CHAPTER 5: Marinas and Recreational Boating

I. INTRODUCTION

The management measures for marinas are applicable to the facilities and their associated shore-based services that support recreational boats and boats for hire. The following operations/ facilities are covered by these management measures:

- Any facility that contains 10 or more slips, piers where 10 or more boats may tie up, or any facility where a boat for hire is docked;
- Boat maintenance or repair yards that are adjacent to the water;
- Any federal, State, or local facility that involves recreational boat maintenance or repair that is on or adjacent to the water;
- Public or commercial boat ramps;
- Any residential or planned community marina with 10 or more slips; and
- Any mooring field where 10 or more boats are moored.

I.1. Marinas and Recreational Boating in Hawaii

Currently, ocean recreation in Hawaii (boating, fishing, and other activities) constitutes a roughly $600 million a year industry which is growing at a rate of between 5% and 6% annually (MacDonald *et al.* 1995). In general, commercial activities associated with marinas and recreational boating are focused on tourism-related activities rather than commercial fishing. In addition, noncommercial recreation is also growing with local residents spending increasingly more time engaging in coastal water recreational activities, including swimming, boating, fishing, snorkeling, SCUBA diving, and surfing.

Hawaii is unique among coastal states in that it is entirely made up of islands. This geography, combined with natural siting constraints, imposes certain physical limitations on marina development. Very few natural, protected, and accessible bays exist which are conducive to marina development. As a result, in order to create small boat harbors, basins are blasted and dredged from fast lands. Hawaii does not have the numerous large-scale boat harbors common in other coastal states. By contrast, facilities tend to be smaller in size and more widely scattered. Moreover, Hawaii has one highly urbanized island, Oahu, and the five relatively non-urbanized islands of Maui, Kauai, Hawaii, Molokai, and Lanai.

Recent data show that there are 14,857 vessels registered with the Department of Land and Natural Resources--Division of Boating and Ocean Recreation (DLNR-DOBOR) and another 1,600 documented with the U.S. Coast Guard (USCG) (Lal and Clark, 1991). Of these, 70% are registered on Oahu. There are currently 68 public and private small boat facilities statewide. Of these, 27 are boat launching ramps only, and 35 are small-boat harbors and marinas providing a variety of services and functions. The remaining 6 facilities are piers and anchorages. 20 of these marinas are State facilities. Oahu is the only island in Hawaii with private facilities, of which there are 8, and military marina facilities, of which

there are 4. Several private facilities have recently been proposed for the islands of Hawaii, Kauai, and Lanai.

Berthing and mooring capacity for all State, military, and private facilities around the State is approximately 3,600 spaces. About 2,500 (or 75%) of these are located on Oahu. The present demand for recreational boating storage space, moorage space, and boater access exceeds the supply. The demand for additional slip space at State marina facilities, for example, exceeds the existing supply by 100% (Lal and Clark, 1991). All State harbors have a waiting list. For State and private facilities, waiting times for slips and moorages may range from 3 to 15 years. For military facilities, waiting times may be considerably less. Over 80% of all boats in the State are trailerable. As a result, boat cleaning, fueling, and maintenance commonly take place in residential neighborhoods.

Both the State and the private sector have pending proposals for new and expanded marina facilities. It is expected that increasing demand will continue to drive proposals for numerous additional private marina and other shoreline boating facility developments throughout the State. Private facilities currently proposed for Oahu are Ewa Marina (1400 proposed slips) and an expansion of Hawaii Kai Marina. At Ko'Olina on Oahu, the marina basin has been constructed and proposals for development of an approximately 400 private slip marina facility are being sought. The State Kawaihae small boat harbor has begun construction of an expanded breakwater and will provide 90 additional slips. Other proposed facilities and expansions include Haleolono on West Molokai, and Kukuiula Resort on Kauai. Proposed expansions at State facilities include those at Keehi Harbor, Oahu; Honokohau Harbor, Hawaii; Maalaea Harbor, Maui; and Manele Harbor, Lanai.

Over the last decade, interest in developing marinas and water-based features in association with residential and resort developments has steadily increased. These private projects and additional State facilities offer opportunities to capture economic benefits that could accrue to the State. The State currently lacks an effective plan to meet this growing demand, especially in terms of anticipating and meeting long range environmental management needs. Responsibility for regulating and managing coastal developments, marina operations, and boating activities is fragmented among federal, State and county agencies, with no clearly designated lead agency or coherent policy established to coordinate marinas and boating activities. Counties also currently lack specific regulations or guidelines to assist them in evaluating marina design and development, and rely primarily on federal and State permit coverage and a coordinated statewide permit review process.

The State faces constraints in the day-to-day management and improvement of its own facilities because of insufficient fiscal and human resources. Most existing State marinas were built in the 1970s and, as they age, are increasingly unequipped to accommodate the growing volume and variety of public recreational needs. As such, many State facilities may need upgraded sanitation, waste disposal, cleaning, fueling, and/or repair facilities.

A further constraint is enforcement. Enforcement of Chapters 13-230 to 13-256, Hawaii Administrative Rules (HAR), pertaining to Small Boat Harbors, Boating and Ocean Waters, Navigable Streams, and Beaches, falls under the jurisdiction of DLNR. Because vessel operations are a shared jurisdiction in Hawaii, the USCG and other federal agencies may assist with enforcement activities. In light of the elimination of the majority of Hawaii's Marine Patrol agency, the roles and responsibilities of all enforcement agencies are being reevaluated.

Despite these constraints, some important steps towards improving the planning and management of small boat harbors have occurred. First, the Hawaii CZM Program has engaged in activities promoting long range planning for marina development. Marinas, harbors, and boating are important elements encompassed within the CZM Program's objectives and policies, as outlined in the 1990 *Hawaii Coastal Zone Management Program* summary document. A number of the State's CZM policies and objectives promote long-range planning for public and private coastal facilities and improvements, including their appropriate siting, design, and construction. CZM policies and objectives call also for improved coordination and funding of coastal recreation planning and management, including the protection of coastal water quality and ecosystems.

In 1991, the Hawaii *Ocean Resources Management Plan* (ORMP), developed by the legislatively-established Hawaii Ocean and Marine Resources Council, recommended objectives, policies, and implementing actions relating to recreational harbor development. These include the protection of marine water quality, development of boater and tourist education programs, development of a coordinated planning framework for small boat harbor development, development of a clear overall State policy on marina development, and control of shoreline erosion, among other things. The plan has been formally adopted by the State legislature and implementation by the various State agencies involved in the planning and management of marinas and boating activities is being coordinated by the CZM Program under Act 104 of the 1995 Legislature that amended Chapter 205A, HRS.

Also in 1991, the Department of Business, Economic Development, and Tourism (DBEDT), Ocean Resources Branch; the Department of Transportation (DOT), Harbors Division; and the University of Hawaii Sea Grant Extension Service co-sponsored a Hawaii Marina Seminar, a forum for discussing issues of marina development in Hawaii. This seminar convened local, State, and national governmental and non-governmental interests to address issues of marina planning, design, development, and operation.

More recently, the Office of State Planning (OSP) launched a statewide initiative to develop planning and development guidelines for new and expanding marina facilities, as a result of widespread demand for additional boating facilities. The *Draft State Planning and Evaluation Guidelines for Private Sector Marina Development* (OSP 1993) sets forth a framework for guiding development of new private marinas. More specifically, it recommends siting, construction, and operations criteria that should be incorporated into marina development plans submitted to State and county agencies during permitting processes. It also

recommends that the State undertake an affirmative management posture in accordance with the "public trust doctrine" to secure appropriate public benefits for the use of public trust lands and resources for marina purposes. The CZM Program was selected to take the lead for the State in determining and negotiating "public benefits packages" which outline benefits that could be considered as compensation to the public for use of public trust resources. The public benefits packages may vary depending on the type of marina proposed, its location, impacts, and degree of public use, and the benefit to and/or burden on the community as a whole.

I.2. Types of Polluted Runoff Associated with Marinas and Recreational Boating

Because marinas are located right at the water's edge, there is often no buffering of the release of pollutants to waterways. Adverse environmental impacts may result from the following sources of pollution associated with marinas and recreational boating:

- poorly flushed waterways where dissolved oxygen deficiencies exist;
- pollutants discharged from boats;
- pollutants transported in stormwater runoff from parking lots, roofs, and other impervious surfaces;
- the physical alteration or destruction of wetlands and of shellfish and other bottom communities during the construction of marinas, ramps, and related facilities; and
- pollutants generated from boat maintenance activities on land and in the water.

A brief summary of some of the impacts that can be associated with marinas and boating activities is presented below.

Toxicity in Marina Water Column, Aquatic Organisms, and Sediments: Pollutants from marinas can result in toxicity in the water column, both lethal and sublethal, related to decreased levels of dissolved oxygen and elevated levels of metals and petroleum hydrocarbons. These pollutants may enter the water through discharges from boats or other sources, spills, or stormwater runoff. Accumulation of organic material (from sewage discharges) in sediment will result in a sediment oxygen demand that can negatively impact the dissolved oxygen in the water column, which in turn can result in fish kills. Metal and metal-containing compounds have many functions in boat operation, maintenance, and repair, but are generally toxic to aquatic and benthic organisms. Elevated concentrations of petroleum products in marinas can be attributed to refueling activities and bilge or fuel discharges from nearby boats and are often toxic to marine organisms.

Boats can also be a significant source of fecal coliform bacteria in areas with high boat densities and low hydrologic flushing.

Disruption of Sediment and Habitat: Boat operation and marina dredging can destroy habitat; resuspend bottom sediment (resulting in the reintroduction of

toxic substances into the water column); and increase turbidity, which affects the photosynthetic activity of algae and estuarine vegetation.

Shoaling and Shoreline Erosion: Shoaling and shoreline erosion result from the physical transport of sediment due to waves and/or currents. These waves and currents may be natural (wind-induced, rainfall runoff, etc.) or human-induced (alterations in current regimes, boat wakes, etc.). Factors influencing vessel-generated shoreline erosion include the distance of the boat from shore, boat speed, side slopes, sediment type, and depth of the waterway.

II. SITING AND DESIGN

Siting and design are among the most significant factors affecting a marina's potential for water quality impacts. The location of a marina -- whether it is open (located directly on a river, bay, or barrier island) or semi-enclosed (located in an embayment or other protected area) -- affects its circulation and flushing characteristics. Circulation and flushing can also be influenced by the basin configuration, orientation to prevailing winds, as well as groundwater flowing into the marina basin on the inland side. Circulation and flushing play important roles in the distribution and dilution of potential contaminants. The final design is usually a compromise that will provide the most desirable combination of marina capacity, services, and access, while minimizing environmental impacts, dredging requirements, protective structures, and other site development costs. The objective of the marina siting and design management measures is to ensure that marinas and ancillary structures do not cause direct or indirect adverse water quality impacts or endanger fish, shellfish, and wildlife habitat both during and following marina construction.

A. Marina Flushing Management Measure

Site and design marinas such that tides and/or currents will aid in flushing of the site or renew its water regularly.

II.A.1. Description

The term *flushing* or *residence time* is often misused in that a single number (*e.g.*, 10 days) is sometimes given to describe the flushing time of an estuary or harbor. In actuality, the flushing time ranges from zero days at the boundary to possibly several weeks, depending on location within the marina waterbody.

Maintaining water quality within a marina basin depends primarily on flushing as determined by water circulation within the basin. If a marina is not properly flushed, pollutants will concentrate to unacceptable levels in the water and/or sediments, resulting in impacts to biological resources. In tidal waters, flushing is primarily due to tidal advective mixing and is controlled by the movement of the tidal prism into and out of the marina waterbody.

The degree of flushing necessary to maintain water quality in a marina should be balanced with safety, vessel protection, and sedimentation. Wave energy should be dissipated adequately to ensure boater safety and the protection of vessels. The protected nature of marina basins can result in high sedimentation rates in waters containing high concentrations of suspended solids.

II.A.2. Applicability

This management measure applies to the siting and design of new and expanding marinas.

II.A.3. Management Practices

a. Site and design new marinas such that the bottom of the marina and the entrance channel are not deeper than adjacent navigable waters unless it can be demonstrated that the bottom will support a natural population of benthic organisms.
b. Design new marinas with as few segments as possible to promote circulation within the basin.
c. Design and locate entrance channels to promote flushing.
d. Do not allow structures which alter prevailing currents.
e. Designate areas that are and are not suitable for marina development.

II.A.4. Implementation of Management Measure

A description of the existing programs, statutes, rules or ordinances that currently address aspects of this management measure follows. See Section IV "Recommended Implementing Actions" on page III-201 for a description of the changes in governmental policies that are recommended to facilitate effective implementation of the marina management measures.

(i) Existing Organizational Structure: DLNR is the lead agency for implementing this management measure. The State's Conservation District Use Application (CDUA) permit process, administered by DLNR, is triggered by any proposed marina construction project because submerged lands are included within the State Conservation District. Other federal, State, and local agencies involved in implementation include:

- Hawaii CZM Program, which reviews for consistency with CZM objectives and policies, and recommends public benefits packages for private marina developments;
- DOH, which reviews permits for certification pursuant to Section 401 of the Clean Water Act (CWA);
- U.S. Army Corps of Engineers (USACOE), which administers the Section 404, CWA, and Section 10, Rivers and Harbors Act, permit processes; and
- Counties, which administer the SMA permits and shoreline setback provisions.

(ii) Existing Regulatory and Non-Regulatory Mechanisms:

HRS	Chapter 183	Conservation District
HRS	Chapter 190	Marine Life Conservation Program

HRS	Chapter 200	Ocean Recreation and Coastal Areas
HRS	Chapter 205A	Coastal Zone Management
HRS	Chapter 342D	Water Pollution
HRS	Chapter 342E	Nonpoint Source Pollution Control
HRS	Chapter 343	Environmental Impact Statements
HRS	Chapter 344	State Environmental Policy
HAR	Chapter 1-2	Special Management Areas/Shoreline Areas
HAR	Chapter 13-2	Conservation Districts
HAR	Chapter 11-54	Water Quality Standards

This marina management measure is addressed, to a great extent, within a number of federal, State and county permit review processes. All new marina facilities require a CDUA permit under Chapter 183, HRS, and Chapter 13-2, HAR (Conservation Districts), administered by DLNR. Although flushing and circulation concerns are typically addressed within the CDUA permit review process as part of the overall concern for coastal ecosystem protection, coastal hazards, recreation, and safety for both State and private marina developments, there are currently no uniform standards or criteria pertaining to marina flushing and circulation. The Section 404, CWA, permit process also entails the review of design and construction factors to ensure that marina development does not degrade coastal water quality vis-a-vis the State's water quality standards. DOH monitors physical water quality measurements on an ongoing basis, which can be used to determine the adequacy of marina flushing and circulation.

In the siting and design of State-owned marinas, DLNR-DOBOR has informally adopted, as guidelines, national standards established by the International Marina Institute, USACOE, and the States Organization for Boating Access. OSP's *Draft Planning and Evaluation Guidelines for Private Sector Marina Development* (OSP 1993) also are used informally by agencies during their reviews of marina development permit applications.

B. Water Quality Assessment Management Measure

Assess water quality as part of marina siting and design.

II.B.1. Description

Assessments of water quality may be used to determine whether a proposed marina design will result in poor water quality. This may entail predevelopment and/or postdevelopment monitoring of the marina or ambient waters, numerical or physical modeling of flushing and water quality characteristics, or both. Historically, water quality assessments have focused on two parameters: dissolved oxygen (DO) and pathogen indicators. The impacts of low DO concentrations are reflected in an unbalanced ecosystem, fish mortality, and odor and other aesthetic nuisances. DO levels may be used as an indicator of the general health of the aquatic ecosystem. Coastal states use pathogen indicators, such as fecal coliform bacteria (*Escherichia coli*) and enterococci, for assessing

risk to public health through ingestion of contaminated water or shellfish and through bathing.

II.B.2. Applicability

This management measure applies to the siting and design of new and expanding marinas.

II.B.3. Management Practices

a. Perform pre-construction inspection, water quality monitoring, and assessment.
b. Use water quality monitoring data and modeling to predict post-construction water quality conditions.
c. Reconcile predictions with post-construction monitoring data.

II.B.4. Implementation of Management Measure

A description of the existing programs, statutes, rules or ordinances that currently address aspects of this management measure follows. See Section IV "Recommended Implementing Actions" on page III-201 for a description of the changes in governmental policies that are recommended to facilitate effective implementation of the marina management measures.

(i) Existing Organizational Structure: DOH is the lead agency for implementing this management measure. Water quality assessments for new marina developments are required under the Section 401, CWA, Water Quality Certification process, administered by DOH and required in conjunction with the USACOE Section 404, CWA, permits. Other federal, State, and local agencies involved in implementation include:

- Hawaii CZM Program, which reviews for consistency with CZM objectives and policies, and recommends public benefits packages for private marina developments;
- DLNR, which administers the CDUA permit process;
- USACOE, which administers the Section 404, CWA, and Section 10, Rivers and Harbors Act, permit processes; and
- Counties, which administer the SMA permits and shoreline setback provisions.

(ii) Existing Regulatory and Non-Regulatory Mechanisms:

HRS	Chapter 183	Conservation District
HRS	Chapter 205A	Coastal Zone Management
HRS	Chapter 342D	Water Pollution
HRS	Chapter 342E	Nonpoint Source Pollution Control
HRS	Chapter 343	Environmental Impact Statements
HRS	Chapter 344	State Environmental Policy
HAR	Chapter 1-2	Special Management Areas/Shoreline Areas
HAR	Chapter 13-2	Conservation Districts
HAR	Chapter 11-54	Water Quality Standards

This marina management measure is addressed, to a great extent, through the Clean Water Act Section 401 and 404 certification and permit processes, normally required in association with the State's CDUA permit process. In addition, county SMA permits can require water quality and marine life monitoring programs for groundwater, marina basin water, and adjacent coastal waters as a permit condition. Water quality assessments may entail pre-development and/or post-development monitoring of the marina or ambient waters, numerical or physical modeling of flushing and water quality characteristics, or both.

All State marine waters are classified as either Class A or Class AA. Section 11-54-03, HAR, states that "it is the objective of class AA waters that these waters remain in their natural pristine state as nearly as possible with an absolute minimum of pollution or alteration of water quality from any human-caused source or action" [§11-54-03(c)(1)]. The objective of class A waters is that "their use for recreational purposes and aesthetic enjoyment be protected. Any other use shall be permitted as long as it is compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters. These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class" [§11-54-03(c)(2)]. Most of the State's marine waters are designated the more protective Class AA. Development of a marina in Class AA waters would be prohibited, unless a variance from Section 11-54, HAR, was obtained from DOH.

An NPDES permit under Chapter 342D, HRS, and associated dewatering permit are also required for any drainage pit used when blasting for new marina construction from fast lands. This permit is administered by DOH.

C. Habitat Assessment Management Measure

Site and design marinas to protect against adverse effects on coral reefs, shellfish resources, wetlands, submerged aquatic vegetation, or other important riparian and aquatic habitat areas as designated by local, State, or federal governments.

II.C.1. Description

Biological siting and design provisions for marinas should be based on the premise that marinas should not destroy important aquatic habitat, should not diminish the harvestability of organisms in adjacent habitats, and should accommodate the same biological uses (*e.g.*, reproduction, migration) for which the source waters have been classified.

Important classes of shallow water habitats found on the U.S. mainland (such as sea-grass beds and shellfish beds) are not present in Hawaii. However, algae, or *limu*, can be considered a submerged aquatic vegetation and is still an important food resource for the inhabitants of Hawaii. In addition, there are dozens of different types of shellfish in the coastal waters of Hawaii, and they are sought after as food resources by many Hawaiians and non-Hawaiians. These shellfish

resources include *opae'ula* residing in coastal anchialine ponds, *opihi* or limpets, *wana* (sea urchins) of many types, *hee*, and *pipipi.* Other areas of concern in Hawaii include coral reefs, areas where threatened green sea turtles and other important species forage, shallow-water recruitment areas, and other nearshore ecosystems and resources of special cultural, geophysical, or other significance.

Hawaii's nearshore and shallow water habitats have not been comprehensively inventoried or assessed. The full extent to which marinas and recreational boating activities have an impact on various shallow-water resources and habitats in Hawaii is likewise unknown. As nearshore habitats are assessed, the State's geographic information system (GIS) shows promise as a method to convey important habitat and other siting information to marina developers and environmental managers. The GIS system is limited, however, in its ability to correlate boat operations with habitat impacts.
This management measure makes minor amendments to the (g) measure contained in EPA's Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters.

***Justification for Changes to Management Measure**: Because of the importance of coral reefs as a nearshore habitat in Hawaii, the management measure has been expanded to include coral reefs.*

II.C.2. Applicability
This management measure applies to the siting and design of new and expanding marinas where site changes may have an impact on important marine species, coral reefs, wetlands, or other important habitats. The habitats of non-indigenous nuisance species are not considered important habitats.

II.C.3. Management Practices
a. Conduct surveys and characterize the project site.
b. Redevelop coastal waterfront sites that have been previously disturbed; expand existing marinas or consider alternative sites to minimize potential environmental impacts.
c. Employ rapid bioassessment techniques to assess impacts to biological resources.
d. Assess historic habitat function (*e.g.*, spawning area, nursery area, migration pathway) to minimize indirect impacts.
e. Minimize disturbance to indigenous vegetation in the riparian area.
f. Encourage the redevelopment or expansion of existing marina facilities that have minimal environmental impacts instead of new marina development in habitat areas that local, State, or federal agencies have designated as important.
g. Develop a marina siting policy to discourage development in areas containing important habitat as designated by local, State or federal agencies.

II.C.4. Implementation of Management Measure
A description of the existing programs, statutes, rules or ordinances that currently address aspects of this management measure follows. See Section IV "Recommended Implementing Actions" on page III-201 for a description of the

changes in governmental policies that are recommended to facilitate effective implementation of the marina management measures.

(i) Existing Organizational Structure: DLNR is the lead agency for implementing this management measure. The State's CDUA permit process, administered by DLNR, is triggered by any proposed marina construction project because submerged lands are included within the State Conservation District. Other federal, State, and local agencies involved in implementation include:

- Hawaii CZM Program, which reviews for consistency with CZM objectives and policies, and recommends public benefits packages for private marina developments;
- U.S. Fish and Wildlife Service (USFWS), which is consulted on any federal action, including permit decisions, with respect to Section 7 of the Endangered Species Act;
- U.S. National Marine Fisheries Service (NMFS), which is consulted on the affects of a proposed development on marine mammals such as whales, seals, and turtles; and
- Counties, which administer the SMA permits and shoreline setback provisions.

(ii) Existing Regulatory and Non-Regulatory Mechanisms:

HRS	Chapter 183	Conservation District
HRS	Chapter 187A	Aquatic Resources
HRS	Chapter 190	Marine Life Conservation Program
HRS	Chapter 195	Natural Area Reserves System
HRS	Chapter 205A	Coastal Zone Management
HRS	Chapter 342D	Water Pollution
HRS	Chapter 342E	Nonpoint Source Pollution Control
HRS	Chapter 343	Environmental Impact Statements
HRS	Chapter 344	State Environmental Policy
HAR	Chapter 1-2	Special Management Areas/Shoreline Areas
HAR	Chapter 11-54	Water Quality Standards
HAR	Chapter 11-200	Environmental Impact Statements
HAR	Chapter 13-2	Conservation Districts
HAR	Chapter 13-28 - 13-38	Marine Life Conservation Districts
HAR	Chapter 13-256	Ocean Recreation Management Areas

Typically, prospective marina developments must undergo numerous permit processes, with their associated environmental assessments and extensive public review. Marina developments automatically trigger a CDUA because they involve submerged lands; marina developments that affect coastal lands within the counties' SMAs must seek an SMA permit. Chapter 343, HRS, and Chapter 11-200, HAR, both about the Environmental Impact Statement law, require the preparation of an environmental assessment (EA) and/or environmental impact statement (EIS) for proposed activities that trigger the environmental review process. The trigger conditions are as follows: (1) use of State or county lands or funds; (2) use within the conservation district; (3) use within a shoreline setback

area; (4) use within the Waikiki special district; (5) use within an historic site; (6) reclassification of conservation lands; (7) amendment to a county general plan; and (8) construction of helicopter facilities. Preliminary surveys and assessment of future biological impacts are required.

The State has mechanisms in place to protect specific areas containing nearshore habitats of important resource values. Chapter 190, HRS, enables DLNR to establish Marine Life Conservation Districts (MLCDs) to protect unique areas of the marine environment by prohibiting activities that disturb, degrade, or alter it. Thus far, eleven MLCDs have been designated, with associated administrative rules (Chapters 13-28 through 13-38, HAR) for managing these areas, including restrictions on boating activities. Chapter 195, HRS authorizes DLNR to establish Natural Area Reserves (NARs) to protect and preserve unique natural assets of the State, including distinctive marine plants and animals. Only one NAR includes a marine component (Ahihi-Kinau on Maui). Some Ocean Recreation Management Areas (ORMAs) established under Chapter 13-256, HAR, are designated to prohibit operation of certain types of watercraft during the winter season when humpback whales are present. Other areas are closed for protection of sea turtle habitats. ORMAs are managed by DLNR-DOBOR.

All State marine bottom ecosystems are classified as either Class I or Class II. HAR Section 11-54-03 states that "it is the objective of class I marine bottom ecosystems that they remain as nearly as possible in their natural pristine state with an absolute minimum of pollution from any human-induced source. Uses of marine bottom ecosystems in this class are passive human uses without intervention or alteration, allowing the perpetuation and preservation of the marine bottom in a most natural state..." [§11-54-03(d)(1)]. The objective of class II marine bottom ecosystems is that "their use for protection including propagation of fish, shellfish, and wildlife, and for recreational purposes not be limited in any way." Any actions that may permanently or completely modify, alter or degrade the marine bottom, including navigational structures such as harbors and ramps, may be allowed in class II bottoms provided approval is secured from the Department of Health [§11-54-03(d)(2)]. The areas of class I and II bottoms are listed by marine bottom type in Section 11-54-07, HAR.

D. Shoreline Stabilization Management Measure

Where shoreline erosion is a serious nonpoint source pollution problem, shorelines [~~should~~] may need to be stabilized. Vegetative methods are strongly preferred. Structural methods may be necessary where vegetative methods cannot work and where they do not interfere with natural beach processes or harm other sensitive ecological areas. [~~unless structural methods are more cost effective, considering the severity of wave and wind erosion, offshore bathymetry, and the potential adverse impact on other shorelines and offshore areas.~~]

II.D.1. Description

The establishment of vegetation as a primary means of shore protection has shown the greatest success in low-wave-energy areas where underlying soil types provide the stability required for plants and where conditions are amenable to sustaining plant growth. Under suitable conditions, an important advantage of vegetation is its relatively low initial cost. The effectiveness of vegetation for shore stabilization varies with the amount of wave reduction provided by the physiography and offshore bathymetry of the site or with the degree of wave attenuation provided by structural devices. Identification of the cause of the erosion problem is essential for selecting the appropriate technique to remedy the problem.

Structural methods to stabilize shorelines and navigation channels are designed to dissipate incoming wave energy. With Hawaii's exposure to strong wave surge, especially on the north and east shores, marinas are usually provided more protective benefits from structural rather than vegetative measures. However, while such structures can provide shoreline protection, unintended consequences may include accelerated scouring in front of the structure, as well as increased erosion of unprotected downstream shorelines.

This management measure is an alternative management measure to the (g) measure contained in EPA's Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters:

> *Justification for Alternative Management Measure: Hawaii's environment has suffered as a result of the proliferation of hardening projects. Structural methods have resulted in channelized streams and hardened shorelines which have degraded environmental quality and increased nonpoint source pollution problems. This alternative measure will improve the protection of water quality and sensitive ecosystems.*

II.D.2. Applicability

This management measure applies to siting and design of new and expanding marinas where site changes may result in shoreline erosion.

II.D.3. Management Practices

Vegetative and structural management practices appropriate to Hawaii will be developed at a later time.

II.D.4. Implementation of Management Measure

The CZM Program has been discouraging the hardening of natural shorelines in Hawaii because of its negative effects on adjacent and down -current areas. Recent proposals for marina developments in Hawaii are somewhat different from those developments on the U.S. mainland in that they would require blasting and dredging of fast lands for the marina basin. This normally requires hardening or capping of the basin walls. These stabilization activities are described within the EISs required for CDUA and SMA permits.

A description of the existing programs, statutes, rules or ordinances that currently address aspects of this management measure follows. See Section IV "Recommended Implementing Actions" on page III-201 for a description of the changes in governmental policies that are recommended to facilitate effective implementation of the marina management measures.

(i) Existing Organizational Structure: Because erosion can affect lands under both State and county jurisdictions, implementation of this management measure is shared between DLNR and the counties. The State's CDUA permit process, administered by DLNR, is triggered by any proposed marina construction project because submerged lands are included within the State Conservation District. The counties administer the SMA permits and shoreline setback provisions. Other agencies involved in implementation include:

- Hawaii CZM Program, which reviews for consistency with CZM objectives and policies, and recommends public benefits packages for private marina developments.

(ii) Existing Regulatory and Non-Regulatory Mechanisms:

HRS	Chapter 183	Conservation District
HRS	Chapter 205A	Coastal Zone Management
HRS	Chapter 342D	Water Pollution
HRS	Chapter 342E	Nonpoint Source Pollution Control
HRS	Chapter 343	Environmental Impact Statements
HRS	Chapter 344	State Environmental Policy
HAR	Chapter 1-2	Special Management Areas/Shoreline Areas
HAR	Chapter 11-54	Water Quality Standards
HAR	Chapter 11-200	Environmental Impact Statements
HAR	Chapter 13-2	Conservation Districts

Typically, prospective marina developments must undergo numerous permit processes, with their associated environmental assessments and extensive public review. Marina developments automatically trigger a CDUA because they involve submerged lands; marina developments that affect coastal lands within the counties' SMAs must seek an SMA permit. Chapter 343, HRS, and Chapter 11-200, HAR, both about the EIS law, require the preparation of an EA and/or EIS for proposed activities that trigger the environmental review process. The trigger conditions are as follows: (1) use of State or county lands or funds; (2) use within the conservation district; (3) use within a shoreline setback area; (4) use within the Waikiki special district; (5) use within an historic site; (6) reclassification of conservation lands; (7) amendment to a county general plan; and (8) construction of helicopter facilities.

E. Storm Water Runoff Management Measure

Implement effective runoff control strategies which include the use of pollution prevention activities and the proper design of hull maintenance areas.

Reduce the average annual loadings of total suspended solids (TSS) in runoff from hull maintenance areas by 80%. For the purposes of this measure, an 80% reduction of TSS is to be determined on an average annual basis.

II.E.1. Description

The principal pollutants in runoff from marina parking areas and hull maintenance areas are suspended solids and organics (predominately oil and grease). Toxic metals from boat hull scraping and sanding are part of, or tend to become associated with, the suspended solids. Practices for the control of these pollutants can be grouped into three types: (1) filtration/ infiltration, (2) retention/detention, and (3) physical separation of pollutants. The proper design and operation of the marina hull maintenance area is a significant way to prevent the entry of toxic pollutants from marina property into surface waters. Marina operators and patrons also can visit the Keehi Marine Education Center and learn and be exposed to the most recent technology for marina pollution prevention measures.

The annual TSS loadings can be calculated by adding together the TSS loadings that can be expected to be generated during an average 1-year period from precipitation events less than or equal to the 2-year/24-hour storm. The 80% standard can be achieved, by reducing over the course of the year, 80% of these loadings. EPA recognizes that 80% cannot be achieved for each storm event and understands that TSS removal efficiency will fluctuate above and below 80% for individual storms.

II.E.2. Applicability

This management measure applies to new and expanding marinas, and to existing marinas for *at least* the hull maintenance areas. (Hull maintenance areas are areas whose primary function is to provide a place for boats during the scraping, sanding, and painting of their bottoms.) If boat bottom scraping, sanding, and/or painting is done in areas other than those designated as hull maintenance areas, the management measure applies to those areas as well.

This measure does not apply to runoff that enters the marina property from upland sources. Upland sources are addressed by the management measures for agriculture, forestry, urban areas, hydromodifications, and wetland and riparian areas.

***NOTE**: This management measure does not apply to existing, new, or expanding facilities that have a NPDES permit for their stormwater discharges.*

II.E.3. Management Practices

a. Design boat hull maintenance areas to minimize contaminated runoff.
b. Implement source control practices (*e.g.*, vacuums, sanders with vacuum attachments).
c. Sand Filter (also known as filtration basins)
d. Infiltration Basin/Trench
e. Chemical and Filtration Treatment Systems
f. Vegetated Filter Strip
g. Grassed Swale
h. Porous Pavement
i. Oil-Grit Separators
j. Holding Tanks
k. Swirl Concentrator
l. Catch Basins or Catch Basin with Sand Filter
m. Adsorbents in Drain Inlets

II.E.4. Implementation of Management Measure

A description of the existing programs, statutes, rules or ordinances that currently address aspects of this management measure follows. See Section IV "Recommended Implementing Actions" on page III-201 for a description of the changes in governmental policies that are recommended to facilitate effective implementation of the marina management measures.

(i) Existing Organizational Structure: DOH, Environmental Management Division, is generally responsible for implementing this management measure because it administers the State's water pollution control program. However, there are no direct mechanisms in place to implement this management measure. Other agencies involved in implementation include:

- Hawaii CZM Program, which reviews for consistency with CZM objectives and policies, and recommends public benefits packages for private marina developments;
- DLNR, which administers the CDUA permit process; and
- Counties, which administer the SMA permits and shoreline setback provisions.

(ii) Existing Regulatory and Non-Regulatory Mechanisms:

HRS	Chapter 183	Conservation District
HRS	Chapter 205A	Coastal Zone Management
HRS	Chapter 342D	Water Pollution
HRS	Chapter 342E	Nonpoint Source Pollution Control
HRS	Chapter 343	Environmental Impact Statements
HRS	Chapter 344	State Environmental Policy
HAR	Chapter 1-2	Special Management Areas/Shoreline Areas
HAR	Chapter 11-54	Water Quality Standards
HAR	Chapter 11-200	Environmental Impact Statements
HAR	Chapter 13-2	Conservation Districts

This management measure is generally addressed under the State's water pollution control statutes. While Chapter 342E, HRS, addresses polluted runoff control, administrative rules have not yet been developed to implement it. These rules will be developed in conjunction with the further development and implementation of the coastal nonpoint pollution control program. Chapter 11-54, HAR - the administrative rules that implement much of 342D, HRS - has no procedures in place to enforce the water quality standards it sets forth.

Typically, prospective marina developments must undergo numerous permit processes, with their associated environmental assessments and extensive public review. Marina developments automatically trigger a CDUA because they involve submerged lands; marina developments that affect coastal lands within the counties' SMAs must seek an SMA permit. Chapter 343, HRS, and Chapter 11-200, HAR, both about the EIS law, require the preparation of an EA and/or EIS for proposed activities that trigger the environmental review process. The trigger conditions are as follows: (1) use of State or county lands or funds; (2) use within the conservation district; (3) use within a shoreline setback area; (4) use within the Waikiki special district; (5) use within an historic site; (6) reclassification of conservation lands; (7) amendment to a county general plan; and (8) construction of helicopter facilities.

Not all marinas in Hawaii have hull maintenance areas, and most existing State facilities lack sufficiently graded, paved, and/or covered areas necessary to implement the management measure. Further the State lacks sufficient funds to retrofit its existing maintenance and cleaning areas. Therefore, DLNR-DOBOR has announced its intent to phase out its existing self-service maintenance facilities, so that hull maintenance and cleaning activities will be transferred to several better-equipped existing private facilities. Most of these private facilities, such as Ala Wai Marine and Gentry Marine, have NPDES permits for their hull maintenance areas.

F. Fueling Station Design Management Measure

Design fueling stations to allow for ease in cleanup of spills.

II.F.1. Description

Spillage is a source of petroleum hydrocarbons in marinas. Most petroleum-based fuels are lighter than water and thus float on the water's surface. This property allows for their capture if petroleum containment equipment is used in a timely manner.

II.F.2. Applicability

This management measure applies to new and expanding marinas where fueling stations are to be added or moved.

II.F.3. Management Practices

The location and design of fueling stations should allow for booms to be deployed to surround a spill.

a. Locate and design fueling stations so that spills can be contained in a limited area.
b. Design a spill contingency plan.
c. Design fueling stations with containment equipment.
d. Design fueling stations for spill mitigation.

II.F.4. Implementation of Management Measure

A description of the existing programs, statutes, rules or ordinances that currently address aspects of this management measure follows. See Section IV "Recommended Implementing Actions" on page III-201 for a description of the changes in governmental policies that are recommended to facilitate effective implementation of the marina management measures.

(i) Existing Organizational Structure: DOH, Environmental Management Division, has the lead in implementing this management measure because it administers the State's water pollution control programs. Other agencies involved in implementation include:

- DLNR, which administers the CDUA permit process;
- Hawaii CZM Program, which reviews for consistency with CZM objectives and policies, and recommends public benefits package for private marina developments;
- USCG, which is responsible for toxic spill response and clean-up;
- USACOE, which administers the Section 404, CWA, and Section 10, Rivers and Harbors Act, permit processes;
- NMFS, which reviews for impacts on marine mammals and fisheries;
- USFWS, which reviews for impacts on turtles and seabirds; and
- County departments of planning, which administer the SMA permit and shoreline setback provisions.

(ii) Existing Regulatory and Non-Regulatory Mechanisms:

HRS	Chapter 183	Conservation District
HRS	Chapter 205A	Coastal Zone Management
HRS	Chapter 342D	Water Pollution
HRS	Chapter 342E	Nonpoint Source Pollution Control
HRS	Chapter 343	Environmental Impact Statements
HRS	Chapter 344	State Environmental Policy
HAR	Chapter 11-54	Water Quality Standards
HAR	Chapter 11-200	Environmental Impact Statements
HAR	Chapter 12-75	Marine Service Stations
HAR	Chapter 13-2	Conservation Districts

Typically, prospective public and private marina developments must undergo numerous permit processes, with their associated environmental assessments and extensive agency and public review. Please refer to page III-178 for a brief description of these processes.

Any construction in coastal, tidal waters requires a permit from the USACOE under Section 10, Rivers and Harbors Act. Any discharge of dredge or fill material into coastal and stream waters, among other things, requires a permit from the USACOE under Section 404, CWA. Permit applicants are required to obtain Section 401, CWA, water quality certifications and Hawaii CZM federal consistency determinations prior to being issued a permit by the USACOE.

Although uniform guidelines and criteria for the design and operation of fueling facilities are currently lacking, marina projects typically must address safety issues during the CDUA process, as part of the overall concerns for coastal ecosystem protection, coastal hazards, and recreation, among others. The Section 404, CWA, permit process does entail the review of design and construction factors to ensure that marina development does not degrade coastal water quality vis-a-vis the State's water quality standards.

In the siting and design of State-owned marinas, DLNR-DOBOR has informally adopted, as guidelines, national standards established by the International Marinas Institute, the U.S. Army Corps of Engineers, and the States Organization for Boating Access. OSP's *Draft Planning and Evaluation Guidelines for Private Sector Marina Development* (OSP 1993) also are used informally by agencies during their reviews of marina development permit applications.

G. Sewage Facility Management Measure

Install pumpout, dump station, and restroom facilities where needed at new and expanding marinas to reduce the release of sewage into surface waters. Design these facilities to allow ease of access and post signage to promote use by the boating public.

II.G.1. Description

Vessels are not required to be equipped with a Marine Sanitation Device (MSD). If a boat does have a MSD, however, the MSD has to meet certain standards set by EPA, as required by Section 312, CWA.

EPA Region I determined that, in general, a range of one pumpout facility per 300-600 boats with holding tanks [type III marine sanitation devices (MSDs)] should be sufficient to meet the demand for pumpout services in most harbor areas. EPA Region 4 suggested one facility for every 200 to 250 boats with holding tanks and provided a formula for estimating the number of boats with holding tanks.

Three types of onshore collection systems are available for marina sewage facilities: fixed point systems, portable/mobile systems, and dedicated slipside systems.

Two of the most important factors in successfully preventing sewage discharge are (1) providing "adequate and reasonably available" pumpout facilities and (2) conducting a comprehensive boater education program.

II.G.2. Applicability

This management measure applies to new and expanding marinas in areas where adequate marine sewage collection facilities do not exist. Marinas that do not provide services for vessels that have MSDs do not need to have pumpouts, although dump stations for portable toilets and restrooms should be available. This measure does not address direct discharges from vessels covered under Section 312, CWA.

II.G.3. Management Practices

a. Fixed-point collection systems: these systems include one or more centrally located sewage pumpout stations. A flexible hose is connected to the wastewater fitting in the hull of the boat, and pumps or a vacuum system move the wastewater to an onshore holding tank, a public sewer system, a private treatment facility, or another approved disposal facility. In cases where the boats in the marina use only small, portable (removable) toilets, a satisfactory disposal facility could be a dump station.
b. Portable/mobile collection systems: these systems include a portable unit with a pump and a small storage tank. The unit is connected to the deck fitting on the vessel, and wastewater is pumped from the vessel's holding tank to the pumping unit's storage tank. When the storage tank is full, its contents are discharged into a municipal sewage system or a holding tank for removal by a septic tank pumpout service.
c. Dedicated slipside systems: these systems provide continuous wastewater collection at a slip.
d. Adequate signage, and educational handouts and other materials.

II.G.4. Implementation of Management Measure

A description of the existing programs, statutes, rules or ordinances that currently address aspects of this management measure follows. See Section IV "Recommended Implementing Actions" on page III-201 for a description of the changes in governmental policies that are recommended to facilitate effective implementation of the marina management measures.

(i) Existing Organizational Structure: DOH, Environmental Management Division, has the lead in implementing this management measure because it administers the State's water pollution control programs. Other agencies involved in implementation include:

- DLNR, which administers the CDUA permit process;
- Hawaii CZM Program, which reviews for consistency with CZM objectives and policies, and recommends public benefits package for private marina developments;
- USACOE, which administers the Section 404, CWA, and Section 10, Rivers and Harbors Act, permit processes;
- USCG, which is responsible for toxic spill response and clean-up;

- NMFS, which reviews for impacts on marine mammals and fisheries;
- USFWS, which reviews for impacts on turtles and seabirds; and
- County departments of planning, which administer the SMA permit and shoreline setback provisions.

(ii) Existing Regulatory and Non-Regulatory Mechanisms:

HRS	Chapter 183	Conservation District
HRS	Chapter 205A	Coastal Zone Management
HRS	Chapter 342D	Water Pollution
HRS	Chapter 342E	Nonpoint Source Pollution Control
HRS	Chapter 343	Environmental Impact Statements
HRS	Chapter 344	State Environmental Policy
HAR	Chapter 1-2	Special Management Areas/Shoreline Areas
HAR	Chapter 11-54	Water Quality Standards
HAR	Chapter 11-200	Environmental Impact Statements
HAR	Chapter 13-2	Conservation Districts
HAR	Chapter 13-231	Boat Operation, Boat Harbors, and Permits

Typically, prospective public and private marina developments must undergo numerous permit processes, with their associated environmental assessments and extensive agency and public review. Please refer to page III-178 for a brief description of these processes.

Any construction in coastal, tidal waters requires a permit from the USACOE under Section 10, Rivers and Harbors Act. Any discharge of dredge or fill material into coastal and stream waters, among other things, requires a permit from the USACOE under Section 404, CWA. Permit applicants are required to obtain Section 401, CWA, water quality certifications and Hawaii CZM federal consistency determinations prior to being issued a permit by the USACOE.

Currently, there are no rules specifying that marinas must install sewage pumpout facilities. In addition, uniform guidelines and criteria for the design and operation of sewage facilities are currently lacking. Marina projects typically must address water quality during the CDUA process, as part of the overall concerns for coastal ecosystem protection, coastal hazards, and recreation, a mong others. The CWA Section 404 permit process does entail the review of design and construction factors to ensure that marina development does not degrade coastal water quality vis-a-vis the State's water quality standards.

In the siting and design of State-owned marinas, DLNR-DOBOR has informally adopted, as guidelines, national standards established by the International Marina Institute, the USACOE, and the States Organization for Boating Access. OSP's *Draft Planning and Evaluation Guidelines for Private Sector Marina Development* (OSP 1993) also are used informally by agencies during their reviews of marina development permit applications.

DOBOR has also received a $21,250 grant under the Federal Clean Vessel Act of 1992. The grant will be used for: (1) survey and development of a public education

program of vessel pumpout facilities; (2) design and construction of a pumpout facility at Kailua-Kona Wharf, Hawaii; (3) design and construction of a pumpout facility at Keehi Boat Harbor, Oahu; and (4) design and construction of a pumpout facility at Nawiliwili Boat Harbor, Kauai.

Chapter 13-235, HAR, administered by DLNR, requires marine toilets to be present and operational on vessels mooring or anchoring in waters of the State. Chapter 13-243-2, HAR, requires all vessels in the State with a MSD to comply with federal 33 CFR Part 159, which in turn prescribes regulations governing the design and construction of MSDs and procedures for certifying that MSDs meet the regulations and standards of the EPA promulgated under Section 312 of 33 USC 1322, to eliminate the discharge of untreated sewage from vessels into the waters of the United States, including the territorial seas.

III. MARINA AND BOAT OPERATION AND MAINTENANCE

During the course of normal marina operations, various activities and locations in the marina can generate pollution. Such activities include waste disposal, boat fueling, and boat maintenance and cleaning; such locations include storage areas for materials required for these activities and hull maintenance areas. Of special concern are substances that can be toxic to aquatic biota, pose a threat to human health, and/or degrade water quality. Examples include paint sandings and chippings, oil and grease, fuel, detergents, and sewage.

It is important that marina operators and patrons take steps to control or minimize the entry of these substances into marina waters. For the most part, this can be accomplished with simple preventative measures such as performing these activities on protected sites, locating servicing equipment where the risk of spillage is reduced, providing adequate and well-marked disposal facilities, and educating the boating public about the importance of pollution prevention. The benefit of effective pollution prevention to the marina operator can be measured as the relative low cost of pollution prevention compared to potentially high environmental clean-up costs. Marina operators and patrons also can visit the Keehi Marine Education Center and learn and be exposed to the most recent technology for marina pollution prevention measures.

A. Solid Waste Management Measure

Properly dispose of solid wastes produced by the operation, cleaning, maintenance, and repair of boats to limit entry of solid wastes into surface waters.

III.A.1. Description

The International Convention for the Prevention of Pollution from Ships (MARPOL 73/78), the international agreement to which the United States is a signatory, requires adequate waste disposal facilities at harbor facilities. This is

implemented through federal requirements to which the State must comply. The State's small-boat harbors do provide covered waste receptacles. However, there are problems with lack of access to recycling and hazardous waste collection facilities, people illegally using dumpsters, and abandonment of waste oil and batteries around marinas.

Marina operators should be responsible for determining what types of wastes will be generated at the marina and ensuring proper disposal. Marina operators are thus responsible for the contents of their dumpsters and the management of solid waste on their property. Hazardous waste should never be placed in dumpsters. Liquid waste should not be mixed with solid waste but rather disposed of properly by other methods (see Liquid Waste Management Measure).

In addition, since a majority (over 80%) of boats in the State are trailerable, it is likely that some boat cleaning and maintenance is also conducted in residential and other areas outside of the marina. Trailerable boats, however, are not likely to have anti-fouling bottom paint or significant amounts of bottom build-up. Such boats are often rinsed and cleaned at the boat ramp after exiting the water. Residential cleaning and repair, therefore, is not likely to be a problem in and of itself. In addition, since controlling the release of hull scrapings and other wastes to county stormwater collection systems from home repairs and cleaning is likely problematical, improved boat owner education is probably the most effective means of addressing this issue and minimizing such waste.

III.A.2. Applicability

This management measure applies to the operation and maintenance of new and expanding marinas.

III.A.3. Management Practices

a. Perform boat maintenance/cleaning above the waterline in such a way that no debris falls into the water.
b. Provide and clearly mark designated work areas for boat repair and maintenance. Do not permit work outside designated areas.
c. Clean hull maintenance areas regularly to remove trash, sandings, paint chips, etc.
d. Perform abrasive blasting within spray booths or plastic tarp enclosures to prevent residue from being carried into surface waters. If tarps are used, blasting should not be done on windy days.
e. Provide proper disposal facilities to marina patrons. Covered dumpsters or other covered receptacles are preferred.
f. Provide facilities for the eventual recycling of appropriate materials.

III.A.4. Implementation of Management Measure

A description of the existing programs, statutes, rules or ordinances that currently address aspects of this management measure follows. See Section IV "Recommended Implementing Actions" on page III-201 for a description of the changes in governmental policies that are recommended to facilitate effective implementation of the marina management measures.

(i) Existing Organizational Structure: DLNR, Division of Boating and Ocean Recreation (DOBOR), is the lead agency for implementing this management measure. Other State and local agencies involved in implementation include:

- DOH, which administers the State's water pollution control programs.

(ii) Existing Regulatory and Non-Regulatory Mechanisms:

HRS	Chapter 200	Ocean Recreation and Coastal Areas Programs
HRS	Chapter 266	Harbors (Enforcement)
HRS	Chapter 321	General Department of Health
HRS	Chapter 342D	Water Pollution
HRS	Chapter 342E	Nonpoint Source Pollution Control
HRS	Chapter 342H	Solid Waste Pollution
HRS	Chapter 342I	Lead Acid Battery Recycling
HRS	Chapter 342J	Hazardous Waste
HAR	Chapter 11-54	Water Quality Standards
HAR	Chapter 13-232	Boat Operation, Boat Harbors, and Permits
HCC	Chapter 20	Refuse
KCC	Chapter 20	Litter Prohibited
MCC	Chapter 20.20	Litter Control
ROH	Chapter 29-4	Streets, Sidewalks, Malls and Other Public Places - Litter Control

Chapter 13-232, HAR, administered by the DLNR, prohibits littering on land areas and in waters within small boat harbors. Litter - defined as all types of debris and substances, whether liquid or solid, and materials, such as garbage, refuse, rubbish, glass, cans, bottles, paper, wrappings, fish, or animal carcasses, or any other nauseating or offensive matter or any machinery - must be deposited in receptacles designated for the disposal of such materials. Chapter 200-14, HRS, states that any person violating boat operation, boat harbors, and permit rules shall be fined not more than $10,000 for each violation. The court can also deprive an offender of the privilege of operating or mooring a vessel in State waters for up to two years.

While Chapter 13-232, HAR, does not prohibit hauling out on beaches, it does prohibit activities that litter or pollute. Therefore, major repair and maintenance work should be performed in specific work areas. DLNR-DOBOR is increasing its enforcement against boat maintenance and repair activities that pollute beaches, other land areas, and waters within small-boat harbors.

Enforcement of Chapter 13-232, HAR, is under the jurisdiction of DLNR. DLNR's harbor agents conduct inspections, have the power to revoke or deny permits, and may issue warnings regarding violations. In addition, the boating community tends to be self-policing, and generally informs DLNR when violations occur and often assists in clean-ups.

State marina facilities with repair areas or hull maintenance areas require permits for do-it-yourself boat cleaning and maintenance operations. Only certain areas are allowed to be used for these operations. An applicant may use the designated area for 2 weeks free of charge. As a condition of the permit, the boat owner must clean up all scrapings. Sandblasting is becoming less used, and planer-vacuum systems and hydroblasting more widely incorporated. In the future, the State plans to close its cleaning and maintenance areas and, thus, discontinue this service. At that time, boat owners will be required to use a private or other repair facility for boat cleaning and maintenance. This will direct boat cleaning and repairs to newer facilities better equipped to accommodate and regulate these uses.

In 1989, the USCG implemented the pollution prevention requirements of Annex V of MARPOL 73/78. Countries signatory to this international agreement prohibit the discharge of plastics by any type of vessel anywhere in the world. Non-signatory country vessels must comply within U.S. waters. There are also specific restrictions for the dumping of other litter in the oceans, depending on the distance from shore and the size/type of trash. Although the USCG and other authorities have focused on education and awareness, there is a $25,000 civil penalty for each violation of these regulations (33 CFR 151). USCG is currently increasing spot checks and investigating releases of rubbish, liquids, and hull scrapings, particularly in Oahu's harbor areas.

The marinas and recreational boating focus group considered public education critical to the effective implementation of this management measure. Some marina operators are currently working with the Department of Health to address pollution prevention issues. A public information booklet entitled *Managing Boat Wastes: A Guide for Hawaii Boaters* was produced by the University of Hawaii Sea Grant Extension Service (SGES) in conjunction with DOH, DLNR-DOBOR and others to educate the public about the importance of proper boat cleaning and maintenance practices. This effort could be expanded through the development of a comprehensive public education program for marinas operators and the boating community.

B. Fish Waste Management Measure

Promote sound fish waste management through a combination of fish-cleaning restrictions, public education, and proper disposal of fish waste.

III.B.1. Description

Fish waste can result in water quality problems at marinas with large numbers of fish landings or at marinas that have limited fish landings but poor flushing. The amount of fish waste disposed of into a small area such as a marina can exceed that existing naturally in the water at any one time. Fish waste decomposes, which requires oxygen. In sufficient quantity, disposal of fish waste can thus be a cause of dissolved oxygen depression as well as odor problems.

At this time, fish waste is not considered a significant problem in Hawaii. However, fish waste can sometimes become a nuisance in marinas and swimming areas. Episodic instances of high-frequency fishing, such as tournament fishing, create the largest amounts of fish waste. Most commercial catches are sold whole to buyers, who transport them to processing sites.

III.B.2. Applicability

This management measure applies to marinas where fish waste is determined to be a source of water pollution.

III.B.3. Management Practices

a. Post signs advising that unauthorized disposal of fish waste violates state pollution prevention laws and providing information about proper disposal methods at places where fish waste is determined to be a source of water pollution.
b. Construct fish cleaning stations at popular locations, with appropriate disposal facilities.
c. Make facilities available for disposal of fish carcasses and other solids.
d. Educate boaters about the need to protect waters from the problems caused by fish wastes and the importance of proper fish-cleaning practices.

III.B.4. Implementation of Management Measure

A description of the existing programs, statutes, rules or ordinances that currently address aspects of this management measure follows. See Section IV "Recommended Implementing Actions" on page III-201 for a description of the changes in governmental policies that are recommended to facilitate effective implementation of the marina management measures.

(i) Existing Organizational Structure: DLNR-DOBOR is the lead agency for implementing this management measure. Other State and local agencies involved in implementation include:

- DOH, which administers the State's water pollution control programs.

(ii) Existing Regulatory and Non-Regulatory Mechanisms:

HRS	Chapter 200	Ocean Recreation and Coastal Areas Programs
HRS	Chapter 266	Harbors (Enforcement)
HRS	Chapter 321	General Department of Health
HRS	Chapter 342D	Water Pollution
HRS	Chapter 342E	Nonpoint Source Pollution Control
HRS	Chapter 342H	Solid Waste Pollution
HAR	Chapter 11-54	Water Quality Standards
HAR	Chapter 13-232	Boat Operation, Boat Harbors, and Permits

Chapter 13-232, HAR, administered by the DLNR, prohibits littering on land areas and in waters within small boat harbors. Please refer to p. III-184 for a description of this administrative rule and its enforcement provisions. The disposal of fish wastes and animal carcasses is regulated under this rule.

Chapter 200-14, HRS, states that any person violating boat operation, boat harbors, and permit rules shall be fined not more than $10,000 for each violation. The court can also deprive an offender of the privilege of operating or mooring a vessel in State waters for up to two years.

C. Liquid Material Management Measure

Provide and maintain appropriate storage, transfer, containment, and disposal facilities for liquid material, such as oil, harmful solvents, antifreeze, and paints, and encourage recycling of these materials.

III.C.1. Description

This management measure minimizes entry of potentially harmful liquid materials into marina and surface waters through proper storage and disposal. Marina operators are responsible for the proper storage of liquid materials for sale and for final disposal of liquid wastes, such as waste fuel, used oil, spent solvents and spent antifreeze. Marina operators should decide how liquid waste material is to be placed in the appropriate containers and disposed of and should inform their patrons.

Common problems associated with liquid waste management at Hawaii's marinas include a shortage of recycling and disposal facilities at marinas, mishandling and mixing of liquid wastes (generating hazardous wastes requiring expensive disposal), and abandonment of used oil and other liquid wastes dockside.

III.C.2. Applicability

This management measure applies to the operation and maintenance of marinas where liquid materials used in the maintenance, repair, or operation of boats are stored.

III.C.3. Management Practices

a. Build curbs, berms, or other barriers around areas used for the storage of liquid material to contain spills. Store materials in areas impervious to the type of material stored.
b. Provide and clearly label separate containers for the disposal of waste oil, waste gasoline, used antifreeze, waste diesel, kerosene, and mineral spirits.
c. Provide information to marina users as to the proper disposal of all liquid materials using signs, mailings, and other means.

III.C.4. Implementation of Management Measure

A description of the existing programs, statutes, rules or ordinances that currently address aspects of this management measure follows. See Section IV "Recommended Implementing Actions" on page III-201 for a description of the changes in governmental policies that are recommended to facilitate effective implementation of the marina management measures.

(i) Existing Organizational Structure: DLNR-DOBOR is the lead agency for implementing this management measure. Other State and local agencies involved in implementation include:

- DOH, which administers the State's water pollution control programs; and
- USCG, which is responsible for toxic spill response and clean-up.

(ii) Existing Regulatory and Non-Regulatory Mechanisms:

HRS	Chapter 128D	Environmental Response Law
HRS	Chapter 200	Ocean Recreation and Coastal Areas Programs
HRS	Chapter 266	Harbors (Enforcement)
HRS	Chapter 321	General Department of Health
HRS	Chapter 342D	Water Pollution
HRS	Chapter 342E	Nonpoint Source Pollution Control
HRS	Chapter 342J	Hazardous Waste
HRS	Chapter 342N	Used Oil
HAR	Chapter 11-54	Water Quality Standards
HAR	Chapter 11-451	State Contingency Plan
HAR	Chapter 12-75	Flammable and Combustible Liquids
HAR	Chapter 13-232	Boat Operation, Boat Harbors, and Permits

Chapter 13-232-26, HAR, administered by DLNR, states that "no person shall dump, discharge, or pump oil, spirits, gasoline, distillate, any petroleum product, or any other flammable material into the waters of a small boat harbor or designated offshore mooring area." Any unauthorized discharge, dumping or abandoning in any State boating facility or State waters of any petroleum product, hazardous material, or sewage in violation of State water quality standards established by DOH will result in maximum fines of $10,000 for each day of violation (Chapter 13-230-4, HAR; Chapter 200-14, HRS). Enforcement of Chapter 13-232, HAR, is under the jurisdiction of DLNR.

Title 40, CFR, Part 302, discusses designation, reportable quantities, and notification requirements of the federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). In implementing CERCLA , DOH is responsible for regulating the release of hazardous substances, pollutants or contaminants into the environment under the Hawaii Environmental Response Law, Chapter 128D, HRS. DOH must adopt rules establishing the releasable quantities of designated hazardous substances and the time periods during which the release of such substances must be reported. Failure to report such a release within the designated timeframe may result in a civil penalty not to exceed $10,000 for each day of failure to report. In September 1995, DOH promulgated administrative rules (HAR §11-451) to implement Chapter 128D, HRS.

The building of berms and curbs to contain oil or hazardous materials falls under the purview of the Environmental Protection Agency. Federal regulations for the proper disposal of oil and hazardous materials is found in the federal Resource,

Conservation, and Recovery Act. DOH is EPA's agent in Hawaii, with respect to implementation and enforcement of these federal regulations.

Chapter 342J, HRS, administered by DOH, outlines the general standards, policies, permits, and prohibitions for facilities generating, transporting, storing and disposing of hazardous wastes. Chapter 342N, HRS, Used Oil Transport, Recycling and Disposal, administered by DOH, outlines the procedures to obtain and maintain a permit for the transport, management and waste disposal of used motor oil. Chapter 342N-30 states that "new, used or recycled oil shall not be discharged into sewers, drainage systems, surface or groundwaters, watercourses, marine waters, or on to the ground." (This does not apply to inadvertent, normal discharges from vehicles or from maintenance or repair activities, provided that appropriate measures are taken to minimize releases.) Maximum penalties for repeatedly violating the provisions of this chapter are a $20,000 fine and misdemeanor conviction. First offenses may result in a maximum fine of $10,000 and a petty misdemeanor conviction.

Chapter 12-75, HAR, administered by DOT, regulates the design and operation of dispensing, pumping, and piping of fuels and other liquids at or around marine service stations. This chapter includes design requirements for areas where Class I liquids are to be stored and dispensed.

Illegal discharges of oil and hazardous chemicals should be reported to the National Response Center at 1-800-424-8802.

The marinas and recreational boating focus group felt that, in general, adequate regulatory measures exist at the federal and State levels to minimize releases of potentially-harmful liquid materials, by requiring proper storage, containment and disposal. However, these measures are not being implemented in a uniform or coordinated manner. In general, building of curbs, berms and other barriers around storage areas is being done in compliance with federal regulation. Also, where disposal facilities for oil, gas, antifreeze, etc. are provided, they are generally serviced by an outside hazardous waste disposal contractor in compliance with federal regulations. However, no guidelines or regulations exist at the State level that address the combined concerns of storing liquid materials for sale and final disposal of liquid wastes (waste fuel, used oil, spent solvents, etc.) at marinas.

D. Petroleum Control Management Measure

Reduce the amount of fuel and oil from boat bilges and fuel tank air vents entering marina and surface waters.

III.D.1. Description

Fuel and oil are commonly released into surface waters during fueling operations through the fuel tank air vent, during bilge pumping, and from spills directly into

surface waters and into boats during fueling. Oil and grease from the operation and maintenance of inboard engines are a source of petroleum in bilges.

Outboard-powered vessels are the most common vessels in Hawaiian waters. They account for approximately 59% of all vessels, followed by inboard-outboard vessels at about 15%. Approximately 7% are inboard only, with another 8% being combination of sails and motors (both inboard and outboard). The remaining 11% are sail only, manual, or other types. (Lal and Clark, 1991)

III.D.2. Applicability

This management measure applies to boats that have inboard fuel tanks.

III.D.3. Management Practices

a. Use automatic shut-off nozzles and promote the use of fuel-air separators on air vents or tank stems of inboard fuel tanks to reduce the amount of fuel spilled into surface waters during fueling of boats.
b. Promote the use of oil-absorbing materials in the bilge areas of all boats with inboard engines. Examine these materials at least once a year and replace as necessary. Recycle, if possible, or dispose in accordance with petroleum disposal regulations.

III.D.4. Implementation of Management Measure

A description of the existing programs, statutes, rules or ordinances that currently address aspects of this management measure follows. See Section IV "Recommended Implementing Actions" on page III-201 for a description of the changes in governmental policies that are recommended to facilitate effective implementation of the marina management measures.

(i) Existing Organizational Structure: DLNR-DOBOR is the lead agency for implementing this management measure. Other State and local agencies involved in implementation include:

- DOH, which administers the State's water pollution control programs; and
- USCG, which is responsible for toxic spill response and clean-up.

(ii) Existing Regulatory and Non-Regulatory Mechanisms:

HRS	Chapter 128D	Environmental Response Law
HRS	Chapter 200	Ocean Recreation and Coastal Areas Programs
HRS	Chapter 266	Harbors (Enforcement)
HRS	Chapter 321	General Department of Health
HRS	Chapter 342D	Water Pollution
HRS	Chapter 342E	Nonpoint Source Pollution Control
HAR	Chapter 11-54	Water Quality Standards
HAR	Chapter 12-75	Flammable and Combustible Liquids
HAR	Chapter 13-232	Boat Operation, Boat Harbors, and Permits

Under Chapter 200-10, HRS, in order to renew State marina slip permits, the owner of a vessel must provide a marine surveyor's inspection no more than two years old, certifying that the surveyor has inspected the vessel and considers it to fulfill the requirements set by DLNR. One requirement on the DLNR's inspection checklist is that boats have oil absorbents on board (Chapter 13-232-26(b), HAR). Fuel tank vents are also inspected for proper operation, to ensure that they do not allow spillover.

USCG strictly prohibits the use of any type of hydrocarbon in the water, subject to a civil penalty of $10,000 or more. The amount necessary for a penalty is the production of a visible sheen. The spraying of dispersants (like dish soap) on oil is also strictly prohibited under federal regulation. Many boaters are under the impression that putting something on oil already in the water is permissible. In fact, they are making matters worse and are liable for another civil penalty.

Chapter 13-232, HAR, administered by DLNR, prohibits the discharge of oil, spirits, gasoline, distillate, any petroleum product, or any other flammable material into the waters of a small boat harbor or designated offshore mooring area. Any unauthorized discharge, dumping or abandoning in any State boating facility or State waters of any petroleum product, hazardous material, or sewage in violation of State water quality standards established by DOH will result in maximum fines of $10,000 for each day of violation (Chapter 13-230-4, HAR; Chapter 200-14, HRS).

Chapter 13-232, HAR, also states that all vessels equipped with an inboard motor which is moored in a small boat harbor or designated offshore mooring area must maintain an oil absorbent pad in the bilge. Furthermore, this chapter requires that the fueling of vessels at small boat harbors occurs only at established marine fueling stations. It also states that after fueling is completed, fill openings must be closed and spilled fuel wiped up.

Illegal discharges of oil and hazardous chemicals should be reported to the National Response Center at 1-800-424-8802.

Chapter 12-75, HAR, administered by DOT, regulates the dispensing, pumping and piping of fuels and other liquids at or around marine service stations, and requires automatic shut-off nozzles at commercial harbors.

USCG regulates tank trucks fueling vessels with a capacity greater than 250 bbls. (10,500 gallons). Any permit issued for tank truck refueling must comply with federal and State regulations.

E. Boat Cleaning Management Measure

For boats that are in the water, perform cleaning operations to minimize, to the extent practicable, the release to surface waters of harmful cleaners, solvents and paint from in-water hull cleaning.

III.E.1. Description

This measure minimizes the use and release of potentially harmful cleaners and bottom paints to marina and surface waters. Marina employees and boat owners use a variety of boat cleaners, such as teak cleaners, fiberglass polishers and detergents. Boats are cleaned over the water or onshore adjacent to the water. This results in a high probability of some of the cleaning material entering the water. Boat bottom paint is released into marina waters when boat bottoms are cleaned in the water.

III.E.2. Applicability

This management measure applies to marinas where boat topsides are cleaned and marinas where hull scrubbing in the water has been shown to result in water or sediment quality problems.

III.E.3. Management Practices

a. Wash the boat hull above the waterline by hand. Where feasible, remove the boat from the water and perform cleaning where debris can be captured and properly disposed of.
b. Detergents and cleaning compounds used for washing boats should be phosphate-free and biodegradable, and amounts used should be kept to a minimum.
c. Discourage the use of detergents containing ammonia, sodium hypochlorite, chlorinated solvents, petroleum distillates, or lye.
d. Discourage in-the-water hull scraping or any process that occurs underwater to remove paint from the boat hull.

III.E.4. Implementation of Management Measure

A description of the existing programs, statutes, rules or ordinances that currently address aspects of this management measure follows. See Section IV "Recommended Implementing Actions" on page III-201 for a description of the changes in governmental policies that are recommended to facilitate effective implementation of the marina management measures.

(i) Existing Organizational Structure: DLNR-DOBOR is the lead agency for implementing this management measure. Other State and local agencies involved in implementation include:

- DOH, which administers the State's water pollution control programs; and
- USCG, which is responsible for toxic spill response and clean-up.

(ii) Existing Regulatory and Non-Regulatory Mechanisms:

HRS	Chapter 200	Ocean Recreation and Coastal Areas Programs
HRS	Chapter 266	Harbors (Enforcement)
HRS	Chapter 321	General Department of Health
HRS	Chapter 342D	Water Pollution
HRS	Chapter 342E	Nonpoint Source Pollution Control
HAR	Chapter 11-54	Water Quality Standards

HAR Chapter 13-232 Boat Operation, Boat Harbors, and Permits

Chapter 13-232, HAR, administered by the DLNR, prohibits littering on land areas and in waters within small boat harbors. Please refer to page III-184 for a description of this administrative rule and its enforcement provisions.

While Chapter 13-232, HAR, does not prohibit hauling out on beaches, it does prohibit activities that litter or pollute. Therefore, major repair and maintenance work should be performed in specific work areas. DLNR-DOBOR is increasing its enforcement against boat maintenance and repair activities that pollute beaches, other land areas, and waters within small-boat harbors.

State marina facilities with repair areas or hull maintenance areas require permits for do-it-yourself boat cleaning and maintenance operations. Only certain areas are allowed to be used for these operations. An applicant may use the designated area for 2 weeks free of charge. As a condition of the permit, the boat owner must clean up all scrapings. Sandblasting is becoming less used, and planer-vacuum systems and hydroblasting more widely incorporated. In the future, the State plans to close its cleaning and maintenance areas and, thus, discontinue this service. At that time, boat owners will be required to use a private or other repair facility for boat cleaning and maintenance. This will direct boat cleaning and repairs to newer facilities better equipped to accommodate and regulate these uses.

In 1989, the USCG implemented the pollution prevention requirements of Annex V of MARPOL 73/78. Countries signatory to this international agreement prohibit the discharge of plastics by any type of vessel anywhere in the world. Non-signatory country vessels must comply within U.S. waters. There are also specific restrictions for the dumping of other litter in the oceans, depending on the distance from shore and the size/type of trash. Although the USCG and other authorities have focused on education and awareness, there is a $25,000 civil penalty for each violation of these regulations (33 CFR 151). USCG is currently increasing spot checks and investigating releases of rubbish, liquids, and hull scrapings, particularly in Oahu's harbor areas.

Some marina operators are currently working with DOH and other agencies to address this issue. A public information booklet entitled *Managing Boat Wastes: A Guide for Hawaii Boaters* was produced in 1994 by SGES, in conjunction with DOH, DLNR-DOBOR, and others to educate the public about the importance of proper boat cleaning and maintenance practices. This popular booklet includes sections on alternative cleaners as well as environmentally-sound boat and deck washing methods. DOH, SGES and DOBOR are currently considering expanding boater education programs.

F. Public Education Management Measure

Public education/outreach/training programs should be instituted for boaters, as well as marina owners and operators, to prevent improper disposal of polluting material.

III.F.1. Description

The best method of preventing pollution from marinas and boating activities is to educate the public about the causes and effects of pollution and methods to prevent it. Creating a public education program should involve user groups and the community in all phases of program development and implementation. The program should be suited to a specific area and should use creative promotional material to spread its message.

III.F.2. Applicability

This management measure applies to all environmental control authorities in areas where marinas are located.

III.F.3. Management Practices

a. Signage
b. Recycling/trash reduction programs
c. Pamphlets or flyers, newsletters, inserts in billings
d. Meetings/presentations

III.F.4. Implementation of Management Measure

A description of the existing programs, statutes, rules or ordinances that currently address aspects of this management measure follows. See Section IV "Recommended Implementing Actions" on page III-201 for a description of the changes in governmental policies that are recommended to facilitate effective implementation of the marina management measures.

(i) Existing Organizational Structure: A number of government agencies and organizations engage in public education and outreach efforts for marinas and recreational boating:

- DBEDT, Ocean Resources Branch;
- DOH, Solid and Hazardous Waste Branch;
- DLNR - DOBOR;
- University of Hawaii, SGES;
- University of Hawaii, School of Ocean and Earth Science and Technology (SOEST); and
- The Ocean Recreation Council of Hawaii (TORCH).

These agencies also allocate funding on a project-by-project basis for marinas and recreational boating-related education.

(ii) Existing Regulatory and Non-Regulatory Mechanisms: Public education and outreach activities range from signage provided by state agencies

and private organizations, to pollution prevention seminars, tourist education, and informational pamphlets, flyers and brochures. To date, the following educational materials are available:

- *Managing Boat Wastes: A Guide for Hawaii Boaters*. 1994. SGES, SOEST, DOH-Office of Solid Waste Management, DLNR-DOBOR.
- *'94 Directory: Waste Management Services in Hawaii.* November 1994. DOH-Solid and Hazardous Waste Branch. (Directory)
- *Boating and Ocean Recreation Permit Requirements*. 1993. DBEDT-Ocean Resources Branch. (Document)
- "Alternatives to Household Hazardous Products." 1995. DOH-Environmental Health Administration. (Informational flyer)
- "Resource Enforcement and Conservation Hawaii (REACH)." 1993. SGES, DBEDT-Ocean Resources Branch, TORCH. (Informational flyer compiling resources for marine and coastal environmental protection)
- *1994-1995 Hawaii Marine Directory*. 1994. DBEDT. (Directory)

G. Maintenance of Sewage Facilities Management Measure

Ensure that sewage pumpout facilities are maintained in operational condition and encourage their use.

III.G.1. Description

The purpose of this measure is to reduce the release of untreated sewage into marina and surface waters.

Most of Hawaii's State boating facilities were designed and built prior to 1976. Many of these facilities lack adequate sanitation systems and maintenance on those systems. Similarly, many private marinas lack adequate sewage disposal facilities.

The state is currently working to add sewage facilities to all their sites. Thus far, pumpout facilities have been installed at several state harbors (Nawiliwili, Waianae, Ala Wai, Lahaina, and Keehi), but accessibility to these pumpout facilities is variable, as is public willingness to use them. Maintenance of the pumpout facilities has also been problematical.

III.G.2. Applicability

This management measure applies to marinas where marine sewage disposal facilities exist.

III.G.3. Management Practices

a. Arrange maintenance contracts with contractors competent in the repair and servicing of pumpout facilities.
b. Develop regular inspection schedules.
c. Maintain a dedicated fund for repair and maintenance of State pumpout facilities.

d. Add language to slip leasing agreements mandating the use of pumpout facilities and specifying penalties for failure to comply.

III.G.4. Implementation of Management Measure

A description of the existing programs, statutes, rules or ordinances that currently address aspects of this management measure follows. See Section IV "Recommended Implementing Actions" on page III-201 for a description of the changes in governmental policies that are recommended to facilitate effective implementation of the marina management measures.

(i) Existing Organizational Structure: DLNR-DOBOR is the lead agency for implementing this management measure. Other federal, State and local agencies involved in implementation include:

- DOH, which administers the State's water pollution control programs.

(ii) Existing Regulatory and Non-Regulatory Mechanisms:

HRS	Chapter 200	Ocean Recreation and Coastal Areas Programs
HRS	Chapter 266	Harbors (Enforcement)
HRS	Chapter 321	General Department of Health
HRS	Chapter 342D	Water Pollution
HRS	Chapter 342E	Nonpoint Source Pollution Control
HAR	Chapter 11-54	Water Quality Standards
HAR	Chapter 13-232	Sanitation and Fire Safety
HAR	Chapter 13-235	Offshore Mooring Rules and Areas
HAR	Chapter 13-243	Vessel Equipment Requirements
33 USC 1322	§312	Marine Sanitation Devices

Chapter 13-232, HAR, administered by DLNR, prohibits the discharge of untreated sewage directly or indirectly into the waters of a small boat harbor (HAR §13-232-8). Any unauthorized discharge, dumping or abandoning in any State boating facility or State waters of any petroleum product, hazardous material, or sewage in violation of State water quality standards established by DOH will result in maximum fines of $10,000 for each day of violation (Chapter 13-230-4, HAR; Chapter 200-14, HRS).

Chapter 13-235, HAR, administered by DLNR, requires marine toilets to be present and operational on vessels mooring or anchoring in waters of the State. Chapter 13-243-2, HAR, requires all vessels in the State with a MSD to comply with federal 33 CFR Part 159, which in turn prescribes regulations governing the design and construction of MSDs and procedures for certifying that MSDs meet the regulations and standards of the EPA promulgated under Section 312 of 33 USC 1322, to eliminate the discharge of untreated sewage from vessels into the waters of the United States, including the territorial seas.

By law, the Hawaii Boating Special Fund must be used for the operation and maintenance of the State boating program, including the operation and

maintenance of pumpout facilities. This fund is derived mainly from boat registrations, harbor use fees, marine fuel taxes, and land rentals. In addition, DOBOR has received a $21,250 grant under the Federal Clean Vessel Act of 1992. The grant will be used for: (1) survey and development of a public education program of vessel pumpout facilities; (2) design and construction of a pumpout facility at Kailua-Kona Wharf, Hawaii; (3) design and construction of a pumpout facility at Keehi Boat Harbor, Oahu; and (4) design and construction of a pumpout facility at Nawiliwili Boat Harbor, Kauai.

DLNR-DOBOR is encouraging regular use of sewage pumpout facilities by providing educational materials and citing vessels without toilets during its annual inspections of recreational boats. The U.S. Coast Guard is also increasing its number of inspections and imposing fines for MSD violations.

H. Boat Operation Management Measure (applies to boating only)

Restrict boating activities where necessary to decrease turbidity and physical destruction of shallow-water habitat.

III.H.1. Description

Boat operation can resuspend bottom sediment, resulting in the reintroduction of toxic substances into the water column. It can increase turbidity, which affects the photosynthetic activity of algae. Boat operation may also damage coral reefs and cause other habitat destruction.

Important classes of shallow water habitats found on the U.S. mainland (such as sea-grass beds) are not present in Hawaii. Instead, areas of concern in Hawaii include shallow-water coral reefs, algal flats, areas where threatened green sea turtles and other important species forage, shallow-water recruitment areas, and other special nearshore ecosystems and resources.

Hawaii's nearshore and shallow water habitats have not been comprehensively inventoried or assessed. The full extent to which recreational boating activities affect various shallow-water resources and habitats in Hawaii is likewise unknown. As nearshore habitats are assessed, the State's GIS would serve as a method to convey important habitat and other siting information to marina developers and environmental managers. The GIS system is limited, however, in its ability to correlate boat operations with habitat impacts.

III.H.2. Applicability

This management measure applies in non-marina surface waters where evidence indicates that boating activities are impacting shallow-water habitats.

III.H.3. Management Practices

a. Speed limits.
b. No-wake zones.

c. Motorboat restrictions.
d. Day-use moorings.

III.H.4. Implementation of Management Measure

A description of the existing programs, statutes, rules or ordinances that currently address aspects of this management measure follows. See Section IV "Recommended Implementing Actions" on page III-201 for a description of the changes in governmental policies that are recommended to facilitate effective implementation of the marina management measures.

(i) Existing Organizational Structure: DLNR-DOBOR is the lead agency for implementing this management measure. Other federal, State and local agencies involved in implementation include:

- DOH, which administers the State's water pollution control programs;
- USCG, which is responsible for marine safety, and toxic spill response and clean-up; and
- USFWS, which reviews for impacts on turtles and seabirds.

(ii) Existing Regulatory and Non-Regulatory Mechanisms:

HRS	Chapter 188	Fishing Rights and Regulations
HRS	Chapter 190	Marine Life Conservation Program
HRS	Chapter 195	Natural Area Reserves System
HRS	Chapter 200	Ocean Recreation and Coastal Areas Programs
HRS	Chapter 205A	Coastal Zone Management
HRS	Chapter 342D	Water Pollution
HRS	Chapter 342E	Nonpoint Source Pollution Control
HAR	Chapter 11-54	Water Quality Standards
HAR	Chapter 13-28 - 13-38	Marine Life Conservation Districts
HAR	Chapter 13-244	Rules of the Road; Local and Special Rules
HAR	Chapter 13-256	Ocean Recreation Management Areas

This management measure is implemented through a number of overlapping regulatory measures, which restrict access to specified ecologically sensitive areas, limit boat speed in nearshore shallows, prohibit destructive activities, and restrict certain types of recreational uses to delimited areas and times.

Chapter 188, HRS, administered by DLNR, prohibits the intentional damaging, breaking or taking of any stony coral or live reef (rock or coral to which marine life of any type is attached). Penalties are provided on a per-violation as well as per-specimen basis.

The State has mechanisms in place to protect specific areas containing nearshore habitats of important resource values. Chapter 190, HRS, enables DLNR to establish MLCDs to protect unique areas of the marine environment by prohibiting activities that disturb, degrade or alter it. Thus far, eleven MLCDs have been designated, with associated administrative rules (Chapters 13-28 through 13-38, HAR) for managing these areas, including restrictions on boating

activities. Chapter 195, HRS authorizes DLNR to establish NARs to protect and preserve unique natural assets of the State, including distinctive marine plants and animals. Only one NAR includes a marine component. Ocean Recreation Management Areas (ORMAs), established under Chapter 13-256, HAR, are designated to limit certain ocean recreational activities, both commercial and sport, to specifically designated locations and time periods, and to limit equipment types used. ORMAs are managed by DLNR-DOBOR.

All State marine bottom ecosystems are classified as either Class I or Class II. Section 11-54-03, HAR, states that "it is the objective of class I marine bottom ecosystems that they remain as nearly as possible in their natural pristine state with an absolute minimum of pollution from any human-induced source. Uses of marine bottom ecosystems in this class are passive human uses without intervention or alteration, allowing the perpetuation and preservation of the marine bottom in a most natural state..." [§11-54-03(d)(1)]. The objective of class II marine bottom ecosystems is that "their use for protection including propagation of fish, shellfish, and wildlife, and for recreational purposes not be limited in any way." Any actions that may permanently or completely modify, alter or degrade the marine bottom, including navigational structures such as harbors and ramps, may be allowed in class II bottoms provided approval is secured from the Department of Health [§11-54-03(d)(2)]. The areas of class I and II bottoms are listed by marine bottom type in Section 11-54-07, HAR.

Chapter 200, HRS, administered by DLNR, provides authority for Chapter 13-244, HAR, which establishes local and special navigational rules. These rules set speed restrictions on boating, requiring no-wake slow speed within 200 feet of any shoreline or marina, and more restrictive speed limits in some areas; prohibit operation or anchorage of any vessel which injures or damages marine life or geological features and specimens within Kealakekua Bay; restrict boats from the ocean waters of the Ahihi-Kinau, Maui Natural Area Reserve; restrict boats from the ocean waters of the Manele Bay-Hulopoe (Lanai) Marine Life Conservation District; and restrict boating speeds and activities in numerous other areas reserved for swimming, bathing, snorkeling and diving.

IV. RECOMMENDED IMPLEMENTING ACTIONS

The following recommendations suggest actions that will improve the implementation of the management measures for marinas and recreational boating.

A. Continue long-range planning and policy development efforts for marina development, and related efforts to develop marina siting, design, and construction guidelines for Hawaii

- OSP, in conjunction with DLNR, should continue to facilitate the long-range planning of marina development and expansion.

- Revise and implement the *Draft Planning and Evaluation Guidelines for Private Sector Marina Development* (OSP 1993) to provide design, siting, construction, and operations criteria for *both* private and public marinas. Present the marina guidelines to the Board of Land and Natural Resources for their formal adoption. These criteria should then be included as conditions to the CDUA permits issued for new marina development and existing marina expansion. The adherence of marina developments to the criteria established in the guidelines, as specified in their CDUA permit conditions, should be monitored and enforced by DLNR. The various counties' planning departments should also utilize these guidelines during SMA permit application and review.

- DOH should develop a standardized protocol for marine water quality monitoring before, during, and after any coastal construction, including marina development. This protocol should be made a standard provision on any water quality and/or CDUA permit. The protocol should specify sampling parameters, frequency, sites, data reporting requirements, and emergency response to non-compliance.

- The State should develop a manual of structural and non-structural best management practices (BMPs) for marinas that may be used to meet the criteria established in the State's guidelines for marina development and expansion. It is also recommended that the State include, as a condition to the lease of public marina facilities to private concessions, the requirement of the use of BMPs to protect coastal water quality. BMPs for marinas should be tailored to Hawaii's environment.

  Schedule for Addressing Additional Needs:

June 1997:	Formally adopt guidelines for marina development and expansion.
June 1997:	Develop standardized protocol for marine water quality monitoring.
December 1997:	Develop manual of marina best management practices.

- Develop a statewide marina operations and maintenance manual for new and existing marinas. This manual would provide descriptions of management measures and practices to reduce polluted and explain how marina users will benefit and can do their share. The manual would also identify relevant agencies and their functions. The manual should also contain a comprehensive and clear set of guidelines on the proper storage and use of liquid materials, disposal of liquid wastes, and clean-up of spills for marina operators.

B. Support and facilitate continuing public outreach and boater education efforts

The marina and recreational boating focus group considered public education critical to the effective implementation of the marina and recreational boating management measures. This educational effort should also be extended to regulators, legislators, and the judiciary.

- Develop a comprehensive public education program for marina operators and the boating community. This program could be jointly developed by DOH, DLNR, DBEDT-Ocean Resources Branch, SGES, University of Hawaii Marine Options Program, Waikiki Aquarium, TORCH, the Pacific Whale Foundation, and other relevant agencies and organizations. As a key component of this program, a Pollution Prevention Resource Guide should be developed and distributed to boaters, and marina owners and operators, to prevent improper disposal of polluting materials. This guide would provide information on pollution prevention and direct the public to existing laws, authorities, programs and resources. Much of this information is already available through SGES, DBEDT-Ocean Resources Branch, DOH, and DLNR-DOBOR. In addition, ample materials are available from other states.

- As another important component of a comprehensive statewide boater education program, support public education seminars, workshops, and meetings instituted in conjunction with the dissemination of the guide. In the past, public outreach seminars and workshops have been used successfully for several waste minimization and pollution prevention programs in Hawaii.

- Investigate ways to most-effectively communicate with the boating and marina communities, including appropriate signage, community bulletin boards, and a computer "Boater/Fisher-Net." Other potential outreach avenues include:

  - Hawaii Marine Directory
  - Mailouts for boat and trailer registration (attach materials)
  - Annual boat inspections
  - Television shows about fishing, including 'Let's Go Fishing'
  - *Hawaii Fishing News, Honolulu Advertiser/Star Bulletin*
  - Videos
  - Clubs and organizations (*e.g.*, yacht clubs, sailing clubs, dive clubs, paddling clubs, boy scouts, fishing clubs, TORCH)
  - Harbors Advisory Boards
  - Neighborhood Boards on Oahu
  - Posters and signage at marinas
  - Novelties
  - Yacht club and other organizational newsletters
  - Boat sellers guides

C. Improve enforcement of existing boating regulations

- Provide adequate resources for enforcement officers, including additional staff and boats.

D. Pursue alternative funding mechanisms for managing and improving State boating facilities

DLNR-DOBOR has initiated an investigation into ways to increase revenues for managing and improving the State's boating facilities. It is currently considering several options, including increasing existing slip and user fees, and instituting new fees for certain uses.

- Consider other revenue-generating alternatives, such as boat and trailer taxes, and the establishment of a special fund supported by ecology vanity license plates.

E. Undertake a statewide suitability analysis for marina siting

- Instigate a project to guide the location of new and expanding marinas and associated activities through a statewide suitability analysis. Such an analysis could designate areas that are and are not suitable for marina development, taking into account criteria for flushing and circulation, exposure and other navigational safety concerns, biological, water quality and habitat factors, and recreational and cultural values. The preferences and needs of the community in which the site is located should also be included in the analysis criteria. The maps generated by the suitability analysis could be used by State and county agencies to direct development of marinas and associated activities to appropriate areas.

- Conduct comprehensive nearshore and reef surveys to identify additional areas of special shallow water habitats, and areas where turbidity may be of concern to biological resources. Such an effort to identify areas potentially impacted by marina development and boating could build upon previous nearshore surveys conducted by USACOE, DOH, and others.

F. Explore various public-private partnerships for managing and developing public boating facilities

- Encourage DLNR-DOBOR to work with harbor advisory committees to coordinate management efforts at existing facilities. Volunteer efforts and educational programs are among the activities the advisory committee can pursue.

- Promote public-private partnerships in the management of existing marina facilities, expansion of these facilities, or construction of new public marinas in order to benefit from private sector expertise in marina management.

G. Improve coordination among federal, State and county agencies that play a role in marina design, siting, construction, and operation and maintenance

- Improve coordination among existing regulatory programs to facilitate appropriate and efficient design, construction and management of marinas. DLNR-DOBOR, DOH, the CZM Program, DBEDT-Ocean Resource Branch, DOT-Harbors Planning Division, USACOE, USCG, county departments of planning and public works, SGES, Hawaii Community Development Authority, and military marina operators should all be involved in this effort.