



HAWAII COMMUNITY FOUNDATION

**PEOPLE AND THE SEA:
A REVIEW OF EXPERT OPINION OF WHAT IT WILL TAKE TO ENHANCE THE
CONSERVATION OF MARINE RESOURCES
IN THE MAIN HAWAIIAN ISLANDS**

EXECUTIVE SUMMARY

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Executive Summary

The Hawai'i Community Foundation (HCF) commissioned a study on enhancing the sustainable management and conservation of nearshore marine resources in the Main Hawaiian Islands (MHI). The study was designed to help the foundation develop its grant-making program for nearshore marine areas in the MHI. It has drawn its conclusions from interviews with experts (the list of experts interviewed is in the appendix of the full report) and a review of relevant literature. The study is not meant to be definitive, but rather a summary of what experts feel it will take to strengthen nearshore marine management in Hawai'i.

During the course of this study, similar issues and ideas arose with such regularity that it seemed that Hawai'i's marine conservation community was speaking with a common voice. The full study reviews the biological, economic and social values of marine resources in the MHI; summarizes the current condition of these resources; discusses existing threats and obstacles to effective conservation; provides an extensive set of recommendations on what should be done to enhance nearshore marine conservation; highlights conservation successes and opportunities for effective conservation; and reviews a few of the known conservation priorities in the state. The full report is located at: www.hcf-hawaii.org.

HAWAII'S OUTSTANDING MARINE ECOSYSTEMS

The Hawaiian Islands are among the most unique and fragile ecosystems on earth. Isolated by thousands of miles of ocean, Hawai'i is an oasis for a startling array of life forms both on land and in the sea. Its rare and unique species are testimony to the incredible evolutionary force of isolation. The islands are famous the world over for their native terrestrial species, with as many as 90% of certain species groups existing nowhere else on Earth. A lesser-known fact is that Hawai'i's marine realm is also outstandingly rich and highly unique. Although often overshadowed by the more species-rich marine ecosystems of the Western Pacific, Hawai'i has one of the world's most outstanding marine environments, particularly in terms of endemism (i.e. species that exist only in Hawai'i). In coral reef fish alone, these islands boast an unparalleled endemism of more than 25%. When corals, algae, macroinvertebrates, various types of reef fish and other species are included, we soon realize that, depending on the group, between 14 and 62% of Hawai'i's marine species exist nowhere else on earth. If these rare and endemic species are lost from Hawai'i they will be lost forever. As a result, Hawai'i is a global priority for marine conservation.

Hawai'i's marine realm holds another important distinction. It hosts some of the most northerly coral reefs on the planet, which offer potential refugia for corals in the face of global coral bleaching events. While much of the world's reefs experienced a massive bleaching in 1997 and 1998, Hawai'i's corals experienced relatively little bleaching suggesting that Hawai'i's cooler water temperatures and constant wave action provide an important refuge for coral reef ecosystems.

Hawai'i's marine areas have always been a critical component of the archipelago's history and culture. As a voyaging people, early Hawaiians maintained an intimate relationship with the sea. The Hawaiian myth of creation places the origin of life in the sea with the first creature being a coral polyp. Today, as many as two thirds of Hawai'i's people engage in ocean recreation, and as many as one third fish. Experts suggest that a majority of residents in the state include wild caught fish as part of their diet, and that on islands such as Molokai as much as 30% of the diet is comprised of subsistence foods from agriculture and fishing.

Hawai'i's marine resources are also extremely important to the state's economy. Marine related tourism is a major component of Hawai'i's economy, and attracts up to 3 million visitors annually. Marine related tourism generated gross receipts of nearly \$800 million in 1998, and supports approximately 1,000 small businesses and 7,000 jobs across the state. Recreational fishing is also a significant industry in Hawai'i with an estimated 260,000 recreational fishers in 1998. Wise management of these resources is key to Hawai'i's biological, economic, cultural, and social future.

THE CONDITION OF MARINE RESOURCES IN THE MHI

Despite their economic, cultural, and biological importance, the marine systems of the MHI are severely degraded. Within the entire state, the only near pristine marine systems are found in the extremely isolated Northwestern Hawaiian Islands. Within the MHI, some areas are in better condition than others; however, overall the MHI's marine systems are severely impacted and are in decline. O'ahu provides perhaps the best example of what human activity can do to marine resources in Hawai'i. The natural marine systems of O'ahu have been greatly altered by human activities, including the introduction of alien species, overfishing, coastal development, pollution, sedimentation, and stream alteration. While other islands, such as Kaua'i and Hawai'i are not as affected by urban factors and alien species, they are impacted by anthropogenic forces such as agricultural development and overfishing. While generally in much better shape than O'ahu, their natural systems have also been greatly disturbed. That said experts believe many marine areas in the MHI can be effectively protected and restored, but it will take a great effort.

THREATS AND OBSTACLES TO THE CONSERVATION OF HAWAII'S MARINE RESOURCES:

The highest priority threats cited by experts were:

Alien and Invasive Species: Numerous alien aquatic species including algae, fish, sponges and mollusks have been introduced into Hawai'i's waters. Sources of introduction include ship ballast water, hull fouling, as well as both accidental and purposeful introductions through research, commerce, and aquaculture. Many of these aliens out-compete natives and begin to dominate and eventually change the composition of entire habitats. In addition, several native algae have become invasive as a result of changes in water quality and a reduction of herbivorous fish. Alien species are as much of a threat to Hawai'i's marine systems as they are to its terrestrial systems.

Overfishing: Overfishing, particularly of popular coral reef fish causes both declines in fish populations and ecosystem level impacts. Studies throughout the MHI have demonstrated that numerous areas and species are severely overfished. Gill nets and spear fishing on scuba are believed to cause the most significant impacts because of the efficiency and indiscriminate way in which they catch fish.

Water Quality: Water quality has declined as a result of land-based pollution and sediment in the MHI. Many islands have severe problems with sedimentation from agriculture, and landscapes denuded by grazing species. Likewise, pollutants and nutrients from agriculture, sewage, and runoff impact marine organisms and contribute to excessive growth of alien and invasive algae.

Other Threats: Additional threats including oil and chemical spills, boat-based pollution, marine debris, and coastal development, are discussed in the full report.

The most commonly cited obstacles tended to fall into one of three categories listed below:

1. Limited Awareness of the Importance of Marine Resources and Little Demand for Effective Management

- A diffuse support base for improved management and conservation versus strong minority voices that are opposed to management and conservation activities.
- A lack of political will for marine conservation due to limited awareness of the value of marine ecosystems and resources.
- The Sliding Baseline Syndrome (the idea that with each subsequent generation the baseline of what is considered natural is further and further from the true natural state).

2. Limitations in the Application of Biologically Appropriate Management

- Lack of ecosystem-based management (most marine management in the state focuses on individual species, and does not protect ecosystem process upon which species depend).
- Limitations in organizational capacity to implement comprehensive ecosystem management. Division of Aquatic Resources (DAR) and other organizations have few resources to focus on ecosystem management.
- A lack of "No Take Areas" that protect ecosystem features.
- Inadequate fisheries regulations (many regulations do not consider the reproduction size of species thus allowing take before reproduction).
- Complicated species-specific regulations (regulations that are complex and hard to follow).
- Limited regulatory reach, e.g., lack of recreational licenses and gear-specific commercial licenses.

3. Limitations in Capacity for Effective Marine Management

- Limited financial resources and legal mandate to protect nearshore marine areas.
- Limited long-term funding for marine management.
- Limited organizational capacity (NGOs & government) to effectively manage natural resources.
- Jurisdictional conflicts and limited communication/coordination both within and between resource trustee agencies.

Overcoming these obstacles will be critical to adequately addressing the threats to marine resources in the MHI. While the list of the threats and obstacles may be daunting, a large number of experts remain positive about our ability to more effectively manage marine resources. The following list of recommendations represents a sampling of expert opinion on how we can more adequately protect nearshore resources.

RECOMMENDATIONS ON ENHANCING NEARSHORE MARINE CONSERVATION IN THE MHI

Experts provided an extensive set of recommendations on how to enhance nearshore conservation. It is important to note that some activity is already ongoing under each category listed below. However, it is equally important to note that experts were unable to identify any area where they felt that the current management is sufficient to address the scale of the threats and obstacles in the area. A major theme that emerged is the need to address high priority or urgent issues while also developing a comprehensive strategy that sets a solid foundation for long-term marine conservation work. This approach is critical since there are some issues that should be addressed immediately,

and others that will require long-term attention and collaborative action. Pressing high-priority needs include management of alien species, enhancing capacity within the NGO sector and DAR, and developing arguments for conservation through socioeconomic research and monitoring. Efforts that will require long-term collaborative planning include developing an ecosystem prioritization and a comprehensive ecosystem-based conservation strategy, and raising awareness in specific sectors of the importance of marine conservation. Many of the specific recommendations are summarized below:

- 1. Create Awareness and Demand for Conservation Management at all Levels of Society.** Overwhelmingly, experts interviewed reported that creating awareness and demand for conservation is the highest priority activity to be undertaken to improve marine conservation. Numerous experts independently identified limited awareness, attitudes that are ambivalent or opposed to marine management, and limited political will as critical constraints to more effective management. **Recommendations include: Develop campaigns and communications strategies with the help of public relations experts; Develop mechanisms that allow people to come to their own conclusions regarding the need for environmental measures; highlight the economic value of marine resources to increase demand for more effective management from commercial sectors. DAR has recently announced plans to develop a communications strategy for coral reef awareness and plans to partner with various groups to implement parts of the strategy.**
- 2. Encourage Comprehensive Marine Ecosystem Planning and Implementation (including Expansion of Marine Protected Areas).** The focus of marine management in the state remains species specific. Experts interviewed have reported that while species-based management approaches are important, they are unlikely to be effective in the long-term. An ecosystem management approach works to conserve the habitat required for various species, ecosystem processes, multi-species interactions, outstanding biological phenomenon such as movements and migration, and other biological features that are critical to maintaining an ecologically viable ecosystem. In interviews for this study, DAR staff expressed their desire to move to ecosystem management and identified Marine Protected Areas (MPAs) as one proven way to conserve ecosystems. Experts suggested that any move to ecosystem management must consider biological priorities as well as human needs, and should be accompanied by outreach and education programs. **Recommendations include: Creating a working group of key individuals to focus on biodiversity conservation and ecosystem management; initiating a collaborative process to identify and designate MPAs that serve an ecosystem management role; creating a MPA Unit within DAR; supporting the planned DAR process to improve MPA management in the state; investigating the feasibility of creating more community-based MPAs.**
- 3. Improve Communications and Collaboration Among Stakeholder Groups.** An obstacle mentioned by several experts is limited communication and coordination both within and between various agencies and organizations involved in management. Given the limited amount of funds available, some experts felt more collaboration could help to increase the efficiency and efficacy of marine management actions. **Recommendations include: Supporting and participating in ongoing efforts to improve communication and collaboration; develop a daily email list-server for marine issues; develop a quarterly newsletter focused on marine conservation; hold periodic topical meetings on particular conservation and management strategies; and others.**

4. **Build Capacity for Effective Natural Resources Management:** Many experts stressed severe capacity limitations both in the government and non-government sectors. Currently there are limitations in NGO activity in marine conservation in the state and DAR is significantly underfunded. **Recommendations include: Developing mechanisms to support organizational development; strengthening enforcement capacity; supporting DAR to increase their ability to more effectively manage biodiversity and natural resources; educating judges and prosecutors as to the importance of marine management and the need for stricter penalties; supporting student training and internship programs; and developing a marine conservation scholars/fellows program for native Hawaiians.**
5. **Address Alien and Invasive Species:** While there is some ongoing activity to understand the distribution and eradication methods for alien species, experts recommended significant increases in alien species management. **Recommendations include: Developing a comprehensive multi-stakeholder strategy to address alien and invasive species; raising the profile of alien species issues with state and federal decision makers; creating stronger linkages between the agencies with jurisdiction over the introduction and spread of alien species; supporting and expanding studies on eradication methods as well as subsequent implementation; and organizing communities around the state to monitor for new introductions.**
6. **Expand Community-based Nearshore Marine Management including the Documentation of Indigenous Knowledge:** Several experts suggested that local communities are an overlooked resource in terms of nearshore management. The Mo'omomi case was cited by several people as an important example, while Limahuli on Kaua'i is another example that experts say offers promise. Likewise, many experts expressed that the critical knowledge of fishermen and others is being lost as people are growing older. **Recommendations include: Assess the positive and negative aspects of community-based marine management efforts and feasibility of expanding these approaches to other sites; and create a cadre of technically experienced community outreach workers to help new communities initiate and maintain conservation efforts; Document traditional knowledge of Hawaiians and pass this on for use in teaching and management.**
7. **Effectively Manage Nearshore Commercial and Recreational Fishing:** Many experts stressed fishing pressure can only be reduced if fisherman are brought into the circle of organizations and individuals who support more effective fisheries management. To do this, fishers must understand and believe that managing some areas and some species will benefit them in the long-term by improving fish catch overall. Fortunately there is a lot of evidence from around the world that fishery management areas can significantly replenish fish populations and increase catch. **Recommendations include: Working with fishers to help them meet their needs while demonstrating that fisheries conservation can benefit them; creating a recreational fishing license; accompanying changes in fisheries regulations with awareness building and education so people are aware of the reasons for the changes; enhancing DOCARE's capacity to enforce fisheries regulations; developing more "no take" and managed areas; and developing an immediate strategy to ensure conservation of top priority sites for nearshore fisheries.**

8. **Address Upland Development and Land-based Effects on the Sea:** No place in Hawai'i is more than 29 miles from the coast. As a result, experts have suggested that nearly all land-based activities eventually impact the sea. **Recommendations include: Undertaking a coastal sensitivity analysis to identify priority areas that should not be developed; overlaying priority marine areas with key watersheds; working with state and county authorities to limit coastal development; developing education and incentive programs to promote watershed management; and enhancing efforts to manage storm water.**

9. **In addition, the study included one recommendation from the consultant:** Develop sustainable financing mechanisms to support marine conservation activity in the state. The private sector and visitors to the state offer vast potential to help fund conservation management. **Recommendations include: Developing a marine conservation finance strategy focused on the private sector and other donors such as foundations and government; establish a Hawai'i Natural Heritage Trust Fund; generate public support for increased government appropriations; and enter into partnership agreements with willing industries to generate funds for conservation.**

CONCLUSION

It is undeniable that the marine resources of the MHI have been severely degraded by human activities. In some areas, degradation is so severe that they are beyond restoration. However, many other areas remain sufficiently intact that the right combination of protection and time will enable restoration. Some areas remain in good condition and may help provide a resource base from which other areas may be restored. Fortunately, a number of important conservation and management initiatives are already underway. These include new forms of MPAs to conserve aquarium fish on the Kona coast, efforts to understand the distribution and eradication techniques for alien algae, initiatives to support community-based resource management, and new regulations to manage fisheries based on biological considerations. Likewise, there is palpable energy and enthusiasm behind efforts to conserve marine resources in the state. It appears the conservation community is at a pivotal time and is ready to make an outstanding and significant difference. Despite this energy and enthusiasm, the scale of threats and obstacles is massive. It appears that to truly make a difference to the long-term sustainability of marine biodiversity, it will require the collective action of all relevant stakeholders as well as a massive increase in funding, and support for active management and protection. We hope this study will help provide one step in the process of enhancing the conservation of nearshore marine resources in the MHI.