

POLANUI HIU

Community Action Plan November 2012



POLANUI HIU

VISION

The waters of Polanui are thriving with an abundance of native fishes and *limu* (algae). The community is empowered through *aloha* (love) to *mālama* (take care of) Nā Papalimu ‘O Pi‘ilani and *ho‘omau* (persevere) in our traditions for future generations.

Ho‘omau

As we set sail via Ma‘a‘a
Lalakea accompanies us
Traversing Au‘au in awe of Lele and Pu‘u Pa‘upa‘u
Retracing a journey by our kūpuna
I ka wā mamua, ka wā mahope
Our eyes keen
Our sails full
Our hands joined
Paddles in cadence and voices in chord
Our spirit in unison with those who have come before us
We can see clear with aloha, mālama, and lōkahi
With the stars to guide us we honor our Hā
Aia o Polanui

WHO WE ARE

Polanui Hiu is comprised of a group of people concerned over the decline of our marine resources. We have left preservation and enforcement in the hands of government. Government regulation with proper enforcement is challenging and its effects can be seen in the lack of bio-diversity and failing health of our reefs. Our culturally diverse communities have steered away from sustenance fishing and gathering to one of recreational use. This shift has changed our mindset from “take what you need to eat today,” to “take it all before there is none left.” Polanui Hiu believes that by working with people of like minds, like hearts, and like spirit, the reefs can begin to heal and find balance. We aim to educate, advocate, create awareness, and re-establish pono practices, which will help to ensure a healthy marine eco-system for those yet unborn.



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Manuel Mejia; Top Right: Kydd Pollock;
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OUR PROJECT DESCRIPTION

The project area extends from the high water mark to 70 feet in depth and from Mākila Point to the *pūnāwai* (water spring) fronting 505 Front Street. The area encompasses 222 acres of sandy and rocky beach and fringing and patch coral reefs. This area is small enough to be manageable by the community group and large enough to show biological gains under the appropriate strategies.

There are three *moku* (traditional land districts) that surround Mauna Kahalawai (West Maui mountains): Wailuku, Ka'anapali, and Lāhaina. Lāhaina is the western most *moku* and consists of approximately 89 *ahupua'a*, the highest amount of all 12 *moku* on Maui. These *ahupua'a* range from as little as ten acres to thousands of acres. An *ahupua'a* is a pie shaped land division that stretches from *mauka* (mountain) to *makai* (ocean). Lāhaina *ahupua'a* are different in that often they don't stretch from *mauka* to *makai* and tend to *lele* (jump) to different areas. There are *ahupua'a* with *iki* (small) or *nui* (large) attached to the same name (i.e. Puehuhu Nui,

Puehuhu Iki). These *ahupua'a lele* speak to the fertility of the *'āina* (land) and its bounty.

There are three Polanui *ahupua'a* in the Lāhaina *moku*. Our management area is in the smallest of the Polanui *ahupua'a* based on the Lindsey 'Ohana property. The management area extends from Mākila Point (Puamana pool) out to the ocean to approximately 70ft deep, then north to a point adjacent the modern day *pūnāwai* between 505 front street and Lāhaina Shores, then east to shore. *See map below.*

The *pūnāwai* located at the northern boundary is manmade, but come from naturally occurring springs. The Shops at 505 must continually pump freshwater from underground, lest it fill their parking lot. This area is located in the Waine'e *ahupua'a*. Waine'e gets its name from the water that percolates from the ground. Waine'e means "moving water creeping along."

The reef within the project area is known as Nā Papalimu O Pi'ilani, a bountiful place for *limu* and fish. 'Uo (the ancient and modern surfing area in Lāhaina) is the beach fronting Nā



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Papalimu O Pi'ilani. Loko Mokuhinia and Moku'ula (one of the most sacred places in Hawai'i and former Royal Capitol) are located just outside of the management area. The restoration efforts by friends of Moku'ula in relationship to our management area provides for deep historical significance and connections on many levels.

In 2005, Ed Lindsey Jr., while diving with his six-year old grandson, noticed a lack of native *limu* and fish on the reef that he grew up around. His parents, Ned and Pua Lindsey, fed their family utilizing the ocean from the 1930s to the 1980s. Ned was a master fisherman. The term fisherman is more than just one who fishes, but one who is responsible for the ocean and all things in and around it. Growing up with the ocean as your "ice box" taught this generation the importance of taking care of the ocean and the land.

The noticeable lack of marine life and *limu* in 2005 led to action, and eventually to the banning of gill nets on Maui. It also planted a seed of creating a management area in Ed's family's back yard. Sadly he passed in 2009 without realizing that vision. That seed germinated with a talk from John Parks about locally managed marine areas in Fiji. His presentation at the Maui Nui Marine Resource Council meeting informed the audience that there is potential for a community to band together and take care of their own resources, and be successful.

Ed's son added water to that seed, when he volunteered his family's back yard as a place to begin community marine restoration efforts. Born was Polanui Hiu! Hiu – a call to action. Volunteers have been meeting monthly since October 2010. The meetings attended by many different people from vast experiences have produced insightful and meaningful analysis of how our marine resources have deteriorated over the last 70 years. We have gone from a rich, biologically diverse habitat to just a few species sparsely populating Nā Papalimu O Pi'ilani. If we had to survive on fish in the "ice box" we would all be skinny.

As a community, we have assessed the reef and analyzed the problems associated with the decline of the ecosystems. A stakeholder analysis has been completed, goals and objectives have been formulated, and an action plan is in place. Please join us and help revitalize Nā Papalimu O Pi'ilani along 'Uo.

KAKO'O & HOALoha (SUPPORTORS AND FRIENDS)

In our effort to revitalize the reefs of Polanui to abundance, community partnerships and broad community participation represent our best hope for the future. Contributions from

community residents, *kūpuna*, 'ohana, fishermen, non-profit and other community organizations, teachers, state and county agencies, and many others increase our capacity and move us toward our vision.

Many *kāko'o* and hoaloha have contributed to this project:

- Division of Aquatic Resources
- Maui Nui Marine Resources Council
- Maui Ocean Center
- The Nature Conservancy

PARTICIPATORY PLANNING PROCESS

This plan was developed by a group of community members with a diverse range of skills and backgrounds, who met every first Saturday to conduct participatory assessments, set priorities, and build goals, objectives and strategies for local marine management.



Ekolu Lindsey and Rina Sampson lead the community in a planning discussion. Photo by Linda Nakagawa

Polanui Hiu utilized a community-based, participatory planning process developed for the Maui Nui Marine Resources Council "train the trainers" workshops (October 10, 2010 to November 11, 2011). The 8 steps of the process are based on tested, internationally accepted standards for the practice of conservation:

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

UNDERSTANDING OUR REEF

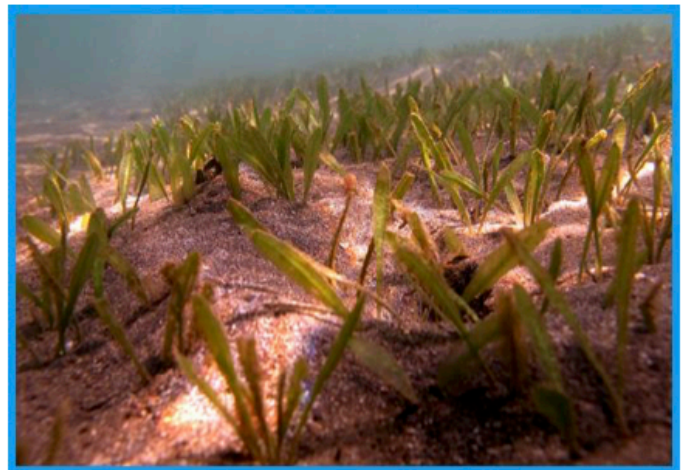
We conducted participatory assessments (*ka 'apuni*) of the reef with neighbors and others from the community. We call the assessments *ka 'apuni* (to make a tour, go around), as we investigate the local reef area together to see it with our own eyes and discuss what we see together. This process fostered discussion and got people in the water interacting with the resources they care about. We did a total of five *ka 'apuni* beginning in October 2010. We did a visual count on fish species and found that surgeonfish were the most abundant resource fishes seen in the near shore area. Other fishes (puffer fishes, lizard fishes, trumpet fishes, etc.) were seen most often. Talking to *kūpuna* of the area, they told us that there were a lot of bigger parrotfish and wrasses, and schools of mullet, *weke*, and *manini*.



Community members taking part in a *ka 'apuni*, a participatory aquatic resource transect at Polanui. Photo by Linda Nakagawa

In our assessment of *limu*, we found the alien invasive species *Acanthophora spicifera* and *Hypnea Musciformis*. The numerous species of native edible *limu* that the area is well known for are present, but unfortunately scarce, due to reduced freshwater flow, introduction of alien invasive species, and other ecological changes. Native Hawaiian *limu* are among the most diverse, ecologically important, prevalent,

and beautiful organisms at Nā Papalimu O Pi'ilani. Their importance to Hawaiian cuisine and nutritious diet is extremely high, and their role in the ecosystem is staggering: algae form the base of the food chain, occupy much of the available substrate, and help to oxygenate the water for animal life to thrive. Additionally, without microscopic symbiotic algae living in healthy coral tissue, most corals would be unable to survive – a scenario that is becoming all too real as coral bleaching events (processes where stressed corals expel their algal symbionts) become more common. A summary of our *ka 'apuni* and reef survey results can be found in the **Appendix**.



A rare native sea grass, *Halophila hawaiiiana* (a flowering plant) found near shore. Photo by Manuel Mejia

In April/May 2012, The Nature Conservancy's Marine Science team conducted surveys of the reef and reef fish on SCUBA outside the reef between 10 and 50-foot depths accounting for total fish biomass and coral health. The fish community of the reef at Polanui is roughly average in comparison to other sites open to all fishing, but substantially less abundant than managed areas. Polanui ranked last out of 29 other sites around the State of Hawai'i in prime spawner biomass.

"Prime Spawners" are the resource fish that are at least 70% of their maximum size for the species. These fishes are the ones that produce the most and highest quality eggs, and are therefore the ones that replenish the reef. On the 25m fish transects conducted, no prime spawners were seen. These results provide a baseline for our efforts to restore Nā Papalimu O Pi'ilani to abundance by which we can compare our restoration efforts to in the future.

WHAT WE WANT TO MĀLAMA

In order to focus our restoration efforts at Polanui, we chose seven species of fish that are 'ono (ones that people like to eat), were once abundant, are currently present, but no longer abundant. These fish were selected based on factors selected by the community: a) concern for the community, b) represent the biodiversity of the area, c) are feasibly restorable, d) highly threatened, and/or e) have strategic value.

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.

Poor: Allowing the factor to remain in this condition for an extended period will make restoration or preventing extirpation practically impossible.

Target Species	Role on the reef	Other factors	Current status	Desired status
‘Ōmilu Papio <i>Caranx melampygus</i> Bluefin trevally	Fiscavore (eats fish)	Essential to healthy ecosystem	Fair	Good
Manini <i>Acanthurus triostegus</i> Convict tang Kole <i>Ctenochaetus strigosus</i> Goldring surgeonfish Uhu <i>All species</i> Parrotfish	Herbivore (eats algae)	Essential to healthy ecosystem; Uhu make sand by eating coral	Fair	Good
Moi <i>Polydactylus sexfilis</i> Six-feeler threadfin Weke <i>All species</i> Goatfish Hinalea <i>Thalassoma duperrey</i> Saddle wrasse	Bottom feeding carnivore (eats small animals)	Moi is symbolic fish of Moku‘ula, the royal residence until 1846; Pua Lindsey’s favorite fish to eat	Fair	Good
Native limu: ‘ele‘ele, manauca, kohu, wāwae‘iole, kala, pālahalaha, līpe‘epe‘e	Form the basis of the food web	Essential to restore Nā Papa Limu O Pi‘ilani	Fair	Good

OUR CHALLENGES

Recognizing the degradation of the near shore marine environment around Polanui led to a call to action, which ultimately formed the Polanui Hiu. Although it was clear to all the participants involved that this site had undergone significant changes and ecosystem degradation, identifying the threats, and in particular the relative degree each threat contributed to the compromised near shore environment, proved a significant challenge. Broadly speaking, these threats can be broken down into biotic degradation (reduction in the diversity and abundance of living organisms) and abiotic disruptions (alterations to the patterns and processes of non-living entities, such as nutrient flow, natural accretion and erosion patterns, and freshwater input into the near shore.

Through a collaborative process, the Polanui Hiu community used a *kumu la‘au* (teaching tree) to identify the threats and to categorize related issues. The *kumu la‘au* proved to be an extremely useful tool as it seeks to identify 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?’). The dialogue and discussion which took shape over the course of several months helped the group to better understand both the scope of the threats to the near shore environment, as well as how each individual threat is related to, and often compounded by, other disturbances to the ecosystem.

Throughout this process, participants were reminded of the overarching goal of seeing a healed and healthy marine environment at Polanui, and for the Polanui Hiu to serve as a model for restoring degraded ecosystems on Maui, and across

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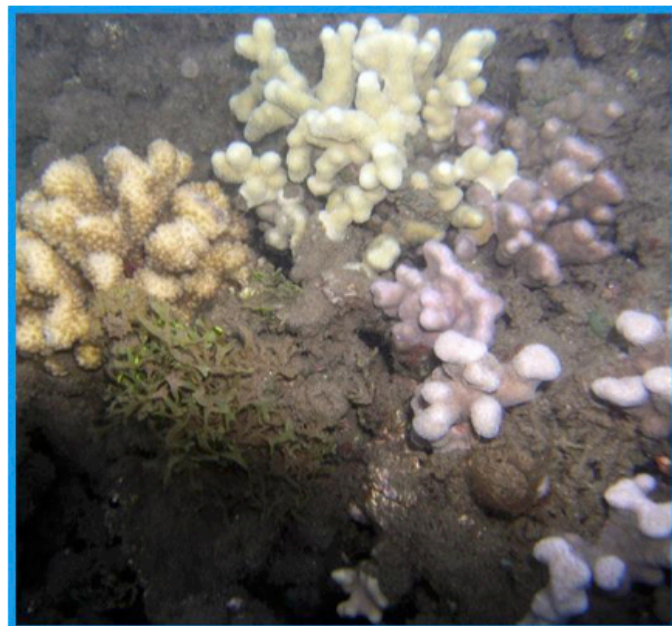
ka pae 'aina o Hawai'i (the Hawaiian archipelago). Restoring the pre-disturbance structure, function and composition is the goal of any ecological restoration project, and this goal must be set against an increase in biodiversity, biotic abundance (particularly of the target species previously identified), and ecosystem resilience. While sometimes ecological restoration projects set a somewhat arbitrary time and vision for what the healed ecosystem will ultimately look like, in the case of the Polanui Hiu the goal lies in restoring the overall abundance, resilience and biodiversity to a point that the local community might be able to reasonably subsist off of the abundance of this once rich area. Fortunately, *kūpuna* currently living in this area remember when this area was rich in marine life, and the community harvested what they needed for their own consumption. As identified below, numerous factors have contributed to the currently degraded state, and ultimately undoing them will lead to a healthy and abundant marine ecosystem at Polanui.

The following six threats were identified as the most pressing issues contributing to the degradation of the marine environment at Polanui as seen in the table below:

Disruption of accretion and erosion patterns (abiotic factor):

This was seen as a threat to the physical characteristics of the coastline, and, as an abiotic factor, had significant cascading effects by disrupting a number of biotic factors, such as *limu* production, coral reef health, resiliency and abundance, which in turn disrupts habitat for a number of fish species.

Overfishing/overharvesting (biotic): Overharvesting of marine resources, especially in light of the other threats and stresses to the marine ecosystem, has also contributed to both



Sediment caught in turf algae dominates the coral inside the reef at Polanui.
Photo by Manuel Mejia

low biodiversity and productivity of the near shore waters of Polanui. Harvesting species out of season as well as undersized individuals has also contributed to the rapid decline of the marine biodiversity and productivity of Polanui.

Reduction of fresh water input and flow (abiotic factor):

River and stream mouths (*muliwai*) are known as biologically rich areas that, when undisturbed, act as nurseries for near shore environments and host a variety of marine functional guilds. In particular, anadromous species, such as 'opae, 'o'opu and a variety of freshwater mollusks, require a

SUMMARY OF PRIORITY THREATS

Priority	Threat	What resources are most affected
1	Disruption of accretion and erosion patterns	<i>Limu</i> , fish, coral, ecosystem; decrease of all resources, habitats, including the coastline
2	Overfishing and overharvesting	Fish, <i>limu</i> , economy, people, traditional and cultural practices
3	Reduction of fresh water input and flow	<i>Limu</i> , coral, fish, traditional and cultural practices; decreased habitat, seepage and flow, crustaceans; increased invasive <i>limu</i> ; impacts on some fish species especially nursery habitat
4	Sedimentation/non-point source pollution	Near shore coral reef ecosystem
5	Recreational use of reef and near shore waters	Near shore coral reef ecosystem
6	Discharge of chlorinated water from swimming pools	Near shore coral reef ecosystem

connection to the ocean for their survival. Severing this connection has resulted in the loss of these nursery areas, thereby contributing to a general decline in other near shore species. Additionally, sporadic and sparse stream flow results in significantly reduced riparian vegetation, which has resulted in degraded riparian areas. Degraded riparian areas contribute to significant sediment discharge into the ocean during large (and even not so large) storms (see **sedimentation** below). The root of this problem derives almost exclusively from the diversion of water for both agricultural and domestic uses and has had significant adverse impacts on the marine ecosystem.

Sedimentation/non-point source pollution (*abiotic factor*): excessive sedimentation results from degraded riparian areas, as described above, and primarily impacts coral reefs, which are frequently unable to recover from excessive and repeated episodes of sedimentation. Non-point source pollution is closely related to sedimentation, but, as the name implies, does not come from a single source, as most sediments come from riparian areas. Non-point source pollution includes an array of pollutant types and sources, including such things as oil accumulated on streets from motor vehicles, and nutrient runoff from yard maintenance. As Lāhaina has become increasingly urbanized, and more impermeable surfaces have been constructed (roads, rooftops and driveways), much of the pollutants that once would have soaked into the ground are now transported to drainage systems that discharge into the ocean. While petroleum bi-products are readily recognized as harmful, eutrophication (excessive nutrient discharge) can also have significant adverse impacts and have been noted elsewhere as causing both algal blooms and marine ‘dead zones’ (it should be noted, however, that these have not yet been identified as occurring at Polanui).

Recreational use of reef and near shore waters (*biotic factor*): As Maui’s population has increased (from just over 40,000 in 1970 to 155,000 in 2010), combined with significant increases in the visitor population, recreation has taken its toll on nearshore ecosystems. Polanui’s location in the tourist hub of Lāhaina, combined with its calm waters, where visitors tend to congregate, has resulted in significant inadvertent damage to the shallow reef system Polanui is known for. Simple observation on any given days reveals significant recreational use of Polanui for such things as stand up paddle boarding, kayaking, diving, surfing and other non-consumptive activities. The damage caused by such activities, while mainly done out of simple ignorance, have had a cumulatively adverse impact on the reef habitat in this area. Additionally, with so many recreational users, the addition of significant quantities of oily sunscreen reveals an additional source of non-point source pollution.

Discharge of chlorinated water from swimming pools (*abiotic factor*): While this falls under the non-point source pollution, it

was identified as a threat in its own right for two specific reasons. First, the potential impact from bleaching on coral reefs from chlorine discharge could have a cascading effect on the Polanui marine ecosystem. Second, the Polanui area has undergone a significant change in recent decades, with new homeowners frequently putting in chlorinated pools. The extent and pervasiveness of this problem still needs clarification.

Through the process of forming the Polanui Hiu Community Managed Makai Area, local participants felt confident that if these major threats are adequately addressed this area would once again be a thriving, abundant marine ecosystem. While the Polanui Hiu recognized that other problems may exist, and new threats will likely arise, addressing these will provide a critical first step in restoring the marine ecosystem of Polanui.



A view of Mauna Kahalawai above Polanui from the reef. Photo by Kydd Pollock

OUR ACTIONS

Building on all that we learned through the participatory process about our community, history, environment, problems and priorities, we developed goals, objectives and strategic actions to improve resources and reduce threats.

Goal 1: Preserve natural shoreline

Objective 1.1: By July 2012 Polanui Hiu will be recognized as an entity for public consultation in all proposed development projects for West Maui.

Strategic Action 1.1.1: Be on list to be consulted for cultural impact. Send letter out to be considered in developments in Lāhaina.

Strategic Action 1.1.2: Identify ourselves as a native Hawaiian organization.

Strategic Action 1.1.3: Follow up with face-to-face meetings.

Strategic Action 1.1.4: Receive alerts on county website.

Objective 1.2: *Balance of saturation and surface water for increase of flow stream.*

Objective 1.3: *Identify sedimentation sources and quantify its impact on the reef system in order to refine possible action steps by October 2012.*

Strategic Action Plan 1.3.1: Investigate permit to open up channels.

Strategic Action Plan 1.3.2: Open up channel; have discussion on process.

Objective 1.4: *Prevent shoreline hardening in and near project area*

Goal 2: Ho‘opono nā wai a Kane a me Kanaloa. Put in alignment the waters of Kane and Kanaloa.

Objective 2.1: *By 2015 implement a 25% increase in surface water flow of sources that feed Nā Papalimu O Pi‘ilani.*

Strategic action 2.1.1: Develop a comprehensive map of all current and historic water sources that feed Nā Papalimu O Pi‘ilani by end of 2012.

Data sources could include thermal maps of coastal freshwater seeps, the location of dams that divert the stream water, and any other hydrologic information. Seek partners to help with this such as USGS and NOAA. Understanding of the current and historical water systems can help us to specifically identify what kind of change would benefit the near shore ecosystems.

Strategic action 2.1.2: Learn from experts about the hydrology, biology, water quality, and cultural and historical facts and information, impacts and associations with Nā Papalimu O Pi‘ilani, throughout the year (2012).

We will invite expert speakers to come to our community, and take fieldtrips to assess our situation and share their knowledge with us. Speakers might include Robin Knox and Skippy Hau, as well as other County, State and Federal government resource people. We would like to know the current status of our near shore water quality, as well as the status of stream flow in our *ahupua‘a*. We seek to educate our selves first, and in the process minimize the work of volunteers and encourage motivation.

Strategic action 2.1.3: Develop an educational Powerpoint presentation and short Youtube video about the connections between fresh water and the reef and Polanui, and share with

Maui community groups and policy makers to build support for mauka-makai connections by mid 2013.

Strategic action 2.1.4: Advocate for specific changes in water flow to the sea (identified through the fact finding process described above) during 2013.

We are seeking changes in policy related to water flow. We will be seeking the support of partners in future development, OHA, Earth Justice and other positive collaborators.

Goal 3: Ho‘ola hou nā holoholo nā a me na limu o Nā Papalimu O Pi‘ilani. Restore the healthy native Hawaiian reef ecosystem.

Objective 3.1: *Increase the abundance of target species by 100% by 2015.*

Strategic action 3.1.1 (Policy): Develop a rules package with Maui DAR and DOCARE for FMA or CBSFA status at Polanui, and discuss with key stakeholders by August 2012.

The action is aimed at changing policies and building political support for the return of reef life at Polanui. The rules package would include establishment of a no-take area, except for take on invasive fish and *limu*. All take would be illegal except what the working group decides. Restrictions could include no night diving; no throw net, no booties. We will work with the commercial recreational operators to minimize their impacts to the live coral and other reef resources.

Strategic Actions 3.1.2 (Community involvement): Develop an outreach program to broadcast our key messages about *mālama* out to the public who come to Polanui.

We will invite and visit neighbors, fisherman, and businesses, to express and reinforce our messages to *mālama* the reefs of Polanui. We will develop a program so that every beachfront lot in the project area has a sign with values and how you should conduct yourself in the area. We will also use other media (brochures, website, social media, social networking) to get the word out.

Strategic Actions 3.1.3 (Scientific): Develop a set of questions and observations to inform the effectiveness of the *kapu* (forbidden) area.

Our experimental design will include traditional native Hawaiian observations as well as modern scientific methods to

answer the question: What is the effectiveness of *kapu*? Methods might include Hawaiian observations, recreational use survey, creel survey, and Kumulipo connectivity.

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Objective 3.2: See more native than invasive *limu*, and the sweet scent of *limu lipoa* permeating the air by 2015.

Strategic Action 3.2.1 (Restoration): Restore native *limu* to suitable habitat.

This project begins with gathering a knowledgeable *limu* team and project leader, who understands the life history and habitat requirements for each of the native *limu* to be restored, researches native Hawaiian methods and protocols of planting, prioritizes those *limu* that will be restored first, selects the proper locations (*ka 'apuni* could be used to locate fresh water springs or crashing surf), and establishes a method for picking and transplanting. These locations can be monitored over time. Care must be taken to ensure alien algae species are not spread through the translocation process and that the health of the source of the *limu* is maintained.

CONTACT INFORMATION

For further information, contact Ekolū Lindsey:
ekolu333@hawaii.rr.com, Mobile (808) 276-5593

To receive notices about Polanui Hiu events, email Lisa Agdeppa: keolani2@hotmail.com.

Join us every first Saturday from 9 a.m. to 12 noon at 393 Front Street, Lāhaina.

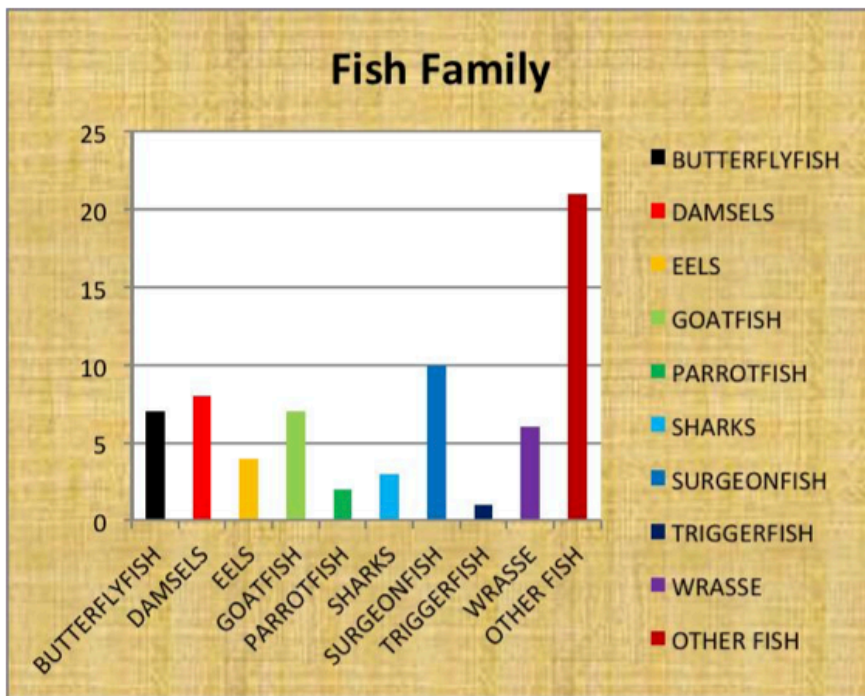
MEASURES & MONITORING



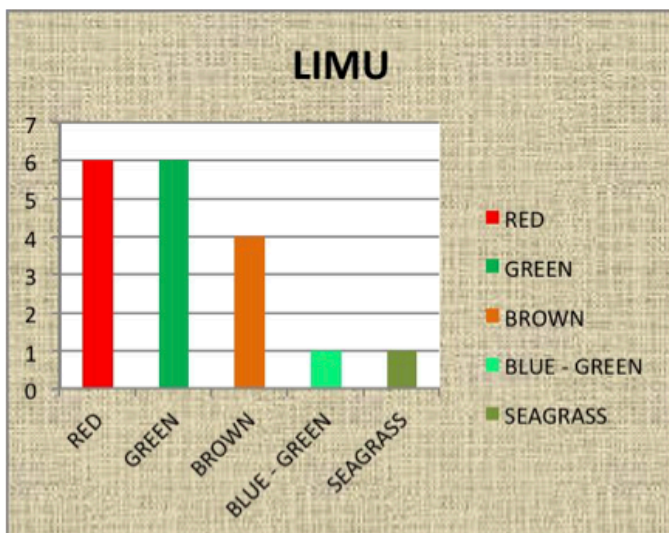
Train-the-trainers group at the Lindsey 'Ohana residence at Polanui in March 2011. Photo by Linda Nakagawa.

APPENDIX

Some Community Ka'apuni Results By Linda Nakagawa



FISH	TOTAL
BUTTERFLYFISH	7
DAMSELS	8
EELS	4
GOATFISH	7
PARROTFISH	2
SHARKS	3
SURGEONFISH	10
TRIGGERFISH	1
WRASSE	6
OTHER FISH	21
TOTAL	69



LIMU	
RED	6
GREEN	6
BROWN	4
BLUE - GREEN	1
SEAGRASS	1
TOTAL	18

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Red

Acanthophora spicifera

Asparagopsis - **Limu Kohu**

Gracilaria coronopifolia - **Manauea**

Hypnea musciformis

Laurencia spp.

Liagora spp.

Green

Caulerpa serrulata

Dictyosphaeria cavernosa

Halimeda discoidea

Halimeda kanaloana

Neomeris annulata

Ulva spp.

***Acanthophora spicifera* and *Hypnea musciformis* are highly invasive and both are found at Polanui. Due to the lack of fresh water in the area native limu are scarce.**

BROWN

Dictyota spp.

Padina spp,

Sargassum polyphyllum

Tubinaria ornate

BLUE - GREEN

Lyngbya majuscola

SEA GRASS

Halophia hawaiiiana