

Background Information on the Institutional and Regulatory Framework of Marine Managed Areas in the Main Hawaiian Islands

Herman Cesar

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Cesar Environmental Economics Consulting
Kastanjelaan 9
6828 GH Arnhem
The Netherlands

Tel. ++31-26-4452175

Fax. ++31-26-3704915

E-mail: herman.cesar@ivm.vu.nl

E-mail: beukering@ivm.vu.nl

Web: www.ceec.nl

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Colophon

This study is part of a larger report with the title “Assessment of Economic Benefits and Costs of Marine Managed Areas in Hawaii” by Herman Cesar, Pieter van Beukering and Alan Friedlander. This publication is a result of research carried out by Cesar Environmental Economics Consulting (CEEC) and funded by the National Oceanic and Atmospheric Administration, Coastal Ocean Program, under awards NA 160A2412 to the University of Hawaii for the Hawaii Coral Reef Initiative Research Program. Co-funding was obtained from the Division of Aquatic Resources (DAR) and the Department of Business, Economic Development & Tourism (DBEDT). Comments on the draft version by Denise Antolini, David Paulson, Athlene Clark and Linda Flanders are greatly appreciated.

1. Introduction

This background document aims to summarize basic information on the regulatory and institutional framework of Marine Managed Areas (MMAs) in Hawaii. This information helped us to define relevant scenarios and management options for the economic valuation and cost benefit analysis presented in the accompanying papers.

This background document focuses on the six selected MMA sites, namely: Hanauma Bay and Waikiki-Diamond Head, both on Oahu; Molokini Shoal and Honolulu-Mokuleia Bay on Maui, and Kahaluu Beach Park and Waiopae on Big Island.

The information required for the baseline scenario of the economic valuation, and the management options for the cost benefit analysis was as follows:

- Regulatory Background: What types of MMAs are present in the main Hawaiian islands? Which government agencies are responsible for the different aspects of policy/management/etc., both in Hawaii generally and, more specifically, for each of the six sites? What are the regulatory steps necessary to designate MMAs?
- Fishing and Non-extractive Use Regulation: What is the extent of current fisheries regulation? What is the current regulation for non-extractive use in the six sites?
- Enforcement and Compliance (for each site and its surrounding area): Who is responsible for enforcement? What is the (hu)manpower? What is the budget? What is the area covered per enforcement officer for each site?; What is the track record of enforcement? What is the extent of violation of the regulations?
- Taxes, Licenses and Fees: What is the current level of taxes that users (e.g., DOBOR for Molokini boats) are being charged? Are there any other costs of extractive or non-extractive use? Is any of the money charged for MMA use (Hanauma, Molokini, etc.) channeled back to the MMA?

Most of this information is readily available from web-sites, brochures and studies. Of particular importance is the study by Antolini et al. (2003) on the current governance structure of Hawaii's MMAs. Additionally, interviews were carried out to obtain the relevant information. Each of these four categories of information is discussed in detail below. The information presented gives the current situation and does not discuss possible future changes. Recommendations for future changes are given in the accompanying papers on fisheries benefits of MMAs, and on the management options.

2. Regulatory Background

The management of coastal and marine areas in Hawaii occurs at both the State and Federal levels through various statutes. Application of these laws is commonly undertaken through administrative regulations promulgated for specific areas. A primary focus of marine regulation in Hawaii is the control of “fishing” and the prohibition / restriction of marine organism collection. The underlying motivation for the regulatory system is the maintenance and, if necessary, the restoration of marine ecosystems and/or the reduction of user conflicts. Unlike many states on the U.S. Mainland, recreational user licenses and permits are not routinely required and their use is commonly restricted to specific activities and areas.

The state and county governments share concurrent jurisdiction over marine uses in the coastal zone. Commonly, county governments regulate shore activities through controlling access to their beach parks while the State regulates activities in unencumbered lands, state parks and harbors and other points of access as well as within three miles of the coast (e.g., territorial waters). Federal marine jurisdiction extends from the three-mile state territorial boundary out to the end of the 200-mile EEZ. On a practical note, where a county, state, or federal park encompasses a coastal area, those who administer the park often monitor activities in the water. For example, although Hanauma Bay is a state designated MMA, the day-to-day monitoring of user activities is carried out by the City / County park administration as access is through the County facility. Where violations of marine regulations occur, State officers pursue enforcement actions at Hanauma Bay. In practice, this joint system works reasonably well.

Clearly, most of Hawaii's coral ecosystems lie in State-regulated waters. The Department of Land and Natural Resources (DLNR), Division of Aquatic Resources (DAR) has identified critical coral ecosystems and, using statutory authority, has identified various MMAs. The purpose of the current study is to examine in detail six designated MMAs in various parts of the main Hawaiian Islands, five of which are called Marine Life Conservation Districts (MLCDs)¹.

Any marine conservation policy must address certain basic elements. These elements involve the standard mechanisms through which reserved area policies are implemented and administered. Policy mechanisms used in one or more protected areas include:

- Regulation of certain types of activities;
- Limitations on access;
- Dispersion of use;
- Rotating opening and closing of areas;
- Provision for education and interpretative training;
- Establishment of supporting strategies and management principles;
- Creation of opportunities to engage in community based decision-making.

These basic policy issues provide a structure for general regulatory policy in Hawaii for both aquatic and terrestrial resources. In considering this structure it is important to understand that the current approach to these policies relies primarily on voluntary compliance rather than formal legal enforcement due to budget constraints. Regulatory enforcement of resource policies in Hawaii is generally perceived to be weak, which may encourage resource users to politically resist even basic measures, such as registration and licensing. This limits the capacity of the State to generate revenues,

¹ Regulation of natural resource use in Hawaii is more complicated than on the US Mainland due to the presence of a more diverse set of stakeholder groups. Of particular importance are fairly large 'local' user groups who shift between subsistence, recreational, semi-commercial and commercial fishing activities. Two additional special interest groups that further challenge regulatory policymaking are: (1) ethnic native Hawaiians, who have rights to traditional and customary access and gathering of certain natural resources expressly protected by the Hawaii Constitution and case law; and (2) a tourist industry focused on marine recreation activities.

therefore restricting natural resource-related spending, and the collection of information on uses and impacts needed for conservation and resource assessments.

Types of Marine Managed Areas in the State of Hawaii

Various types of protected areas are spread throughout the main Hawaiian Islands. Currently there are:

- a) Marine Life Conservation Districts (11);
- b) Fisheries Management Areas (24);
- c) Bottomfish Restricted Fishing Areas (19);
- d) Various Reserves, Recreational Piers and Refuges (12);
- e) De facto protected areas (around military reserves);

Marine Life Conservation Districts (MLCD): Act 192 of 1955 gave DLNR the authority to establish, modify and adopt rules governing use of MLCDs. The MLCDs were designed to conserve and replenish marine resources, and to protect habitat in which fish and aquatic life can grow and reproduce. The initial policy goal of MLCDs was to foster non-consumptive use of marine areas. Taking of any type of living material and non-living habitat material is restricted, if permitted at all in these areas. Candidate MLCD sites are identified by public suggestion, legislative mandate, or DAR survey.

Fisheries Management Areas (FMA): Act 58 of 1953 enabled DLNR to enter into agreements with owners of bodies of freshwater for the acquisition of fishing rights. In 1981 Act 85 expanded this statute to include marine areas, and conferred broad authority to regulate fish, game, forest and conservation under general policies established by the legislature. Under this authority DLNR may establish, manage, maintain and operate freshwater and marine fishing reserves, refuges and fishing areas to conserve and propagate introduced freshwater fishes and other freshwater and marine life. The policy goal of these Acts is to maintain the resources for economic reasons (tourism), for enjoyment of present residents of Hawaii, and for future generations. It is unlawful to violate rules adopted by DLNR.

Bottomfish Restricted Fishing Areas (BFRFA): BFRFAs were created by Administrative Rule in 1998. They are designed to conserve and manage the bottom fish resources in the Main Hawaiian Islands by restricting fishing in certain areas to conserve the spawning populations of bottom fish. BFRFA areas restrict fishing in about twenty percent of known bottomfish spawning areas. These areas are distributed so as to maximize benefits and limit negative impacts on bottomfishing opportunities. Suggestions from bottom fishers statewide are solicited for designation of BFRFA. In BFRFAs it is unlawful to take bottomfish with any trap, trawl, bottom fish longline or net, or to possess both bottomfish and any trap trawl, bottom fish longline or net.

Natural Area Reserve System (NARS): Created by Act 139 (1970) the NARS legislation authorized DLNR to designate and manage reserved areas. NARS areas were intended to preserve and protect in perpetuity examples of Hawaii's unique terrestrial and aquatic resources in order that present and future generations may be able to learn about and appreciate these natural assets. The legislation made provision for an advisory

commission to establish criteria for selecting areas, and for policies to be placed under their management. The policy goal of these reserves was to designate areas to provide baselines against which changes in other native ecosystems could be measured. Natural Area Reserves are intended to remain as unmodified as possible. To be selected as a Natural Area Reserve, the area should be representative of one or more major, natural and relatively unmodified ecosystems; have significant potential for scientific study or the preservation of genetic material; and be easily identifiable on maps and on the ground.

De Facto Protected Areas (around military reserves): The State of Hawaii has a number of military areas that form de facto protected areas. Entry by outsiders for recreational and/or fisheries purposes is strictly prohibited. Enforcement of the regulations in these zones is, of course, incomparably stricter than in any other protected areas.

In our economic study on MMAs, six MMA sites were selected. Table 1 summarizes the basic legal status of these MMAs. Below, the regulations at these sites will be discussed in detail. Ecological characteristics are discussed in Friedlander and Cesar (2004) and economic characteristics are discussed in Van Beukering and Cesar (2004).

Table 1: MMA Study Sites, Legal Status and Background Facts

| Site | Name and Legal Status | Established | Size in acres |
|-----------------|------------------------------------|-------------|---------------|
| Molokini | Molokini Shoal MLCD | 1977 | 77 |
| Honolua | Honolua-Mokuleia Bay MLCD | 1978 | 45 |
| Kahaluu | Kahaluu Beach Park | - | 8 |
| Waipae | Waipae MLCD | 2003 | 50 |
| Waikiki-Diamond | Waikiki MLCD | 1988 | 76 |
| Head (2 areas) | Waikiki-Diamond Head Shoreline FMA | 1978 | 237 |
| Hanauma Bay | Hanauma Bay MLCD | 1967 | 101 |

Process for Designating a Managed Area

The process of designating a Managed Area takes at least 3 years and is composed of several steps. These steps include:

- An identification of candidate areas by either a community group (composed of multiple stakeholders) or by DAR researchers;
- A biological assessment of the site by DAR to assess fish populations and other resources;
- Public meetings with stakeholders and community groups regarding resource issues, management options and boundaries;
- DAR formulates proposed regulations based on community and stakeholder recommendations;
- Review and approval of public hearing for proposed regulations by the Board of Land and Natural Resources, Attorney General & Governor's Office;

- Public hearings on proposed regulations;
- Rules and Regulations adopted by the Board of Land and Natural Resources;
- Attorney General final approval; and
- Governor final approval.

3. Fishing and Non-extractive Use Regulation

Regulation of both fishing and non-extractive use for the six MMA sites is summarized in the most recent "Hawaii Fishing Regulation" (August 2003) by the Division of Aquatic Resources (DAR) of the Department of Land and Natural Resources (DLNR). Prohibited activities are given below for each of the six MMAs investigated. Note that all MMAs described here are Marine Life Conservation Districts (MLCDs) except Kahaluu, which is a beach park within the Kailua-Keauhou Fish Replenishment Area (FRA). Furthermore, the Waikiki-Diamond Head MMA consists of two parts, the Waikiki MLCD and the Waikiki-Diamond Head Shoreline FMA. The summary is given in Table 1 and worked out in detail for each of the sites below.

Table 2: Regulation regarding Fishing and Non-extractive Use in selected MMA sites

| Site | ----- Prohibited or Restricted Activities ----- | | | | |
|--------------|--|-------------------------|-----------------|------------------------|-----------------------------|
| | Fishing | Collecting/ Removing | Fish Feeding | Anchoring / Mooring | Commercial Activities |
| Molokini | x | X | x | x | Limited by permit |
| Honolua | x | x | - | | |
| Kahaluu | - | - | - | - | - |
| Waiopae | x | x | x | x | x |
| Waikiki MLCD | x | x | | | Limited by permit; no boats |
| W-DH FMA | open to fishing etc. in even numbered years, closed in other years | | | | |
| Hanauma Bay | x | x | x | | |

Hanauma Bay, Oahu

Hawaii Administrative Rules Title 13, DLNR, Subtitle 4 Fisheries, Part 1, MLCDs, Chapter 28 Hanauma Bay MLCD, Oahu §13-28-2 states the following prohibited activities:

- (1) Fish for, catch, take, injure, kill, possess, or remove any finfish, crustacean, mollusk including sea shell and opihi, live coral, algae or limu, or other marine life, or eggs thereof;
- (2) Take, alter, deface, destroy, possess, or remove any sand, coral, rock, or other geological feature, or specimen;

- (3) Have or possess any fishing gear or device, including, but not limited to, any hook-and-line, rod, reel, spear, trap, net, crowbar, or other device, or noxious chemical that may be used for the taking, injuring, or killing of marine life, or the altering of geological feature or specimen, the possession of which shall be considered prima facie evidence in violation of this rule; or
- (4) Introduce any food, substance, or chemical into the water, to feed or attract marine life.

Waikiki-Diamond Head, Oahu

This area consists of two parts, the Waikiki MLCD and the Waikiki-Diamond Head Shoreline FMA. The regulations for each are given below.

Hawaii Administrative Rules Title 13, DLNR, Subtitle 4 Fisheries, Part 1, MLCDs, Chapter 36 Waikiki MLCD, Oahu §13-36-2 states that no person shall engage in the following activities in the *Waikiki Marine Life Conservation District*: (1) Fish for, catch, take, injure, kill, possess, or remove any finfish, crustacean, mollusk including sea shell and opihi, live coral, algae or limu, or other marine life, or eggs thereof; (2) Take, alter, deface, destroy, possess, or remove any sand, coral, rock, or other geological feature, or specimen; or (3) Have or possess in the water, any spear, trap, net, crowbar, or any other device that may be used for the taking or altering of marine life, geological feature, or specimen. The *Waikiki-Diamond Head Shoreline Fisheries Management Area* is open to fishing from January 1 to December 31 of even-numbered years (2000, 2002, etc.). And closed to fishing from January 1 to December 31 of odd-numbered years (2001, 2003, etc.). It is permitted to fish for, take or possess any legal size marine life in season during the “open to fishing” period, provided that only hook-and-line, thrownet, handnet to land hooked fish, and spear fishing and hand harvesting methods are employed. It is prohibited to fish for, take or injure any marine life (including eggs), or to possess in the water any fishing gear during the “closed to fishing” period. It is also prohibited to use any spear between the hours of 6:00 pm to 6:00 am, or have or possess in the water any trap or net except thrownet or handnet to land hooked fish during the “open to fishing” period.

Molokini Shoal MLCD

According to §13-31-3, prohibited activities in the Molokini Shoal Marine Life Conservation District are:

- (1) Fish for, catch, take, injure, kill, possess, or remove any finfish, crustacean, mollusk including sea shell and opihi, live coral, algae or limu, or other marine life, or eggs thereof except as provided for in section 13-31-4(1);
- (2) Have or possess in the water, any spear, trap net, crowbar, or any other device that may be used for the taking or altering of marine life, geological feature, or specimen;
- (3) Take, alter, deface, destroy, possess, or remove any sand coral, rock, or other geological feature, or specimen; 31-2 §13-31-5
- (4) Feed or deliberately introduce any food material, substance, or attractant, directly to or in the vicinity of any aquatic organism, by any means for any purpose except as provided in section 13-31-4(1);

- (5) Moor boats for commercial activities except as provided for in section 13-31-5; or
- (6) Anchor a boat when a day-use mooring system and management plan is established by this department.

Honolua-Mokuleia Bay MLCD

Pursuant to HAR § 13-32-2, no person shall engage in the following activities in the Honolua- Mokuleia Bay Marine Life Conservation District: (1) Fish for, catch, take, injure, kill, possess, or remove any finfish, crustacean, mollusk including sea shell and opihi, live coral, algae or limu, or other marine life, or eggs thereof; (2) Take, alter, deface, destroy, possess, or remove any sand, coral, rock, or other geological feature, or specimen; or (3) Have or possess in the water, any spear, trap, net, crowbar, or other device that may be used for the taking or altering of marine life, geological feature or specimen.

Kahaluu Beach Park, Hawaii

Kahaluu is a Beach Park that lies within the Kailua-Keauhou Fisheries Management Area within the West Hawaii Regional Fisheries Management Area. Replenishment Area. HAR § 13-60.3-3 prohibits the taking of aquatic life for either commercial or non-commercial aquarium purposes in addition to engaging in or attempting to engage in fish feeding. Regular 'other' types of fishing are allowed. However, due to the high volume of beach visitors (swimming, snorkeling), there is only limited fishing activity at Kahaluu.

Waiopae MLCD

The most recently established MLCD is Waiopae Tidepools, designated in 2003 after 16 years of community efforts. Pursuant to HAR § 13-38-3, the prohibited activities at the Waiopae tidepools MLCD are: (1) take, injure, kill, possess, or remove any marine life; (2) take, alter, deface, destroy, possess, or remove any sand, coral, rock, or other geological feature or specimen; (3) anchor or moor any vessel; and (4) conduct commercial activities, such as, but not limited to, commercial tours, dive groups, sightseeing tours, hikes, or guided services.

4. Enforcement and Compliance

All enforcement of natural resource regulations is centrally administered through the DLNR's Division of Conservation and Resource Enforcement (DOCARE). The 2003-04 appropriated operating budget for the Enforcement Division is \$5.9 million. The Division currently has 102 budgeted positions, of which 6 are vacant. The Division is charged with enforcement of both terrestrial and marine regulations as well as assisting with other state enforcement activities. The deployment of enforcement staff is outlined below. For instance, 21 DOCARE enforcement officers are responsible for the whole of Big Island, both terrestrial and marine.

DOCARE's responsibilities include all state laws and county (not a priority) ordinances on all state lands, beaches, shore waters and county parks (Act 226, 1981). Before 1981, their responsibility was solely for natural resources (i.e. hunting and fishing). This increased responsibility has necessarily reduced DOCARE's attention for natural

resource enforcement. By any measure, the Division is understaffed given its broad regulatory and geographical responsibilities. Understaffing is clearly indicative of the low budget priority assigned to natural resource enforcement by State legislature. This situation is exacerbated by the fact that the State does not use any alternative finance mechanisms to pay for enforcement, e.g., entrance fees to its marine parks.² Also, DOCARE no longer makes maximum use of its once successful and cost-effective volunteer program. The changes since the early 1980s, and the lack of political priority has led to a widespread public perception that virtually no marine enforcement activities exist in most of the State, and that where marine enforcement activities do exist, chances of being cited and penalized are very small³.

Table 3: Deployment of Staff at DOCARE per County in the State of Hawaii

| County | Population (‘000) | Area (km ²) | Territorial Waters (km ²) | Staff Enforcement | Supervision/ Management |
|------------|----------------------|----------------------------|--|----------------------|----------------------------|
| Honolulu | 876 | 1554 | 3903 | 33 | 6 |
| Kauai | 58 | 1611 | 1645 | 12 | 3 |
| Maui | 128 | 3002 | 3201 | 18 | 5 |
| Big Island | 149 | 10433 | 2730 | 21 | 4 |

In the six selected MMA sites, only Hanauma Bay has strict enforcement of fishing and non-extractive use regulations through a 24-hour system of guards (through a direct contract with a security services company). In two other MMA sites (Waikiki-Diamond Head and Kahaluu), there appears to be some level of compliance by virtue of their proximity to residential dwellings and/or high levels of recreational users. At Molokini Shoal, the distance to an inhabited island and the presence of recreational users during the day suggest that the number of violations may be limited. At Honolua-Mokule‘ia Bay MLCD, illegal fishing allegedly occurs during the evening and night. Finally the MLCD at Waiopae Tidepools has only recently been enacted and violations seem to occur regularly due to the lack of regulatory signs until recently and the need for the public to learn the new rules. The number of DOCARE citations for the six sites is very small, but this does not mean that compliance is good. There is a clear positive correlation between the level of enforcement on one hand and fish biomass in the MMAs on the other: Diamond Head and Honolua score lowest with an average fish biomass of around 0.4 tons per hectare, while Hanauma Bay has the highest fish biomass with 1.38 tons per hectare (Friedlander & Cesar, 2004).

² In addition, there are legal restrictions on the State's use of monies. For instance, the financial support that DLNR receives under the Federal Aid in Sport Fish Restoration and other federal programs cannot be used for enforcement purposes even in no-take zones where the aim of setting aside these areas is fish stock enhancement.

³ Under marine regulatory law, all offences are categorized as criminal offenses (e.g. a petty misdemeanor) and there is no provision for civil offences or penalties. By inference, since marine violations imply criminal charges then, perhaps, there is reluctance on the part of enforcement officers to cite offenders. Enforcement activities are further complicated since judicial fines for marine violations are very modest, and regulatory violations have a low priority among prosecutors in the criminal court system.

5. Taxes, Fees, Permits and Licenses

This section gives some examples of existing taxes and fees, as well as payment for permits that are currently collected in Hawaii. Unfortunately, very few of these taxes and fees are earmarked directly or indirectly for MMA management. One can say that there is basically no system of fees or permits that supports the Hawaii MMAs (with the exception of Hanauma Bay). This leaves DLNR with insufficient funds to properly carry out its mandates. This is very different from the situation in Florida and from the situation for most marine protected areas in the rest of the world. Some examples of fees in Hawaii are:

- Entrance fees to marine parks: Hanauma Bay MLCB is the only marine park in Hawaii that charges an entrance fee. This adult visitor fee has recently been increased to \$5 for any visitor without proof of State of Hawaii residency (technically, the fee is charged by the City).
- Mooring permits: For Molokini, DLNR has issued 41 mooring permits with a cost of \$ 50 for a 2-year permit. This is the only fee that is directly and exclusively tied to Molokini use.
- DOBOR license fee: there is a license fee of 2% of gross revenues by the Division of Boating and Ocean Recreation (DOBOR). In 2003 a total of \$63,000 in fees was collected at Kihei boat ramp by DOBOR. Most of this can probably be directly attributable to Molokini diving and snorkeling. In addition there was \$664,000 collected for larger vessels at Maalaea Harbor, both for Molokini and for fishing and whale watching tours. The revenues from DOBOR are, however, earmarked for a special Harbors Fund for improvements of harbors, ramps etc. and are not used for the management or enforcement activities at Molokini Shoal;
- Commercial permit: There is an annual \$900 County permit charge for anyone who accesses the marine environment for commercial purposes through a Marine Life Conservation District in Honolulu County .

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