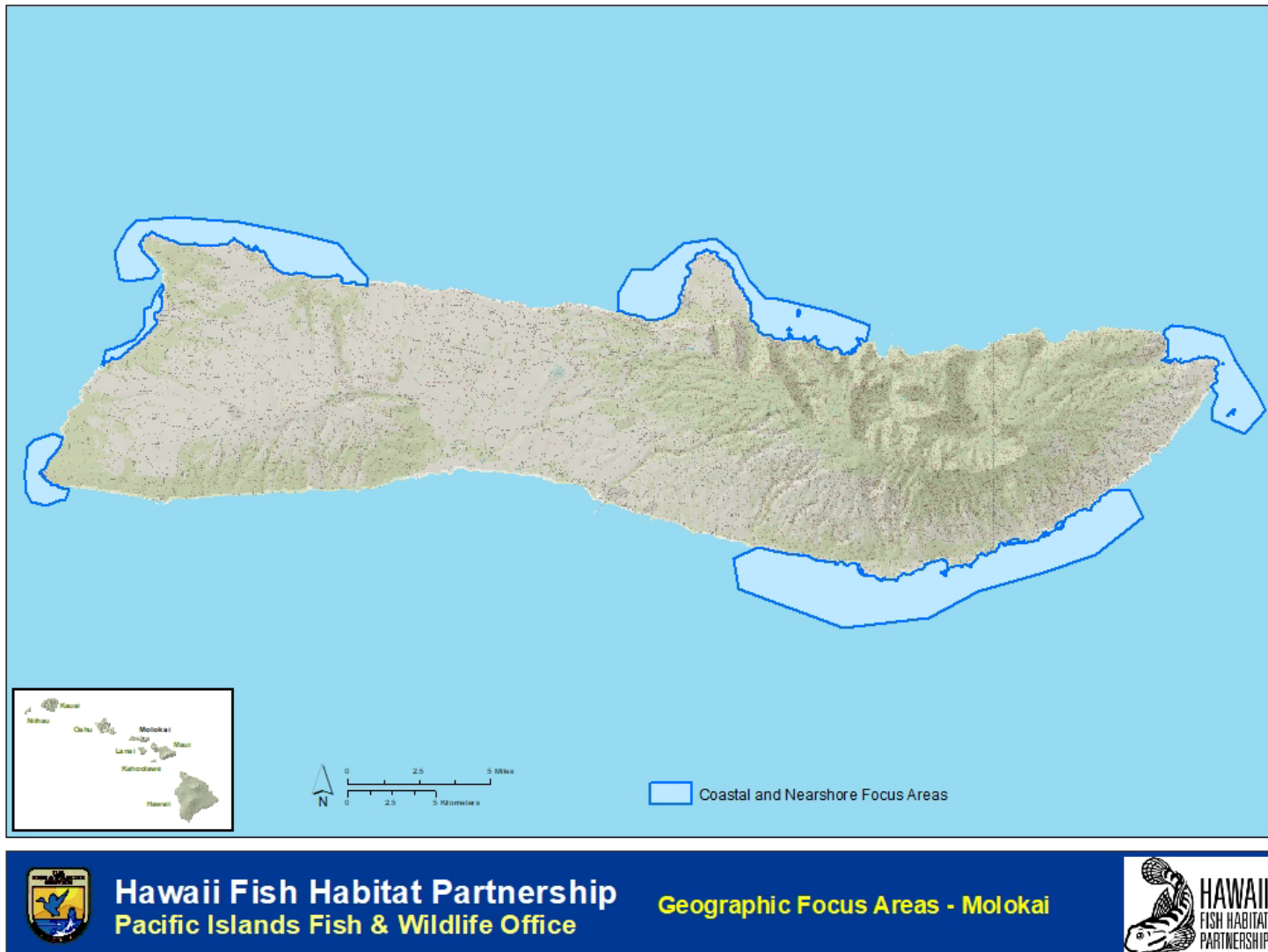


Figure 3. Geographic Focus Areas – Molokai



Hawaii Fish Habitat Partnership
Pacific Islands Fish & Wildlife Office

Geographic Focus Areas - Molokai



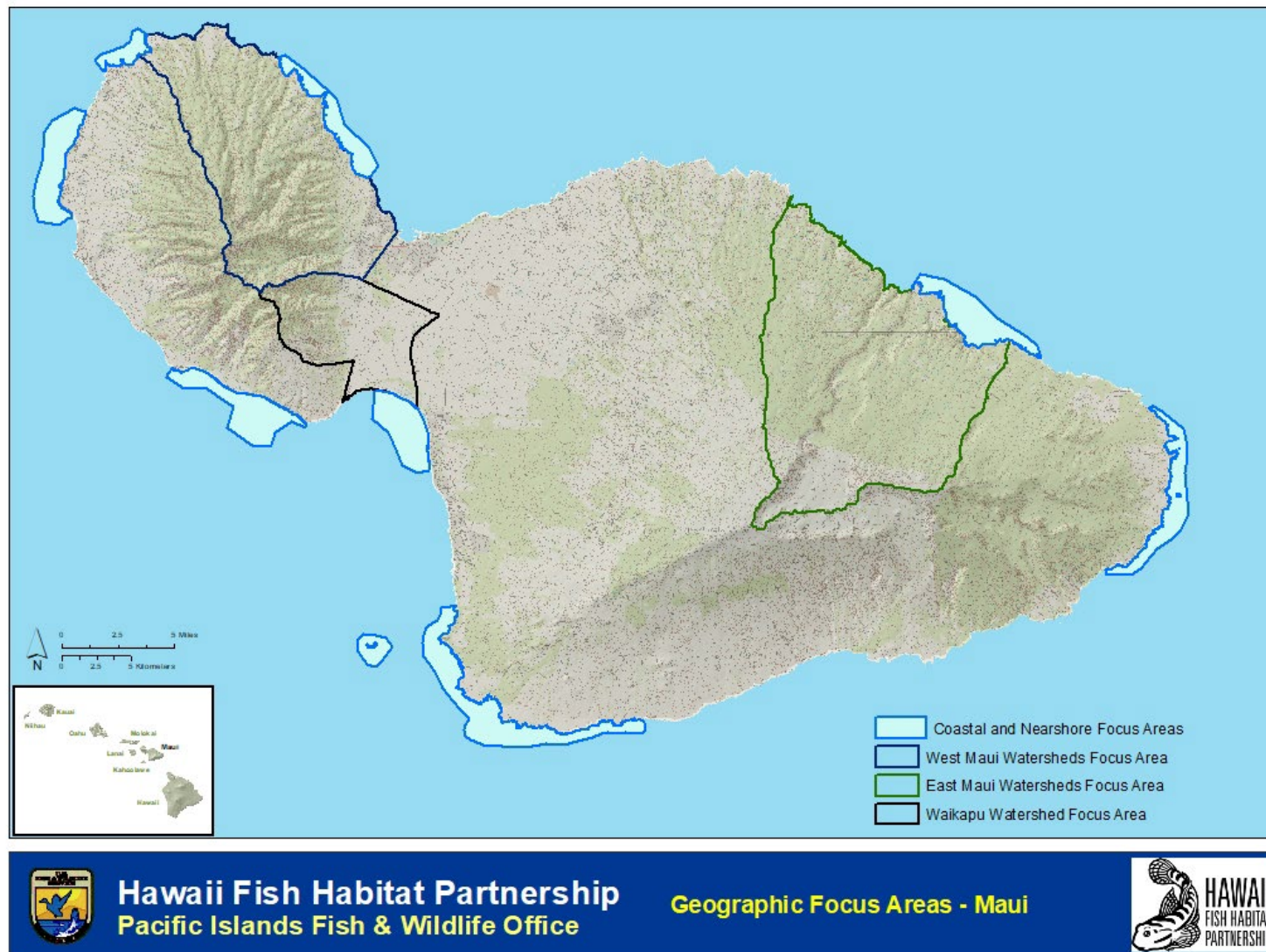


Figure 4. Geographic Focus Areas – Maui

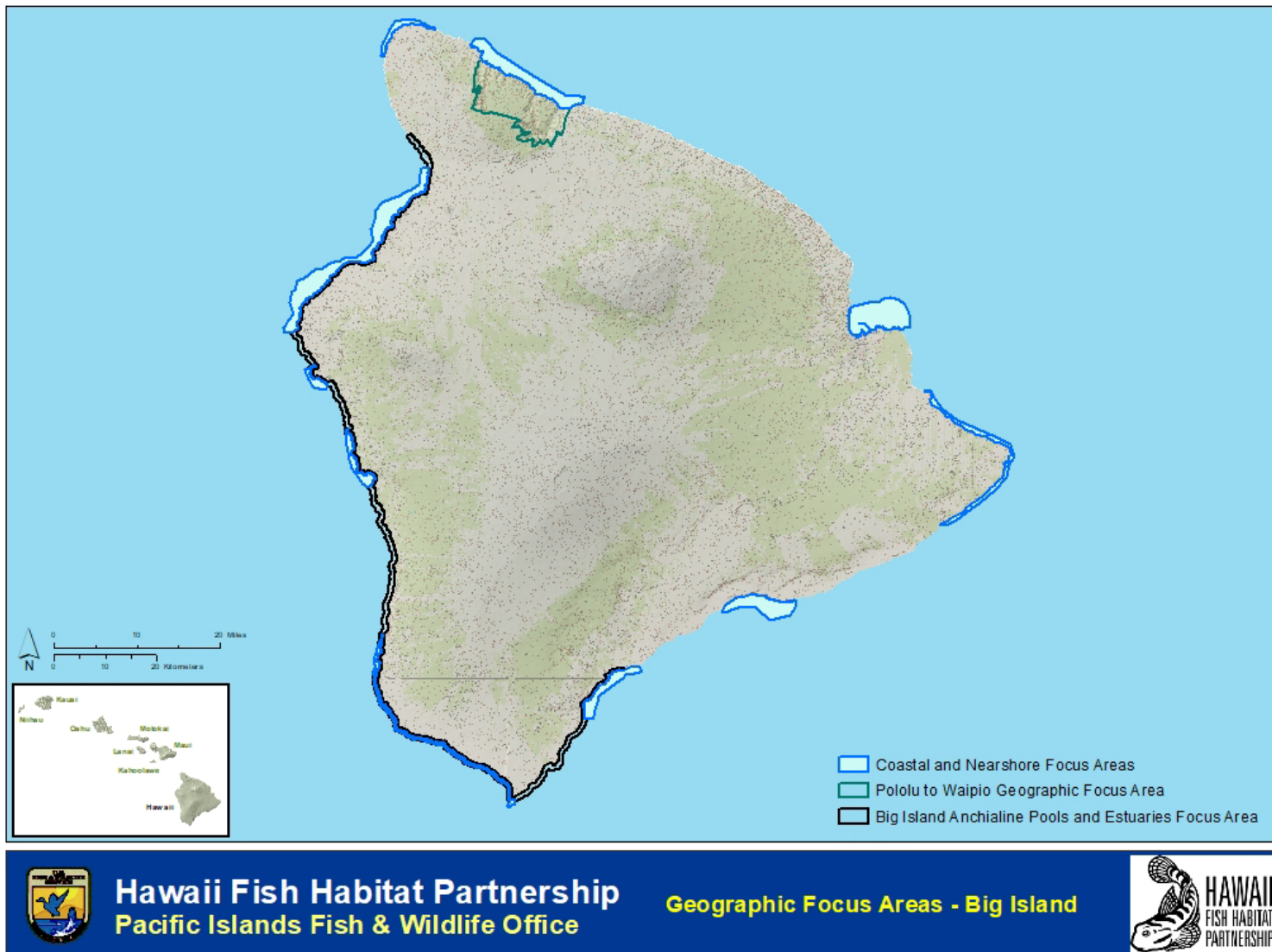


Figure 5. Geographic Focus Areas – Hawai'i Island

APPENDIX II:

Partners List Recipients of Hawai'i FHP funding support 2008 to 2023

Alu Like Inc. - Maritime Stewardship Program
Bishop Museum
Enchanted Lakes Residents Association
Farmer's Conservation Alliance
Freshwater Illustrated
Hawai'i DLNR - Commission on Water Resource Management
Hawai'i DLNR - Division of Aquatic Resources
Hawai'i Pacific University
Hawai'i Wildlife Fund
Hawaiian Wildlife Tours
Honolulu Board of Water Supply
Hui Aloha Kiholo
Hui O Ho'ohonua
Hui O Ko'olaupoko
Ka Honua Momona
Kauai Island Utility Cooperative
Kualoa Ranch
Kuleana Coral Restoration
Malama Huleia
Malama Maunalua
Malama O Puna
Maunalua Fishpond Heritage Center
Michigan State University - Department of Fisheries and Wildlife
National Tropical Botanical Garden
O'ahu Waterkeeper
One World One Water, LLC
Pono Pacific Land Management, LLC
The Nature Conservancy
U.S. Forest Service - Institute of Pacific Islands Forestry
U.S. Geological Survey - Pacific Island Ecosystems Research Center
U.S. Geological Survey - Utah Water Science Center
University of Hawai'i - Department of Natural Resources and Environmental Management
Waipa Foundation

APPENDIX III: Hawai'i FHP Organizational Structure

The intent of this document is to establish a self-identified, self-organized, self-directed group of participating government agencies, non-governmental organizations, and private entities that carry out aquatic habitat restoration in the Hawaiian Islands. The partnership uses shared expertise and technical knowledge to plan, fund, and implement environmental restoration projects to benefit native aquatic species and the communities that steward them.

Section 1.

Partners agree in principle that aquatic habitats and the aquatic species that these habitats support have intrinsic value and represent important environmental value for residents of Hawai'i, the nation, and the world.

Section 2.

Partners recognize that a variety of natural and human-caused changes have altered aquatic habitats in the Hawaiian Islands and the result of these changes may diminish environmental functions and intrinsic values.

Section 3.

Partners participating will apply sound scientific and technical knowledge, environmental management, cultural sensitivity, and socio-economic principles to restore, enhance and maintain aquatic habitats and the biodiversity these habitats support.

Section 4.

By working together, members of this organization enhance the effectiveness of efforts to protect and maintain healthy aquatic ecosystems with local partners and communities.

Article 1: Name

This organization is called the Hawai'i Fish Habitat Partnership (Hawai'i FHP).

Article II: Membership

Membership of the Hawai'i FHP is open to organizations with public trust responsibilities and stewardship missions that include the goal of restoring, enhancing, and maintaining aquatic habitats and the biodiversity that these habitats support.

Article III: Structure

The Hawai'i Fish Habitat Partnership is structured as follows:

- **Partner's Group** - organizations are considered partners based on interest expressed in collaboration and communication via electronic and regular mail, professional meetings, other outreach, and formal contact.
- **Award Recipients** - groups that are past or current recipients of the Hawai'i FHP financial and technical assistance programs, whose projects, experiences, and insights are valuable for the partnership's ongoing work. Past and current grant recipients are considered part of the Partner's Group.
- **Steering Committee** - the governing leadership group comprised of key partners representing a range of agencies, non-governmental organizations, private interest perspectives, and community and cultural organizations based on interest, availability, capacity, and mission alignment. The group is between 12-20 representatives who serve voluntarily without set term limits to identify and advance shared goals of the partnership, including: setting and monitoring progress on a strategic plan, overseeing the grant program, and addressing business through appropriate subcommittees.
- **Subcommittees** - subgroups of the Steering Committee will form and meet on an as-needed basis to address priorities from the partnership's strategic plan. Initial subcommittees formed around the 2024-2034 Strategic Plan include:
 - **Project Development and Proposal Review** - *This Steering Committee subgroup will revise the annual funding opportunity, including the Request for Proposals and criteria, to ensure alignment with the strategic plan and increase equitable access. This group will support project development and review and score annual proposals to determine awards.*
 - **Community and Partnerships** - *This subgroup will oversee increasing Hawai'i FHP community and multi-sector engagement and public awareness. This includes strategies for annual outreach events, engaging past and current grant recipients and new communities, and expanding online presence and communications.*
 - **Succession and Continuity** - *This ad hoc subgroup will create and maintain a continuity and succession plan for Hawai'i FHP's dedicated staff and leadership.*

Article IV: Activities

The primary role of the Hawai'i FHP is to implement the partnership's strategic plan and administer the annual financial and technical assistance program for Hawai'i. A secondary role is to provide technical assistance and foster communication among

partners. The Hawai'i FHP has no authority beyond those of its individual members' organizations.

Article V: Governance

The Steering Committee forms the decision-making body of the Hawai'i FHP. There is a rotating Chair position to oversee annual priorities toward achieving the strategic plan, chair bi-annual meetings, and provide leadership continuity.

The Steering Committee strives to achieve consensus-based decision-making. If required, an appropriately-trained facilitator may be selected to guide committee decision processes.

Article VI: Coordination

A Coordinator manages the Hawai'i FHP programs, working closely with the Steering Committee and appropriate agencies and partners. Logistical and staff support is provided by participating members on an irregular and infrequently rotating basis, according to interest and organization capacity.

Article VII: Meetings

The Steering Committee will meet no less than twice per year. Dedicated subcommittees will meet on an as-needed basis on priorities to advance the strategic plan.

The Hawai'i FHP will host, co-host, or collaborate on at least one outreach meeting or event annually for the broader partner's group and award recipients.

Article VIII: Amendment

The Steering Committee may amend this Charter in order to better achieve the goals of the partnership through facilitated consensus-based agreement.