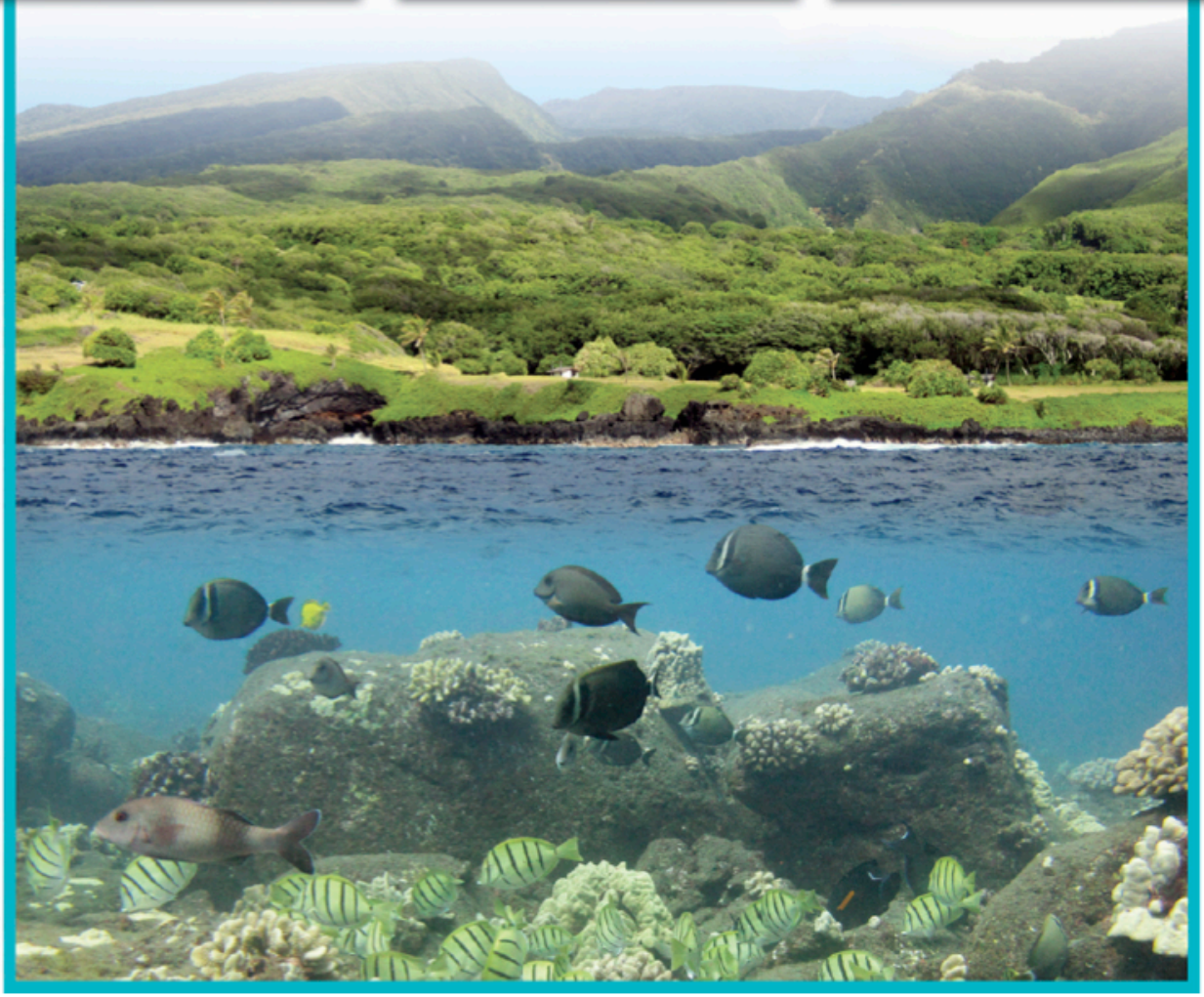
# KĪPAHULU

## Mālama Ke Kai

### Community Action Plan December 2012



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## VISION

We *mālama* (take care) Kīpahulu and manage our natural resources. We enjoy the benefits of intact native forests, plentiful flowing water and healthy ocean, gardens, and people. We work together and build our knowledge of *pono* (right, in a sustainable manner) fishing, hunting, and farming founded on traditional Hawaiian cultural practices to provide for our families. We are in unity and harmony with one another and the land.

*Konohiki (headman of an ahupua'a) John Lind thrownet fishing along the shoreline. Photo by Manuel Mejia*

## VALUES

***We are guided by our Hawaiian values:***

**Aloha ʻĀina –** We have deep love and respect for the land and ocean

**Konohiki -** We utilize traditional Hawaiian knowledge in *ahupuaʻa* management practices and expertise

**Kuleana -** With the privilege of knowing the land comes the responsibility to care for it

**Laulima -** Working together, we feed our community

**Lōkahi -** Our sprit is of unity, agreement and harmony

**Mālama -** We take care of and protect the land, the ocean and each other

**ʻOhana -** We are one family

## WHO WE ARE

In 1995, a small group of Native Hawaiians came together to revive, restore, and share the practices of traditional Native Hawaiian culture with others in Kīpahulu. From this effort, the Kīpahulu ʻOhana (ʻOhana) was formed and incorporated, and in 1997, was granted nonprofit status. We are dedicated to educating residents and visitors of Hawaiian traditions through cultural demonstrations and hands-on activities. Using the wisdom and spiritual guidance of our *kūpuna* (elders), we seek to re-establish a Hawaiian lifestyle in Kīpahulu. By initiating sustainable projects, dividing the labor, and sharing the results, we preserve our culture.

Our Mission: The Kīpahulu ʻOhana is dedicated to the cultural sustainability of the Kīpahulu *moku* (district) on Maui, Hawaiʻi, through educational programs which incorporate local, national and international partnerships and projects. We envision families working in harmony together to preserve and enhance the traditional cultural practices of the Hawaiian people. To this end, we conduct cultural demonstrations, restoration projects, self-sufficiency programs, biological diversity projects and other related endeavors.

*Group photo of the Kīpahulu community at the first Planning Workshop in May, 2011. Photo by Manuel Mejia*

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Top Left: Manuel Mejia
Top Center: Manuel Mejia
Top Right: Brad Wong
Bottom Kīpahulu Coastline: Roxie Sylva
Bottom Underwater: Russell Amimoto

## OUR PROJECT DESCRIPTION

The *moku* of Kīpahulu is located on the southeast side of Maui, south of Hāna and east of Kaupō. The *moku* is about 12,000 acres and begins at 8,000 feet elevation on mount Haleakalā, and continues to the depths of the sea. The marine area focus for our community extends from the high water mark on the shoreline to 60 meters in depth, and from Kalepa Gulch to Pua'alu'u Gulch. The marine area encompasses about 1,670 acres of rocky beach and patch coral reefs, and about 4 ½ miles of coastline.

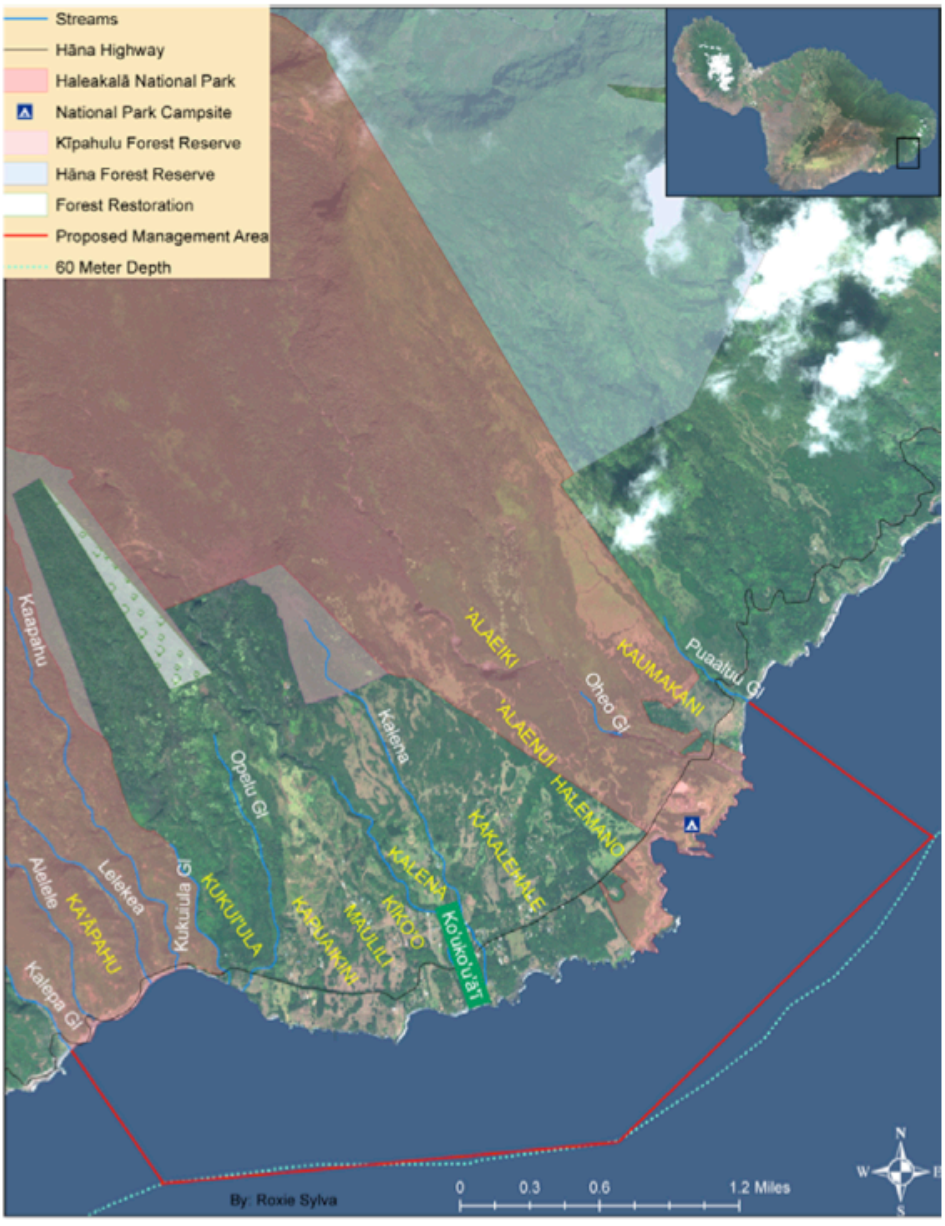
There are eleven *ahupua'a* (land divisions) in Kīpahulu: heading northeast- Ka'āpahu, Kukui'ula, Kapuaikini, Maulili, Kīko'o, Kalena, Kakalehale, Halemano, 'Alaenui, 'Alaeiki, and Kaumakani. There are ten streams in Kīpahulu. Heading northeast - Kalepa, Alelele, Lelekea, Ka'āpahu, Kukuiula, Opelu, Ko'uko'u'ā'ī, Kalena, 'Ohe'o, and Pua'alu'u.

The 'Ohana states that the 'Ohe'o and Pua'alu'u streams are perennial (have continuous water flow year round), and all other streams are intermittent (have seasonal water flow during the wet season). The largest of the streams is 'Ohe'o. It crosses many different ecosystems from high elevations to the sea, and hosts rare native aquatic species that depend on both the stream and marine ecosystems for their survival. The entire length of 'Ohe'o stream is within the National Park and is one of very few completely natural riparian habitats in Hawai'i.

*Kīpahulu* means "fetch (from) exhausted gardens" and is the home of Laka, a god worshipped by canoe makers[1]. Kīpahulu was once abundant with diverse agricultural resources such as taro and other native food plants. From 1899-1920, Kīpahulu was transformed into a sugar plantation town, bringing with it a diverse range of immigrants. Then in the 1930s, it became a cattle ranch. From 1883-1947, Kīpahulu Landing was one of the regular ports of call for the Inter-Island Steam Navigation Company, which provided services around Maui and between islands. Kīpahulu Landing allowed farmers and ranchers to ship their goods to markets. (Refer to the Historical Timeline in the *Appendix*)

Today, the residential population is about 150. Kīpahulu hosts about 1 million visitors annually. One of the attractions is the grave of aviator Charles Lindbergh, known for the first solo nonstop flight across the Atlantic Ocean in 1927. He is buried on the grounds of Palapala Ho'omau Church. Another is the famous and picturesque 'Ohe'o Gulch, often incorrectly called "Seven Sacred Pools" which, along with the coastal area of 'Ohe'o, was added to the Haleakalā National Park in 1969. Visitors to the Park can learn about Hawaiian culture and traditional agriculture at Kapahu Living Farm, where the Kīpahulu 'Ohana maintains 35 acres of land within the park and provides interpretive walks through the farm.

Kīpahulu is off the grid. The only utility service is telephone. Water is obtained either through a water catchment system, from the streams or through wells. The 'Ohana, in



collaboration with the Kīpahulu Community Association, built a certified commercial kitchen and agricultural processing center at Kalena, which serves as the facility to prepare food items from Kapahu for sale.

## PARTICIPATORY PLANNING PROCESS

This plan was developed by a group of community members with a diverse range of skills and backgrounds, from farmers, to fishermen, to National Park staff, Hāna residents, schoolteachers, and marine scientists.

To guide our efforts in planning for a community managed marine area, we requested the assistance of The Nature Conservancy's Hawai'i Marine Program[2] who were using a participatory and inclusive approach to community marine area planning. We invited our entire community to join in the effort, which spanned five meetings from May, 2011 to June, 2012. In all, over 50 people attended the meetings.

We were able to engage our community through the use of participatory assessments (called *ka'apuni* – tour around). These included shoreline walks and snorkels to better understand the environment, cultural sites, and fishing activities of both past and present, a community mapping exercisesession, and the development of a seasonal calendar (see *Appendix*). Based on this shared experience and information, we developed this plan. It represents our best thinking at this point in time, and addresses our highest priorities. It is the touchstone for our adaptive management process, and through implementation, data collection, and annual reviews, we will be able to measure our progress, and respond and adapt to changing threats and new opportunities.

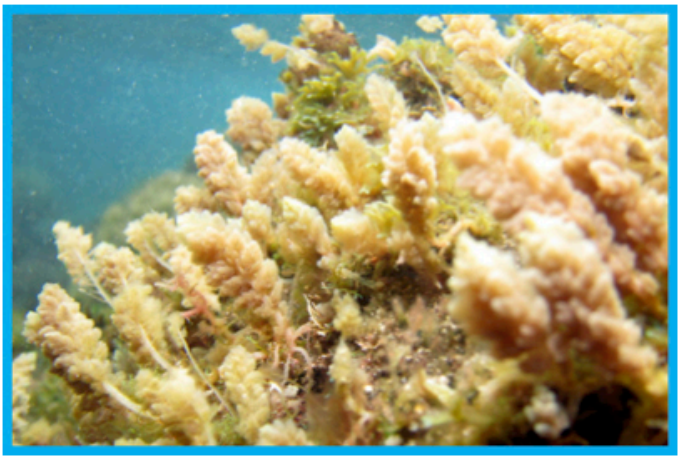
*A community mapping exercise at Kīpahulu kitchen, one of several participatory activities during the community planning process. Photo by Russell Amimoto*

**The steps of our community planning process are:**

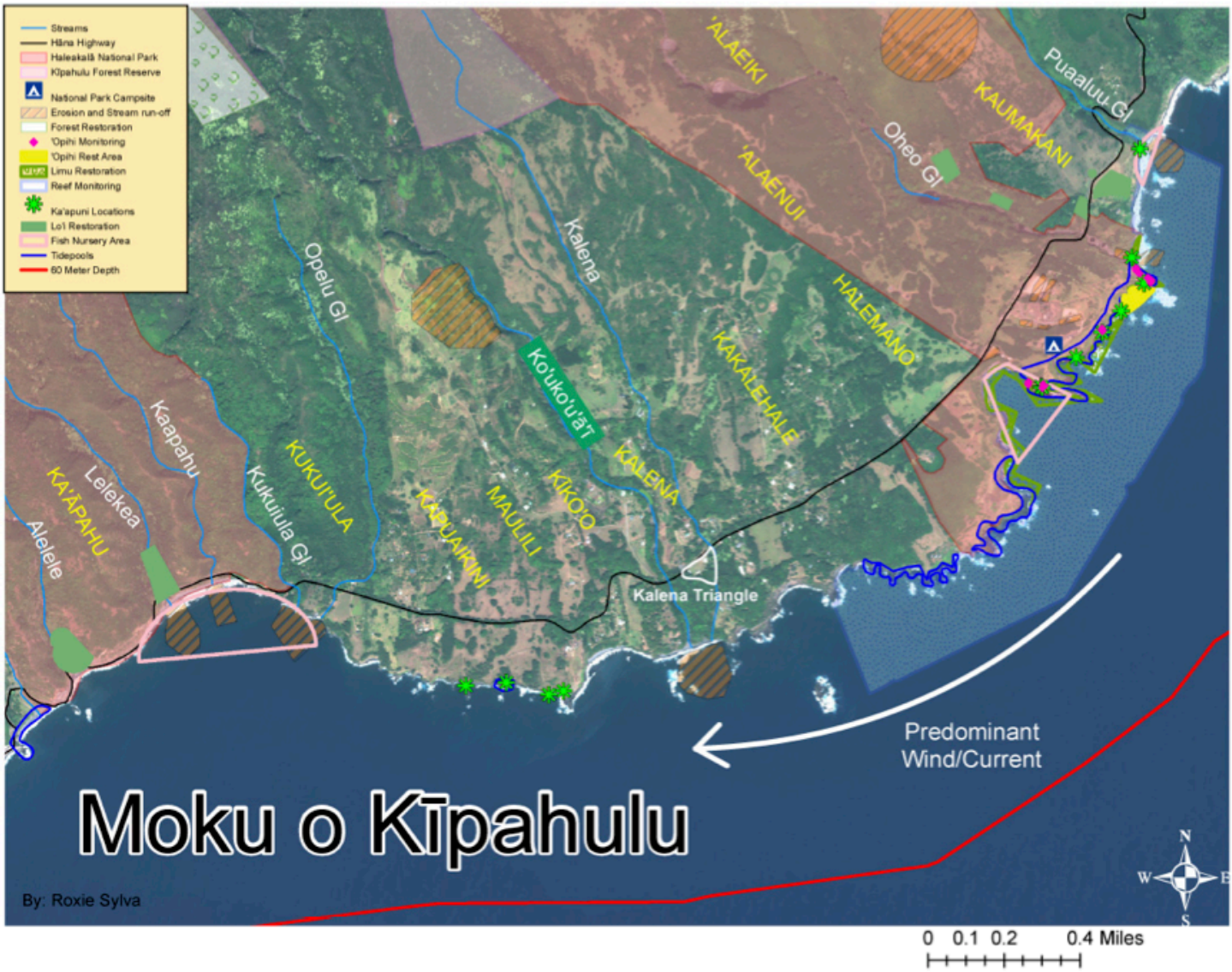
1) Conduct participatory assessments
2) Set priorities and define the project
3) Develop goals, objectives, and strategies
4) Establish measures
5) Build work plans
6) Implement
7) Communicate
8) Use results to adapt and improve

## UNDERSTANDING OUR NEAR SHORE ENVIRONMENT

The Kīpahulu marine environment is characterized by high wave energy and high fresh water inputs from streams and underwater seeps. The shoreline intertidal areas are made up of rocky lava cliffs, low shelves and tide pools, boulder beaches, and *'a'ā* (jagged) lava. In this zone, where the waves crash against the shore, it is oxygen and sunlight rich and provides important habitat for juvenile fish, near shore schooling fish, and edible *limu* (algae) and invertebrates.



*Limu kohu (Asparagopsis taxiformis) flourishing in the intertidal and shallow subtidal areas. Photo by Russell Amimoto*




The near shore marine environment is highly influenced by streams and varies over the four and a half miles of shoreline. To the west, Ka'apahu Bay is fed by three streams and has a fine sediment and sandy bottom. In contrast, to the east, no streams feed into Kukui Bay, and the ocean bottom consists largely of boulders and dramatic underwater cliffs. The habitats here are well suited for the juvenile and adult species that utilize estuarine conditions and sandy bottom bays (i.e. akule, moi, āholehole, moano, 'ō'io, and jacks).

The streams deliver organic matter, algae, insects, and shrimp that are food sources for the juvenile and adult fish in the estuarine and near stream environments. Endemic (found nowhere else on earth) stream life, including five fish ('o'opu), two shrimp ('ōpae), and several mollusks, evolved from marine forms. The adults live and breed in freshwater streams, while the newly hatched larvae drift out to sea and remain there for several months before returning to fresh water.

The *lo'i* (irrigated terraces) of Kīpahulu also provide important habitat for 'ōpae and 'o'opu as they return upstream from the ocean. Some 'o'opu and 'ōpae climb waterfalls, underground springs, and pipelines hundreds of feet to enter the Kapahu Living Farms *lo'i kalo* (taro patch) and continue into the upper areas of 'Ohe'o stream.

*Kalo (taro), the staple food of Hawai'i. Photo by Manuel Mejia*

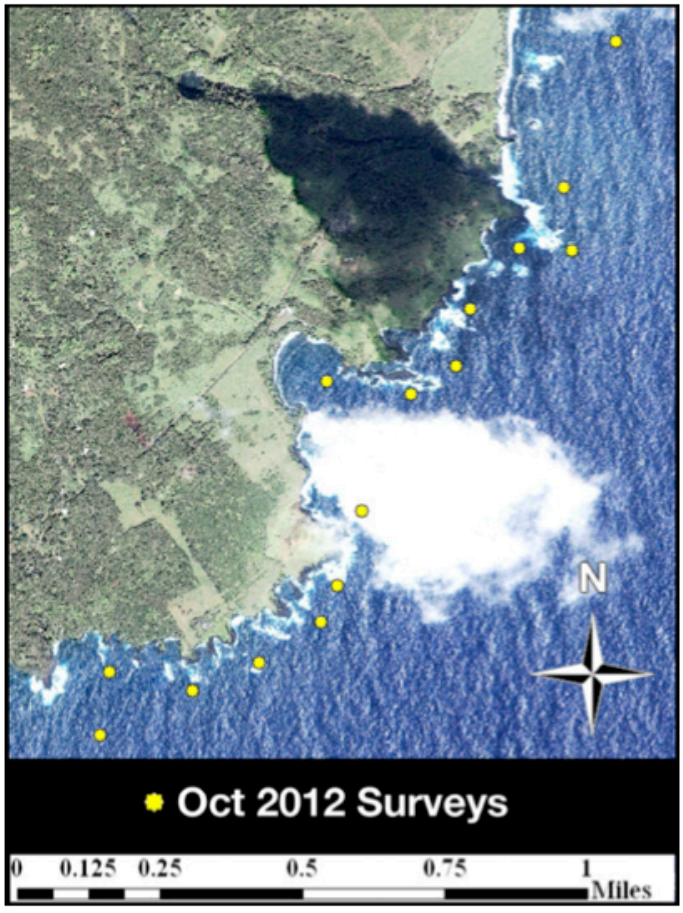
We learned about the resources as well as fishing methods that occur here, both past and present. We conducted *ka'apuni* of the shoreline and reef at Kakanoni Point, Poponui, Ko'o Lae (*heiau*, place of worship), Loalae, Kīpahulu Landing, Kukui Bay, Ka'u Bay, 'Ohe'o stream, throughout the Park, and Pepeiaolepo. This process created a forum for discussion of our concerns and what we want to *mālama* and allowed us to interact with the resources we care about. Here, we learned of an ancient fishing method called *kau la'au*, where Hawaiians used large bamboo as fishing poles and hung them from the cliff.

During the *ka'apuni*, interesting stories about the past were shared. One story is about people fighting over akule and in-turn, no fish would come; strange things would happen when people fight over fish. *Kāpuna* would encourage people not to be greedy or the fish will hear them and not come back. When you catch the fish, you have to share with the village. Some people in the community still practice this today. Akule frequent certain bays in Kīpahulu. It is said that when the akule spawn, they swim down and the water becomes a dull color. When the water turns red, the akule have laid their eggs.

As mentioned, our intertidal areas provide an important source of traditional foods, and we are dedicated to better understand and ensure abundance of *'opihi*, *limu*, and other species as an important part of the Hawaiian diet in Kīpahulu. Beginning in 2010, we conducted annual 'opihi and intertial monitoring to understand the health of 'opihi populations near 'Ohe'o Stream and Kukui Bay. This baseline and monitoring data will help us understand if our management actions are successful. Surveys are conducted in collaboration with The Nature Conservancy, Nā Mamo O Mū'olea, Haleakalā National Park, Ma Ka Hana Ka 'Ike, Hawai'i Institute of Marine Biology, and the Bird Lab at Texas A&M Corpus Christi. The invitation is open to everyone - Hāna residents, non-profit groups, and other volunteers to help us conduct annual monitoring. These surveys also document *limu* locations and abundance. In addition, to better understand the health of native *limu* species like *limu kohu, limu kala,* and *limu lipoa* in the intertidal areas, we actively monitor and harvest from specific native *limu* areas, and teach our youth how to properly harvest and replant *limu*.

*'Opihi Alinalina (Yellowfoot 'Opihi), covered in various limu (algae). Photo by Scott Crawford*

We are also working to understand the status of our reef and shoreline fish that are important for our local subsistence lifestyle. In 2010, The Nature Conservancy's marine monitoring team conducted surveys of the reef and reef fish.




*Randomly generated points to conduct the reef and reef fish surveys within 10-50 feet depth.*

Results showed that the total fish biomass is average in comparison to managed areas in the state. Targeted species kole and ʻūʻū, and invasive species roi (peacock grouper) were found to be low in comparison to both managed and un-managed sites in the state. Prime spawners (the larger, older fish that produce more and healthier eggs than smaller, younger fish) were found to be doing well. An example of a prime spawner: one 27" ʻōmilu makes as many eggs as 86 - 14" ʻōmilu. Average coral cover is low in comparison to other wave exposed sites in the state, at six percent, and appear to be stressed. These results provide a baseline to compare our management and restoration efforts in the future.

*Underwater scene of the coral reef ecosystem in Kīpahulu. Photo by Russell Amimoto*

## WHAT WE WANT TO MĀLAMA

To focus our restoration efforts, we prioritized seven target groups: Akule, reef and shoreline fish, intertidal invertebrates, near shore invertebrates, *limu*, *loʻi kalo*, and native forest. *(Refer to table below)*

**BELOW TABLE:** ***Current/Desired Status Scale Definitions:***

**Very Good:** The factor is functioning at an ecologically desirable status, and requires little human intervention.
**Good:** The factor is functioning within its range of acceptable variation; it may require some human intervention.
**Fair:** The factor lies outside of its range of acceptable variation & requires human intervention. If unchecked, the target will be vulnerable to serious degradation.

## WHAT ARE THE CHALLENGES?

We created "problem trees" to identify threats and understand and categorize related issues. The problem tree analysis identifies both the root causes of the threat (by asking 'why?') and the secondary and tertiary problems related to that core problem (by asking 'what happened?'). This helped us to better understand both the scope of the threats to the near shore environment, and how each individual threat is related to, and often compounded by other disturbances to the ecosystem.

| Targets | Nested Targets | Habitat | Role on the reef | Current Status | Desired Status |
|---|---|---|---|---|---|
| Reef and shoreline fish | **Ulua** Trevally (**aukea** Giant, **lāʻuli** Black, **ʻōmilu** Bluefin); **Āholehole** Flagtail – both species | Near shore | Piscivore (eats fish) | Fair | Good |
| | **Kole** Goldring surgeonfish | Near shore | Herbivore (eats algae) | Fair | Good |
| | **Uhu** Parrotfish – all species | Near shore | Coralivore (eats coral) | Fair | Good |
| | **Moi** Pacific threadfin; **Kūmū** Whitesaddle goatfish, **Moano** Manybar goatfish, **Moano** Manybar goatfish | Near shore | Detritivore (eats small invertebrates, debris) | Fair | Good |
| | **ʻŪʻū** (all species) Soldierfish | Near shore | Eats shrimp macroplankton | Fair | Good |
| **Akule** | Bigeye scad – all life stages | Near shore pelagic | Eats zooplankton | Fair | Good |
| Near shore invertebrates | **Heʻe mauli** Day octopus; **Ula** Banded spiny lobster | Near shore | Eats crabs; detritivore | Fair | Good |
| Limu | **Kohu**, **Kala**, **Lipoa** | Intertidal | Food for herbivores | Good | Very Good |
| Intertidal invertebrates | **ʻOpihi** Limpet – all species; **ʻAʻama** Thin-shelled rock crab; **ʻŌpae ʻula** Red pond shrimp | Intertidal | Herbivore | Fair | Good |
| Loʻi kalo | **ʻŌpae ʻula** | Loʻi, Stream, Near shore | Herbivore | Fair | Good |
| Native forest | Upper forest; lower forest | Land | Source of freshwater to sustain habitats | Fair | Good |

## PRIORITY THREATS

Two threats were identified as the most pressing issues contributing to the degradation of the *mauka-makai* (mountain-sea) environment. These threats reduce the diversity and abundance of living organisms and/or alter or disrupt the patterns and processes of non-living entities (water, atmosphere, etc.). *(Refer to table below)*

**Unsustainable Harvest:** Overharvesting of fish has led to decreased productivity and biodiversity. Harvesting species out of season, harvesting undersized or reproductive individuals, or harvesting too many individuals contributes to the decline of target species in the area. Biodiversity is built over millions of years and diverse habitats such as coral reefs and other near shore ecosystems are complex and unique webs of life. The loss of just one species can cause a shift in the ecosystem, as the animals that depended on this "removed species" for prey have now lost their food source. In turn, the animals that it fed on have lost a predator, which can lead to a population boom that depletes the plants or animals that *they* feed on.

For all species, most especially for *limu*, proper harvest is dictated by traditional Hawaiian practices. When picking *limu*, it is important to trim the top of the plant instead of pulling the entire plant with the roots. The loss of this inherently conservative traditional practice has led to a decrease in *limu* abundance on the shoreline.

For other species like ʻopihi, unsustainable harvest is the primary issue: the high rate of harvest in the summer months, as well as the harvest of the large reproducers and the small ʻopihi before they reproduce, has led to a decline of ʻopihi abundance in Kīpahulu.

**Degraded Watershed:** The lower watershed in many areas is degraded by feral ungulates (i.e. cattle, pigs, deer, and goats) and alien invasive plant species (i.e. strawberry guava, bamboo, ginger, African tulip). These species create conditions that expose soil to run off, increase transpiration of water to the atmosphere, and decrease fresh water infiltration into ground water. With disturbance of native vegetation and soils, more fresh water moves across the surface instead of being absorbed, and therefore carries more sediment to the ocean, especially during large rainfall events.

Free ranging cattle in Kīpahulu are one of the most destructive feral ungulates. They consume native plants, destroy understory plants, and trample the soil. Feral pigs were documented in the valley since the 1930s. They consume native plants and crate wallows, which expose areas for invasive plants to grow and mosquitos to thrive. Feral goats found their way to Cable Ridge in Kīpahulu in the late 1990s, where they decimated native *maile* patches, exposed soils and facilitated the colonization of the area by the alien invasive Australian Tree fern. Feral ungulates (along with rats and mice) are known to contribute to leptospirosis in freshwater streams. Leptospirosis is a bacterial infection causing mild to severe flu-like illness. *Leptospira* bacteria are spread in the urine of infected animals. People are diagnosed with leptospirosis when the bacteria in freshwater streams, mud or animal urine get into their eyes, nose, mouth or broken skin.

The excess sediment from the degraded watersheds impact intertidal areas, coral reefs, and near shore waters that are frequently unable to recover from excessive and repeated episodes of sedimentation. Sediment blocks the sunlight that corals need to survive, and can coat and smother corals and other organisms and habitats, thereby disrupting their feeding and reproduction patterns.

The decrease in surface water flow from the degraded watershed has a negative effect on *loʻi kalo* production. Less water means fewer *loʻi* can be opened and maintained, resulting in less food, less income in our community, and fewer ʻōpae can utilize the *loʻi*.

**Other Threats:** Access across private and government lands for the purposes of cultural, traditional and management uses remains a challenge. We have been and will continue to work with neighbors and other community partners to ensure cultural practitioners have adequate access to areas for cultural and sustenance purposes.

Non-point source pollution is another potential threat in Kīpahulu. Typically, these pollutants include oil accumulated on parking lots and streets from motor vehicles, nutrient runoff from yard maintenance, cesspools, and farm inputs such as fertilizer, pesticides and herbicides. Because of low population density and low intensity agriculture (organic methods used by most farmers) in Kīpahulu, the threats have been deemed low. However, we will work with our neighbors and partners to minimize future non-point source pollution.

## OUR ACTIONS

**Goal 1.** ***Inā mālama ʻoe i ke kai, mālama no ke kai ia ʻoe.*** **If you care for the ocean, the ocean will care for you.**

| Priority | Threat | Source/ Root Cause | Effect | Affected Targets |
|---|---|---|---|---|
| 1 | Unsustainable harvest | Overfishing; improper harvest | Depleted stocks; less reproduction; less food for people | Reef and shoreline fish; nearshore invertebrates; limu; intertidal invertebrates |
| 2 | Degraded watershed | Feral ungulates; alien invasive plants | Sedimentation; less water in streams and ground | Reef and shoreline fish; near shore invertebrates; limu; intertidal invertebrates; loʻi kalo; native forest |

**Limu Objective:** Actively maintain healthy native *limu* abundance on shoreline at current levels.

**Limu Strategies:**
1. Conduct *limu* planting days and adopt a *limu* patch (current).
2. Monitor *limu* as part of *limu* planting and ʻopihi monitoring surveys (current).
3. Observe and document seasonal changes and environmental cues (i.e. kona rain) for *limu* (current).
4. Create seasonal calendar for *limu*, fish, ʻopihi, and code of conduct with Uncle Mac Poepoe (1-2 years).
5. Participate in annual Hāna Limu Festival with demonstration and reporting on community progress (current).

**ʻOpihi Objective:** Double the quantity of ʻopihi in the study area within 3 years (June 2012-June 2015).

**ʻOpihi Strategies:**
1. Conduct ʻopihi monitoring (current).
2. Create ʻopihi sanctuary and study area and conduct monitoring in partnership with HALE and ʻOpihi Partnership (1-3 years).
3. Participate with ʻOpihi Partnership to develop regulations that increase abundance of ʻopihi in Kīpahulu (2-3yrs).

*Refer to the Results Chain in the *Appendix*.

**Fish Objective:** Locally manage near shore fisheries for the sustenance needs of the Kīpahulu community within 3 years (June 2012-June 2015).

**Fish Strategies:**
1. Develop a *pono* fishing code of conduct (1-2 years).
2. Promote and develop pride in code of conduct with t-shirts, calendars, and training (1-2 years).
3. Designate Kīpahulu as a local management area under Department of Land and Natural Resources rules (1-2 years).
4. Obtain and or have access to a vessel for marine management activities (2-5 years).
5. Conduct reef and reef fish monitoring to track the status over time of target species (current).

**Goal 2: *Hahai no ka ua i ka ululaʻau.* (The rain follows the forest.)**

**Loʻi Kalo and ʻŌpae Objective:** One new *loʻi* area opened and maintained every 2 years (two *loʻi* opened by 2016).

**Loʻi Kalo and ʻŌpae Strategies:**
1. Open new and maintain current *loʻi* (current).
2. Open *loʻi* in each *ahupuaʻa* (3-5 years).
3. Develop partnership with private and state land owners and the National Park for increased number of traditional *loʻi* available for active farming (current).
4. Provide education about the role and history of ʻōpae in the *loʻi* (1-2 years).
5. Establish baseline data on ʻōpae (1-3 years).

**Native Forest and Water Quality Objective:** Remove goats from Cable Ridge and manage cattle in Kaumakani in the next 3 years (by end of 2015), and prevent reintroduction.

**Native Forest and Water Quality Strategies:**
1. Continue native forest restoration projects at Kaumakani and Cable Ridge to preserve culturally important *palapalai* and *maile* (current).
2. Completely remove goats at Cable Ridge and manage cattle at Kaumakani (current).
3. Strategically remove invasive plants, and plant native plants to restore and hold soils and to increase fresh water absorption and infiltration in project areas (2-5 years).
4. Incorporate these restoration projects into the National Park Service's master plan for Kīpahulu to increase their support and resources (1-3 years).
5. Monitor *hāha (Cyanea asplenifolia)* numbers in restoration areas (once thought to be extinct), and the endangered *ʻalani (Melicope ovalis)* and *wāwaeʻiole (Huperzia manii)* (1-5 years).
6. Develop Cable Ridge restoration and management plan (1 year).

*Kapahu Farm maintained by the Kīpahulu ʻOhana in the Haleakalā National Park. Photo by Manuel Mejia*

## MEASURES & MONITORING

In order for this plan and our community process to be adaptive, we need measures to track our progress and success over time. To do so we will need to monitor the status of the resources we care about (i.e. Did ʻopihi populations rise or fall in the study area?), as well as track our effectiveness as we implement our strategies (i.e. Was the task achieved? Was it on time and on budget? Did the effort have community support?). Stay tuned on the development of a measures and monitoring plan for this plan, which we will develop over the next year. What we learn from implementing and measuring will enable us to adapt and reach our objectives.

## COMMUNITY INVOLVEMENT

There are many ways you can get involved with Kīpahulu ʻOhana and our efforts to *mālama ʻāina* (take care of the land). Join us during Hāna's springtime celebration of Hawaiian culture and agriculture, at the annual East Maui Taro Festival – 20 years in the making. The *kalo* (taro) grown at the Kapahu Farm provides *poi* (cooked taro, pounded and thinned with water) for the festival. Visit the Kapahu Living Farm as part of the festival and get to know us and lend a hand in the *loʻi*. You can learn about our *makai* efforts at the annual Hāna Limu Festival (hosted by Nā Mamo O Mūʻolea in November). In the summer months you are welcome to join the ʻOhana and our partners to conduct annual intertidal and ʻopihi monitoring in Kīpahulu. As always, visit us anytime at the Kīpahulu Kitchen.

*Keiki with an āholehole caught by konohiki John Lind. Photo by Manuel Mejia*

## CONTACT US

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## OUR SUPPORTERS & FRIENDS

*Mahalo* to our many supporters, friends, and ʻohana for your involvement in the planning process and the many activities we undertake to *mālama* Kīpahulu. We greatly appreciate the contributions from community residents, *kūpuna*, *ʻohana*, fishermen, non-profit and other community organizations, teachers, state and county agencies, and many others. *Mahalo nui* to:

- Kīpahulu Community Association
- Haleakalā National Park
- State of Hawaii Department of Land and Natural Resources

**This plan was made possible with the support of:**

- The Nature Conservancy, Hawaiʻi Chapter
- NOAAs Coral Reef Conservation Program

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END NOTES:

[1] Pukui, Mary Kawena, Elbert, Samuel H., Mookini, Esther T. *Place Names of Hawaii*. The University Press of Hawaii, Honolulu. 1974.

[2] The planning process is based on The Nature Conservancy's Conservation Action Planning: www.conservationgateway.org/ConservationPlanning; Govan, H. Aalbersberg, W., Tawake, A., and Parks, J. (2008). *Locally-Managed Marine Areas: A guide for practitioners*. LMMA Network; www.lmmanetwork.org/; and the material developed by Fielding, E., M. Mejia, J.P. Parks, and R. Sylva for the Maui Community Managed Marine Areas Train the Trainers Workshop in collaboration with the Maui Nui Marine Resources Council.