

STATE OF HAWAII

OCEAN MANAGEMENT PLAN



DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

STATE OF HAWAII OCEAN MANAGEMENT PLAN



**Prepared by
Hawaii Coastal Zone Management Program
Department of Planning and Economic Development
State of Hawaii**

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PREFACE

Historically, management of Hawaii's coastal zone has focused on land-based development activities along the shoreline due primarily to their visibility and direct impact on the populace. The emergence of new and increased demands on our ocean from activities such as ocean dumping, near-shore recreation, and deep-seabed mining, however, has created a seaward dimension to our planning needs. Jurisdictional conflicts are inevitable given the variety of agencies involved in ocean and marine activities. Continuous and improved coordination of their role and responsibilities, therefore, is essential. There is so much to be done to identify problems and to prioritize the issues on a broader, more comprehensive level.

The Ocean Management Plan is a response to these concerns. It emphasizes the need to improve overall management of the coastal zone — to build upon past efforts by placing our ocean and marine-related activities within a longer-range planning perspective. In this respect, it is a guide for the proper use, protection, and development of the ocean and its resources.

The success of this effort has been and will continue to be dependent upon all parties taking an active interest in collaborative planning and decision-making. Many people from various Federal, State, and County government agencies as well as the private sector have contributed their time and talent in developing this Plan. We very much appreciate their support and look forward to working with them and others in carrying out the Plan's recommended objectives, policies, and implementing actions.



Kent M. Keith
Director

CONTENTS

	Page
INTRODUCTION	1
The Need for an Ocean Management Plan	1
Involvement of the Hawaii CZM Program	2
Technical Basis for the OMP	2
RECOMMENDED OBJECTIVES, POLICIES, AND IMPLEMENTING ACTIONS	4
Overall Ocean Management — Recommended Objectives, Policies and Implementing Actions	6
I. Overall Ocean Management	7
Management Component — Recommended Objectives, Policies and Implementing Actions	10
II. Ocean Recreation	11
III. Marine Conservation and Preservation	15
IV. Ocean Waste Disposal and Accidental Spills	17
V. Beach Erosion	19
Development Component — Recommended Objectives, Policies and Implementing Actions	20
VI. Fisheries	21
VII. Harbors	25
VIII. Coastal Energy Facilities	27
IX. Mariculture	29
X. Ocean Thermal Energy Conversion (OTEC)	31
XI. Ocean Minerals	35
INSTITUTIONALIZATION	37

INTRODUCTION

The Need for an Ocean Management Plan

Demands on Hawaii's ocean resources are steadily increasing. Growth in Hawaii's resident and visitor populations, increasing affluence, and changes in consumption patterns have intensified the demands for recreation, oceanic transshipment of goods and supplies, harvesting of products from the sea, and places to dispose wastes. Rapidly developing marine technologies look promising for tapping new resources and using traditional ones more efficiently. Developing ocean resources can also help broaden business and employment opportunities and facilitate diversification of Hawaii's economic base.

Increased activity in the ocean will heighten the potential for conflicts among activities, competition for resources, and environmental degradation. Effective management to avoid or resolve these concerns must consider the growing diversity of public and private ocean interests as well as the evolving role of government in ocean resource management and development.

Over the past decade, Hawaii progressed significantly toward better development, use, and management of its ocean resources. Since the first Hawaii and the Sea report in 1969, the State started ocean thermal energy conversion (OTEC) projects; intensified its support for a strong fisheries industry, aquaculture, and ocean mining; and invested more in ocean research and development. Hawaii and the Sea was updated with a new report in 1974.

More recently, a number of significant marine-related studies and plans were completed:

- The Hawaii State Plan (1978) provides the overall context for planning in Hawaii. Many of its objectives, policies, and priority directions generally and specifically address ocean management concerns. Moreover, nine of the State's 12 Functional Plans, which more specifically detail State Plan implementation, deal with ocean-related aspects. They are: Historic Preservation, Recreation, Conservation Lands, Transportation, Health, Education, Higher Education, Energy, and Tourism Functional Plans.
- The Hawaii Fisheries Development Plan (1979) of the Department of Land and Natural Resources assesses the commercial potentials of Hawaii's fishery resources and charts the course for government investments and actions to develop them. This plan is currently being updated.
- The Hawaii Tuna Fishery Development Plan (1977) by the Department of Planning and Economic Development (DPED) reports on the potential for a Hawaii-based tuna fishery.
- The draft Hawaii Wildlife Plan (1982) of the State Department of Land and Natural Resources establishes policies and guidelines for the management of seabirds and shorebirds.
- The State of Hawaii Manganese Nodule Program 1980-1985 by the DPED charts a relatively detailed five-year course for expenditures and activities and provides information on economic, social, legal, and environmental impacts of a manganese nodule processing industry in the State.
- The State of Hawaii Public Sector Ocean Thermal Energy Conversion Program 1980-1985 prepared by the DPED outlines major government activities in five areas (Research Promotion, Industry Interaction, Facilitation of Commercialization, Impact Assessment, and Public Information) in support of OTEC development in Hawaii.
- The Draft State Master Plan for Marine and Aquatic Education (1980) by the Marine Affairs Coordinator (currently Ocean Resources Office, DPED) comprehensively reviews educational opportunities for kindergarten through high school, the university and community colleges, and programs for visitors and the general public. It offers recommendations for water safety, marine resource awareness and appreciation, and marine vocational opportunities.
- The Hawaii Water Resources Plan (1979) prepared by the Hawaii Water Resources Regional Study is comprised of recommendations for Hawaii's surface, ground, and marine waters and related land resources.
- Aquaculture Development for Hawaii (1978) prepared by the DPED assesses the economic potential of aquaculture in the State and directs a general course for government to promote its development.
- The Hawaii Cooperative Port Planning Study, Phase I (1981) of the Department of Transportation forecasts demands on the State harbor system based on a computer model for facilities planning.
- Ocean Leasing for Hawaii (1981) published by the DPED, examines legal issues on the exclusive use of ocean space for ocean-dependent activities such as mariculture or OTEC. Because the

ocean is a public trust, the study proposes a State leasing system to promote these activities.

- The Fishery Management Plans prepared by the Western Pacific Fishery Management Council detail regulations and quotas for the harvesting of various commercially valuable species within the 200-mile U.S. Fishery Conservation Zones in the Western Pacific.

There has been significant progress in ocean resource management and development, but efforts to date have been fragmented. In some cases, attention has been directed to specific resources or activities without full consideration of impacts on other ocean resources, programs or activities. In other instances, responsibilities over certain resources are scattered among agencies and at different levels of government without adequate coordination. The result has been gaps and overlaps in authority and responsibility. While this system may have sufficed in the past when levels of activity were considerably less, increased activities envisioned for the future could aggravate associated problems. Preparation of the State of Hawaii Ocean Management Plan (OMP) was pursued as a way of establishing the basis for comprehensively managing the State's ocean resources.

This OMP is intended to provide consistency in management by setting forth objectives and policies by which government entities can orient their efforts. The planning process provides a forum for resolving conflicts, preferably before they arise, and determining public priorities through collective discussions among competing and complementing interests. Review and coordination of agency roles and efforts would promote efficiency while reducing costs and maximizing beneficial results.

The process also promotes public awareness, interest, and enjoyment of diverse ocean resources. Such resources range from those providing recreational, educational, and scientific research opportunities to those supporting activities which can broaden the State's relatively narrow economic base. Currently, public awareness of ocean issues is hampered by the fact that many people are not adequately informed about the benefits and impacts of activities occurring in the offshore environment.

Involvement of the Hawaii CZM Program

In relation to its general planning mandates, the DPED, through the Hawaii Coastal Zone Management (CZM) Program, initiated the preparation of the OMP. One reason for this was that the seaward extent of Hawaii's coastal zone coincides with waters under the State's jurisdiction as mandated in Chapter 205A, HRS. The focus of the planning effort on the "wet side" of the coastal zone was viewed as complementing the present emphasis of the Hawaii CZM Program on the management of coastal land uses.

In formulating the OMP, it was also recognized that its scope would extend well beyond the Hawaii CZM Program responsibilities. Thus, implementation should not be constrained by the CZM Program's authority and geographic limitations. Part III, therefore, proposes an institutional arrangement which reflects the broad scope of participation by diverse agencies and interests.

Technical Basis for the OMP

In 1980, the Federal Office of Ocean and Coastal Resource Management approved the State's grant request for developing the OMP and began providing funds from Section 306 of the National Coastal Zone Management Act of 1972, as amended.

The DPED contracted with the University of Hawaii's Department of Urban and Regional Planning to assist in plan formulation. A problem-identification technique was applied to define specific problems in need of solutions. Ten issue papers were prepared to address the management and development of ocean resources. They form the technical basis for formulating ocean policies. Each issue paper contains a general description of the resource, a discussion of known or potential adverse effects associated with the use of the resource and their known or hypothesized causes, a brief summary of existing legal and institutional structures for managing the resources, a description of the problems associated with managing the resource, and preliminary recommendations.

Several of the issue papers (mariculture, OTEC, fisheries, manganese nodules) also contain supplements which discuss government efforts to overcome barriers to resource development. The following summarizes the 10 issue papers:

1. Near-shore Recreation. This issue paper summarizes problems and benefits of managing the broad range of ocean-oriented recreational resources available throughout the State. Issues arising from the complex and overlapping regimes (Federal, State, and County governments and the private sector) are emphasized. The resource topic of this issue paper has since been retitled "Ocean Recreation."

2. Marine Conservation and Preservation. This issue paper addresses conservation and preservation of Hawaii's unique marine life for non-consumptive enjoyment by present and future generations. The purposes and functions of the existing system of wildlife sanctuaries, marine parks, marine sanctuaries, and endangered species' critical habitats are emphasized.
3. Ocean Waste Disposal and Accidental Spills. Recognizing the potential of the ocean as a sink for various wastes, this issue paper addresses potentially adverse impacts to human health and the environment. The adequacy of present systems for controlling nuclear waste disposal, oily water discharges from ships, dredge spoil disposal, and deep ocean sewage disposal are assessed.
4. Beach Erosion. This paper discusses causes of beach erosion and techniques to mitigate and control erosion and to restore eroded areas. Nonstructural measures such as beach replenishment and land use controls are emphasized, as well as some of the legal impediments to their application.
5. Fisheries. Addressing the near and offshore fishery resources from finfish and shellfish to seaweed, this issue paper identifies factors which could adversely affect commercial, recreational, and subsistence fishers, including overexploitation, habitat degradation, and conflicts among users. A supplement reviews the State's efforts to promote use of the fishery resources of the Northwestern Hawaiian Islands.
6. Harbors Development. This issue paper surveys present concerns of Hawaii's commercial harbor system: public safety (transporting and storing petroleum and other potentially hazardous materials); the role of the harbor system in industries such as fisheries, ocean mineral processing, and transshipment of goods; and the benefits and limitations of the current system of self-sufficient financing for harbor improvements, maintenance, operation, and administration.
7. Coastal Energy Facilities. Addressing ocean-dependent energy alternatives, except ocean thermal energy conversion, this issue paper discusses potentials and major environmental concerns related to using the ocean for cooling water, fuel transport, tidal and wave energy, and growing biomass fuels.
8. Mariculture. In anticipation of a commercially feasible mariculture industry, this issue paper addresses concerns pertaining to the environment and potential conflicting uses. Although mariculture is currently practiced as a form of land-based saltwater aquaculture, future development may require occupying near-shore and ocean waters. Development issues of mariculture are also addressed in a supplement.
9. Ocean Thermal Energy Conversion. Ocean Thermal Energy Conversion (OTEC) is envisioned as a potentially major energy source for Hawaii's future. This issue paper summarizes environmental and legal concerns pertaining to current OTEC research and commercial OTEC development in the long term. A supplement reviews the State's efforts to promote development of OTEC technology and facilities in Hawaii.
10. Manganese Nodules. This issue paper addresses concerns relating to a manganese nodule mining and processing industry and its implications for Hawaii. A supplement addresses potential economic benefits and impediments to its development. The resource topic of this issue paper has since been retitled "Ocean Minerals."

The issue papers were circulated for review and discussed at a public workshop held on May 3, 1982. One of the workshop activities involved the participants' refining and ranking of recommended implementing actions. A second workshop was held on June 21, 1982, to solicit ideas on issues affecting more than one resource area. Participants at this workshop were asked to contribute their knowledge and views regarding one of two multi-issue areas of concern: near-shore marine resources and open-ocean resource development. Through a consensus-building technique, participants identified problems and assigned priorities to possible solutions within these broad ocean concerns.

The problems and recommended solutions identified in the issue papers and workshops were subsequently synthesized to form the draft objectives, policies, and recommended implementing actions for the OMP. Many valuable comments were received following distribution of the draft for public review in October 1982.

A second draft, which was circulated in August 1983, attracted still more valuable comments. Some resource topics have since been rearranged and numerous editorial changes made.

RECOMMENDED OBJECTIVES, POLICIES, AND IMPLEMENTING ACTIONS

The recommended objectives, policies, and implementing actions presented in this part pertain to two tiers of management concern. The first concerns the overall integration and coordination of activities spanning the range of ocean resources in the State. The second is comprised of two components which together concern 10 specific resource topics. Within this tier, the "Management Component" encompasses four resource areas which emphasize resource protection, including Ocean Recreation, Marine Conservation and Preservation, Ocean Waste Disposal and Accidental Spills, and Beach Erosion. The "Development Component" encompasses the remaining six resource areas in which the State is additionally promoting economic development, including Fisheries, Harbor Development, Coastal Energy Facilities, Mariculture, Ocean Thermal Energy Conversion, and Ocean Minerals.

Involvement of various organizations in implementing actions is suggested on the basis of their expertise, existing authority, and functional responsibilities. Their involvement is intended to provide a comprehensive framework within which agency coordination can be enhanced.

ABBREVIATIONS AND ACRONYMS USED TO IDENTIFY ORGANIZATIONS

Federal

COE	Army Corps of Engineers
EPA	Environmental Protection Agency
FWS	Fish and Wildlife Service
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
USCG	United States Coast Guard
USDOE	Department of Energy
USN	United States Navy
WPRFMC	Western Pacific Regional Fishery Management Council

State

AG	Attorney General
DB&F	Department of Budget and Finance
DHHL	Department of Hawaiian Home Lands
DLIR	Department of Labor and Industrial Relations
DLNR	Department of Land and Natural Resources
DOA	Department of Agriculture
DOD	Department of Defense
DOE	Department of Education
DOH	Department of Health
DOT	Department of Transportation
DPED	Department of Planning and Economic Development
HFCC	Hawaii Fisheries Coordinating Council
HIMB	Hawaii Institute of Marine Biology (UH)
LUC	Land Use Commission
NELH	Natural Energy Laboratory of Hawaii (DPED)
OEQC	Office of Environmental Quality Control (DOH)
OHA	Office of Hawaiian Affairs
PUC	Public Utilities Commission
SG	Sea Grant Program (UH)
UH	University of Hawaii

County

CCA	Central Coordinating Agency
CDA	Civil Defense Agency
DPW	Department of Public Works
EDO	Economic Development Office (County of Hawaii — Research and Development Office)
ESS	Energy Self Sufficiency Office
GP	Department of General Planning (City and County of Honolulu only)
P&R	Department of Parks and Recreation (Department of Public Works for Kauai County)
PD	Planning Department (Department of Land Utilization for the City and County of Honolulu)
Police	Police Department

OVERALL OCEAN MANAGEMENT — RECOMMENDED OBJECTIVES, POLICIES, AND IMPLEMENTING ACTIONS

Overall ocean management refers to the statement of objectives regarding public marine resources and, through policies, directing a course to achieve those objectives. The following objectives deal with the desire to protect valued marine resources from harmful activities, resolve conflicting uses, enhance public use and enjoyment of ocean resources, and promote and support private development and use of resources where substantial social and economic benefits to the State can be realized.

Recognizing that these objectives may not be entirely compatible, and that coordination of government roles can facilitate their achievement, supporting policies for resolving conflicts and improving coordination are presented. They suggest the need to centralize certain government functions, responsibilities, and authorities to insure overview, coordination, and support across the broad ocean resource management regime. Also emphasized is the need to improve government relationships with the private sector and general public to assure responsiveness to changing needs.

The implementing actions prescribe some of the ways in which the policies can be carried out or enhanced within the existing management regime.

I. OVERALL OCEAN MANAGEMENT

I.A. OBJECTIVES:

- I.A.1 PUBLIC USE, ENJOYMENT, AND APPRECIATION OF OCEAN RESOURCES IN A MANNER THAT MINIMIZES ENVIRONMENTAL DEGRADATION, REDUCES CONFLICTS AMONG PUBLIC RESOURCE VALUES, AND ASSURES THEIR LONG-TERM VIABILITY.
- I.A.2 DEVELOPMENT OF OCEAN RESOURCES OF ECONOMIC AND SOCIAL BENEFIT IN A MANNER THAT MINIMIZES ENVIRONMENTAL DEGRADATION, REDUCES CONFLICTS WITH OTHER PUBLIC RESOURCE VALUES, AND ASSURES THEIR LONG-TERM VIABILITY.

I.B. POLICIES:

- I.B.1 Promote efficient and coordinated management and development of ocean resources by:
- Integrating and making readily available information on the environment, economic and social resource values, and current and projected needs and demands to identify conflicting and compatible resource uses;
 - Seeking appropriate modification of the State's legal and institutional regimes; and
 - Fostering intergovernmental communication and participation in ocean resource management and development activities.
- I.B.2 Promote public education and awareness by:
- Encouraging safe, environmentally sensitive, legally compliant, and courteous use of ocean resources;
 - Fostering informal public participation in the management and development of ocean resources; and
 - Developing a skilled work force meeting future ocean resource management and development demands.

I.C. IMPLEMENTING ACTIONS:

- I.C.1 Establish a systematic inventory of data on ocean resources activities, user groups, and hazards to support agencies and individuals responsible for resource allocation and ocean use decisions.
- Suggested Lead Organization: DPED
Suggested Assisting Organizations:
State: DLNR, DOT, DOH, OEQC, UH, SG, HIMB, OHA
Federal: NMFS, FWS, COE, EPA, NOAA, USCG, WPRFMC, USN
County: PD, EDO, P&R
- I.C.2 Establish a network to communicate information concerning ocean resources to foster the involvement of a broad range of specialists with legal, engineering, oceanographic, environmental, social-political, and health backgrounds in specific interest and problem areas.
- Suggested Lead Organization: DPED
Suggested Assisting Organizations:
State: OEQC, DOT, DOH, DLNR, UH, SG, HIMB, OHA
Federal: NMFS, FWS, COE, EPA, NOAA, USCG, WPRFMC, USN
County: PD
- I.C.3 Develop channels of communication and cooperation between Hawaii and other areas of the Pacific Basin relating to marine resource programs, development projects, technology transfer, and education.
- Suggested Lead Organization: DPED
Suggested Assisting Organizations:
State: Pacific Basin Development Council, East-West Center, SG, HIMB, DLNR, DOH, DOE
Federal: NMFS, WPRFMC, FWS

- I.C.4 Facilitate coordination and support efforts of various Federal, State, and County agencies, non-profit groups, and the private sector involved in promoting public awareness of ocean resource values and management concerns.
- Suggested Lead Organization: DPED
Suggested Assisting Organizations:
State: DOE, UH, SG, DLNR, DOT, Aquarium
Federal: NMFS, FWS, USCG, EPA, NOAA
County: P&R, EDO
Other: Sea Life Park, Fishing Industries, Oceanic Institute, Dive Clubs and other Private Organizations
- I.C.5 Develop and establish educational and training programs that would enable Hawaii's people to fulfill needs of ocean-related industries, marine resource management, and water safety.
- Suggested Lead Organizations: DOE, UH, P&R
Suggested Assisting Organizations:
State: DPED, DLNR, DOT, SG, HIMB
Federal: NMFS, FWS
County: EDO
Other: Pacific Maritime Academy, Aquarium, Private Organizations
- I.C.6 Review existing regulations on ocean activities and recommend improvements to increase effectiveness and efficiency, with emphasis on:
- streamlining permit requirements for developing economically valuable ocean resources;
 - minimizing resource use conflicts and environmental degradation;
 - protecting and promoting long-term public benefits derived from ocean resources such as fishing, recreation, and marine and wildlife conservation and preservation;
 - resolving issues pertaining to the distribution of development costs and resource benefits among groups in the public and private sectors in recreation, harbors development, and the promotion of ocean-related industries.
- Suggested Lead Organization: DPED
Suggested Assisting Organizations:
State: DOT, DLNR, DOH, OEQC, SG
Federal: COE, EPA, USCG, NMFS
County: PD, P&R, CCA
Others: Private Organizations
- I.C.7 Formulate and implement a strategy to assure appropriate State control over activities occurring in or affecting waters and shores under its jurisdiction.
- Suggested Lead Organization: AG
Suggested Assisting Organizations:
State: DLNR, DOT, DOH, UH, SG, Law of the Sea Institute (UH), DPED
Federal: USCG, USN
County: P&R, PD
Other: Private Organizations
- I.C.8 Enact an interim ocean leasing law to permit experimentation with new technologies and management techniques.
- Suggested Lead Organization: DLNR
Suggested Assisting Organizations:
State: DPED, AG, OHA, SG, DOT
Federal: COE, USN
County: PD, GP
Other: Private Organizations

I.C.9 Develop and implement a cooperative system linking local, national, and international marine service training programs to elevate Hawaii's role in providing training and to improve opportunities for Hawaii's people to receive training.

Suggested Lead Organization: DPED

Suggested Assisting Organizations:

State: DLNR, DOT, UH, DOE, SG, HIMB

Federal: USCG

County: EDO

Other: Private organizations, fisheries, marine engineering, navigation and various marine education organizations

I.C.10 Establish a program for planning, coordinating, and promoting research activities that may benefit from Hawaii's mid-ocean location and availability of support facilities.

Suggested Lead Organization: DPED

Suggested Assisting Organization:

State: UH, DLNR, SG

Federal: NMFS, FWS, EPA, USN, USDOE

MANAGEMENT COMPONENT — RECOMMENDED OBJECTIVES, POLICIES, AND IMPLEMENTING ACTIONS

The objectives, policies, and implementing actions recommended in this section pertain to four areas (i.e., Ocean Recreation, Marine Conservation and Preservation, Ocean Waste Disposal and Accidental Spills and Beach Erosion) which must be managed in the public interest. The objectives express the outcomes desired for each of these areas, and the accompanying policies and implementing actions recommend the major management approaches for achieving them.

II. OCEAN RECREATION

II.A. OBJECTIVE:

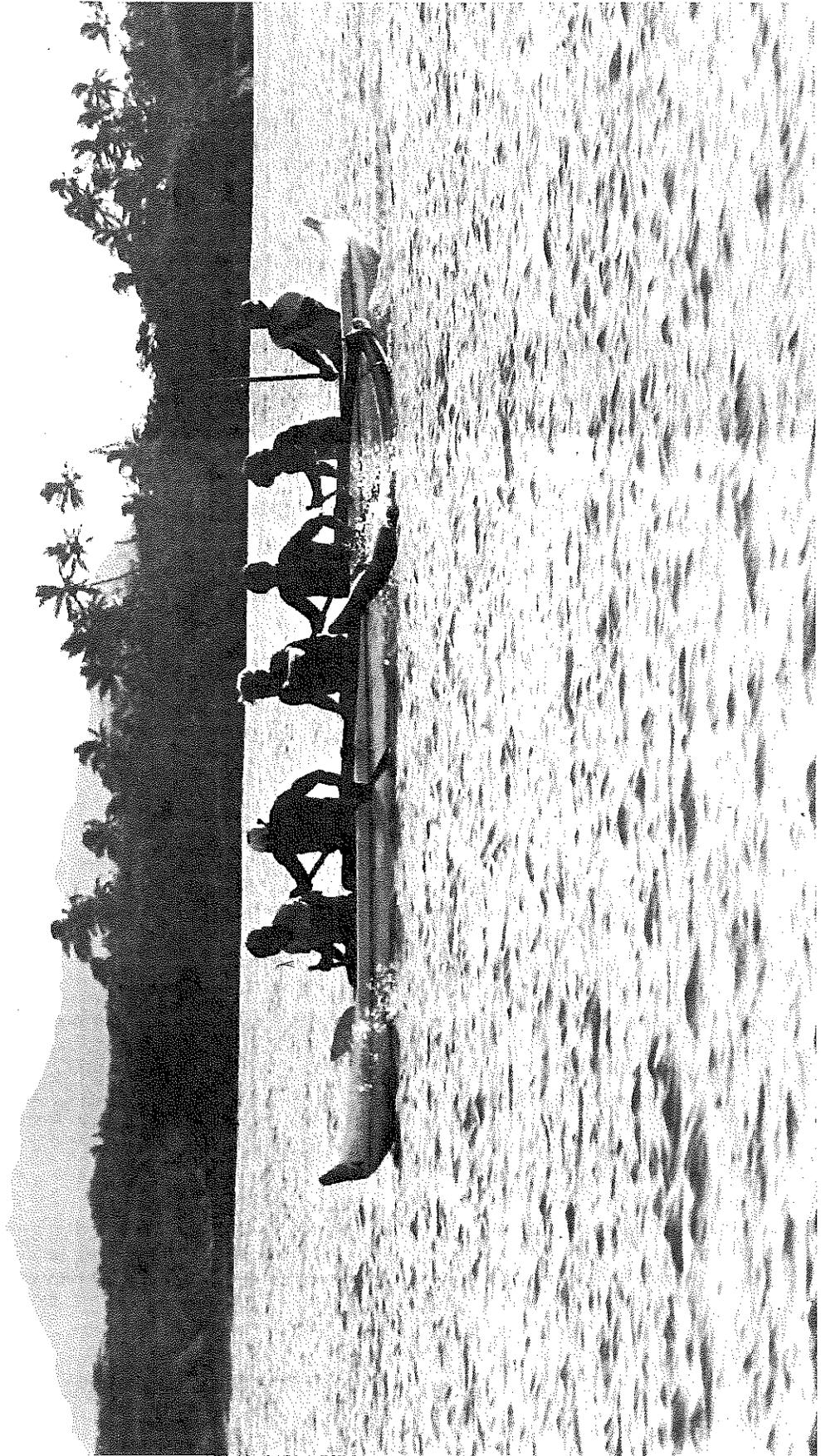
PROVIDE COASTAL AND OCEAN RECREATIONAL OPPORTUNITIES FOR RESIDENTS AND VISITORS, CONSISTENT WITH CONCERNS FOR PUBLIC SAFETY, CONSERVATION OF NATURAL AND HISTORICAL/CULTURAL RESOURCES, AND CONFLICTS WITH OTHER OCEAN ACTIVITIES.

II.B. POLICIES:

- II.B.1 Improve informational bases to promote compatibility and minimize conflicts between land and water development activities and ocean recreational activities.
- II.B.2 Promote interagency coordination and planning in the provision of recreational opportunities, services, and facilities.
- II.B.3 Clarify legal issues regarding public rights and privileges to ocean recreational resources.
- II.B.4 Maintain and expand public access to and along the shoreline, to offshore islets, and in the State's waters, consistent with the conservation of natural resources and the safety and welfare of recreational participants and adjoining property owners.
- II.B.5 Promote knowledge, skills, and services required for safe ocean recreation among visitors and residents.
- II.B.6 Assess and mitigate conflicts between various ocean recreational activities.

II.C. IMPLEMENTING ACTIONS:

- II.C.1 Establish a program to coordinate acquisition and use of Federal lands and waters for recreational resource development, public access, and recreational activity support areas for near-shore and coastal recreational resources.
 - Suggested Lead Organization: DLNR
 - Suggested Assisting Organizations:
 - State: DOT, DPED, DHHL
 - Federal: All Federal agencies with coastal landholdings
 - County: PD, P&R
- II.C.2 Formulate a cooperative strategy involving State and County governments to maintain and expand public access through public and private lands and waters to ocean and coastal recreational resources. (Coordinate with I.C.8 and IX.C.7)
 - Suggested Land Organization: DLNR, P&R, PD
 - Suggested Assisting Organizations:
 - State: AG, DOT, DPED, OHA, DHHL
- II.C.3 Develop an informational system for matching natural attributes of ocean and coastal resources with specific recreational activities and identify those resources by location, quality, use capacity and sensitivity to potential adverse impacts. (Coordinate with I.C.1)
 - Suggested Lead Organization: DLNR
 - Suggested Assisting Organizations:
 - State: DOT, DPED, DOH, OEQC, UH, SG
 - Federal: FWS, COE, NMFS, USCG
 - County: PD, P&R
- II.C.4 Establish a task force with Federal, State, County, private, and general public representation to improve coordination of ocean recreational services and facilities by clarifying agency responsibilities and authorities and developing a financing strategy that considers the dispersal of development costs among beneficiaries. (Coordinate with I.C.6)
 - Suggested Lead Organization: DLNR
 - Suggested Assisting Organizations:
 - State: DOT, DPED, DOH, SG, DHHL, OHA, DB&F, UH
 - Federal: FWS, USCG, USN, NMFS, NPS
 - County: PD, P&R
 - Other: Private Organizations



- II.C.5 Expand information and educational programs that emphasize safety, conservation of recreational resources, pertinent laws and rules, and appropriate use of public facilities. (Coordinate with I.C.4, I.C.5)
- Suggested Lead Organizations: DLNR, DOT, P&R
 - Suggested Assisting Organizations:
 - State: UH, DOE, DOH, SG
 - Federal: FWS, USCG, NMFS, NPS, Military bases
 - County: Police, Fire/Rescue
 - Other: Aquarium, Hawaii Visitors Bureau
- II.C.6 Identify and assess ocean recreational user conflicts and continue to develop information and educational programs, rules and regulations to reduce them. (Coordinate with I.C.1, I.C.4, I.C.5 and I.C.6)
- Suggested Lead Organizations: DLNR, DOT
 - Suggested Assisting Organizations:
 - State: UH, DOE, DOH, SG
 - Federal: FWS, USCG, NMFS, NPS, Military bases
 - County: P&R, Police, Fire/Rescue
 - Other: Aquarium, Hawaii Visitors Bureau
- II.C.7 Promote the development of water safety and emergency medical services for ocean recreational-participants on all islands.
- Suggested Lead Organization: DOH
 - Suggested Assisting Organizations:
 - State: SG, UH, DLNR, DOT
 - Federal: NPS, Military bases
 - County: P&R, Fire Department
 - Other: Private ambulance services



Courtesy of the Department of Land and Natural Resources, State of Hawaii

III. MARINE CONSERVATION AND PRESERVATION

III.A. OBJECTIVE:

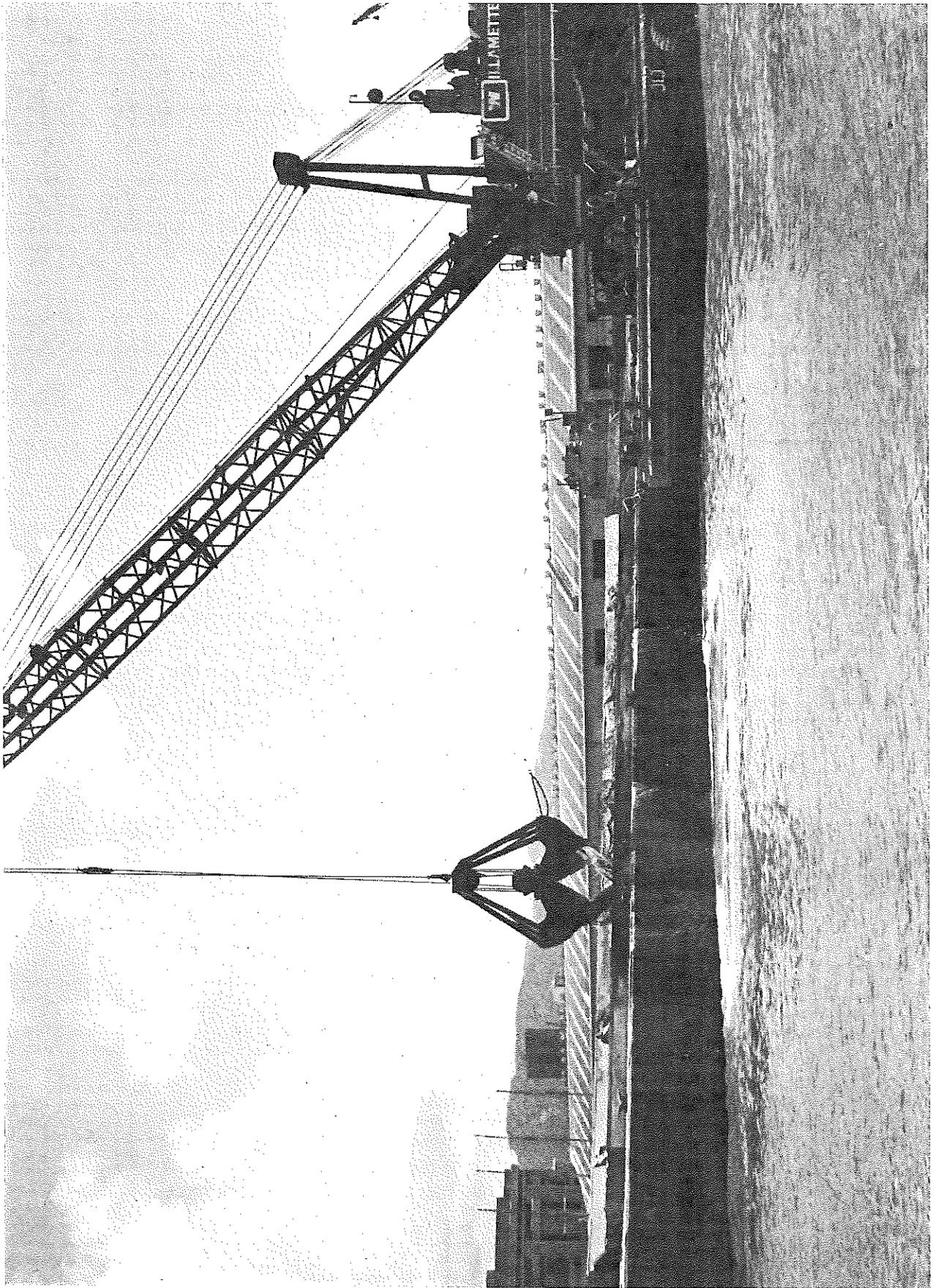
CONSERVATION AND PRESERVATION OF MARINE SPECIES AND ECOSYSTEMS CONSISTENT WITH THEIR SCIENTIFIC, EDUCATIONAL, CULTURAL/HISTORICAL, RECREATIONAL, AESTHETIC, BIOLOGICAL, ECOLOGICAL, AND ECONOMIC VALUES.

III.B. POLICIES:

- III.B.1 Develop information bases for decisions relating to the designation of areas for marine conservation and preservation.
- III.B.2 Test alternative means for resolving conflicts between marine conservation program efforts and other ocean uses.
- III.B.3 Coordinate services for marine conservation and preservation.
- III.B.4 Enhance public awareness and appreciation of marine conservation and preservation efforts.

III.C. IMPLEMENTING ACTIONS:

- III.C.1 Develop a cooperative program evaluation and planning system to coordinate designation, management, administration, and enforcement of policies for Federal, State, and County marine conservation and preservation programs. (Coordinate with I.C.6, I.C.7, I.C.10, and VI.C.3)
 - Suggested Lead Organization: DLNR
 - Suggested Assisting Organizations:
 - State: UH, DOE, DPED, DOT, SG, OHA, DHHL
 - Federal: FWS, NMFS, COE, NPS, USCG, WPRFMC
 - County: P&R, PD, Police
 - Other: Neighborhood Justice Center, Dive Clubs, public and private organizations
- III.C.2 Develop a coordinated public information and education program to enhance public awareness of marine conservation and preservation efforts. (Coordinate with I.C.4)
 - Suggested Lead Organization: DLNR
 - Suggested Assisting Organizations:
 - State: DOE, UH, DPED, SG, DOT
 - Federal: FWS, NMFS, NPS
 - County: P&R
 - Other: Aquarium, Sierra Club, Conservation Council, dive clubs
- III.C.3 Expand coordination of public and private agency research and findings to enhance marine conservation and preservation programs. (Coordinate with I.C.10)
 - Suggested Lead Organization: DLNR
 - Suggested Assisting Organizations:
 - State: UH, DOE, DPED, SG, HIMB, DOT
 - Federal: FWS, NMFS, COE
 - County: P&R, PD
 - Other: Private organizations
- III.C.4 Formulate a strategy for obtaining financial assistance for marine conservation programs. (Coordinate with I.C.6)
 - Suggested Lead Organization: DLNR
 - Suggested Assisting Organizations:
 - State: UH, DOE, DPED, DB&F, DOT, DHHL
 - Federal: FWS, NMFS, NPS, Military Services
 - Other: Nature Conservancy, Trust for Public Land, Sierra Club, other private organizations
- III.C.5 Coordinate programs and activities to minimize non-point sources of water pollution, such as cesspools and runoff, adversely affecting marine resources. (Coordinate with I.C.6)
 - Suggested Lead Organization: DOH
 - Suggested Assisting Organizations:
 - State: OEQC, DLNR, DPED, DOA, UH
 - Federal: COE, USCG
 - County: PD, CCA, DPW, GP



IV. OCEAN WASTE DISPOSAL AND ACCIDENTAL SPILLS

IV.A. OBJECTIVE:

PROTECT THE HEALTH OF HAWAII'S CITIZENS AND MINIMIZE THE RISK OF DEGRADING VALUABLE MARINE RESOURCES AND ECOSYSTEMS BY OCEAN WASTE DISPOSAL ACTIVITIES AND MARITIME ACCIDENTS.

IV.B. POLICIES.

- IV.B.1 Develop the State's capabilities for effectively managing present and future nuclear waste disposal needs.
- IV.B.2 Facilitate informed public participation in decisions regarding nuclear waste disposal in the ocean.
- IV.B.3 Assure that the State's interests are effectively represented in national and international decisions concerning disposal of wastes or accidental spills in the Pacific.
- IV.B.4 Minimize the impact of cargo spills, particularly of oil, and tanker cleaning activities on marine ecosystems.
- IV.B.5 Insure that Federal regulatory controls over ocean waste disposal activities in the State reflect the unique geographical characteristics of the Hawaiian Islands.

IV.C. IMPLEMENTING ACTIONS:

- IV.C.1 Seek designation of the State Department of Health as the State's representative for all matters regarding nuclear waste disposal in the Pacific. Toward this end, the DOH should develop expertise and maintain an awareness of these matters to formulate and administer State policies and a program for assuring effective State representation at the national and international levels. (Coordinate with I.C.2, I.C.3, and I.C.7)

Suggested Lead Organization: DOH and AG

Suggested Assisting Organizations:

State: DLNR, DOT, OEQC, DPED, UH, DOD, DB&F

Federal: COE, EPA, USN, USDOE

County: DPW

Other: Congressional Delegation, Pacific Basin Development Council, civic and environmental interest groups

- IV.C.2 Develop guidelines acceptable to the EPA for establishing an ocean waste disposal and monitoring program that is more relevant for tropical waters around Hawaii. (Coordinate with I.C.7 and XI.C.4)

Suggested Lead Organization: DOH

Suggested Assisting Organizations:

State: UH, SG

Federal: EPA, COE, USCG, NOAA, FWS

County: DPW

Other: Pacific Basin Development Council, Federal Executive Board

- IV.C.3 Coordinate with Federal and private groups the formulation of a public information and education program on matters pertaining to radiological health and safety. (Coordinate with I.C.4)

Suggested Lead Organization: DOH

Suggested Assisting Organizations:

State: UH, DOE, DOD, DOT

Federal: EPA, COE, USN, USDOE

County: CDA, DPW

Other: Congressional Delegation, League of Women Voters, Catholic Action, American Cancer Society, other private organizations

- IV.C.4 Assess the State's capabilities in addressing risks associated with transporting hazardous materials across Hawaii waters. (Coordinate with I.C.6, I.C.7, and VII.C.4)

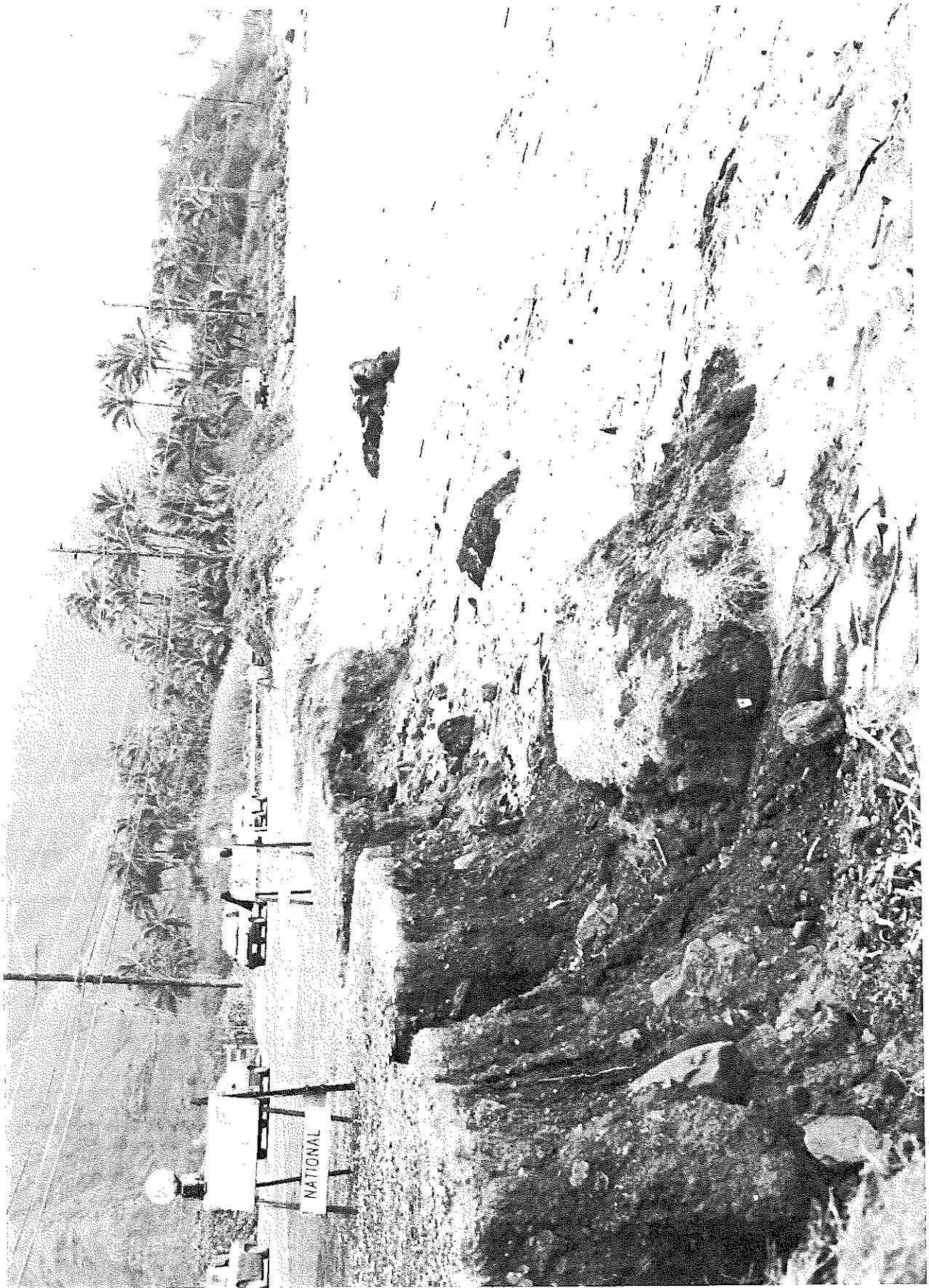
Suggested Lead Organization: DOH

Suggested Assisting Organizations:

State: DOT, DLNR, DPED

Federal: USCG, EPA, FWS, USN, DOD

County: CDA



V. BEACH EROSION

V.A. OBJECTIVE:

MINIMIZE HAZARDS TO PUBLIC AND PRIVATE PROPERTY ASSOCIATED WITH BEACH EROSION.

V.B. POLICIES:

- V.B.1 Support research on beach erosion processes applicable to land and water use planning and decision making.
- V.B.2 Strengthen the legal basis for controlling land and water development susceptible to beach erosion impacts or which could aggravate erosion.
- V.B.3 Promote public awareness of beach erosion problems in the State and alternative approaches to deal with them.
- V.B.4 Promote the use of non-structural erosion control measures instead of structural controls where possible.
- V.B.5 Assess potential problems in Hawaii associated with predicted worldwide sea-level rises.

V.C. IMPLEMENTING ACTIONS:

- V.C.1 Identify erosion-prone beaches in the Counties of Kauai, Maui, and Hawaii, as has been done for the City and County of Honolulu, and prepare maps of critical erosion areas as an information base to facilitate effective planning and permit decisions. (Coordinate with I.C.1 and I.C.6)
 - Suggested Lead Organization: DPED
 - Suggested Assisting Organizations:
 - State: UH, DOT, DLNR, SG
 - Federal: COE
 - County: PD
- V.C.2 Develop and submit, for legislative consideration, amendments to State laws which would provide more effective control over development on erosion-prone beaches and development activities which could cause or aggravate erosion. (Coordinate with I.C.6)
 - Suggested Lead Organization: DPED
 - Suggested Assisting Organizations:
 - State: LUC, DLNR, DOT, AG, UH
 - Federal: COE
 - County: PD
- V.C.3 Seek amendment of Chapter 205, HRS, to allow offshore sand mining for public beach replenishment in areas where such mining is currently restricted, provided that adverse environmental impacts and conflicts with other ocean uses are avoided, and develop alternative strategies for protecting beaches where replenishment is not feasible or desirable. (Coordinate with I.C.6)
 - Suggested Lead Organization: DPED
 - Suggested Assisting Organizations:
 - State: DOT, DLNR, UH, SG
 - Federal: COE
 - County: PD, P&R, DPW
- V.C.4 Organize a task force to assess potential impacts of sea-level rises around the State, formulate alternative mitigative strategies and make recommendations on a timetable for governmental actions. (Coordinate with I.C.1, I.C.2, I.C.3, and I.C.10)
 - Suggested Lead Organization: DPED
 - Suggested Assisting Organizations:
 - State: DOT, DLNR, UH, SG, DOD, DOH
 - Federal: COE, NOAA, USCG, USN
 - County: PD, P&R, GP, CDA, DPW

DEVELOPMENT COMPONENT — RECOMMENDED OBJECTIVES, POLICIES, AND IMPLEMENTING ACTIONS

The objectives, policies, and implementing actions recommended in this section are organized under six specific resource areas (i.e., Fisheries, Harbors, Coastal Energy Facilities, Mariculture, Ocean Thermal Energy Conversion and Ocean Minerals) in which the State is promoting economic development. The objectives state outcomes desired for each of the resource areas, while accompanying policies and implementing actions recommend major approaches to achieving those outcomes.

VI. FISHERIES

VI.A. OBJECTIVE:

DEVELOPMENT OF FISHERIES THAT WOULD BENEFIT THE STATE'S ECONOMY WHILE PROTECTING, PRESERVING AND, WHERE DESIRABLE, RESTORING FISHERY RESOURCES HAVING COMMERCIAL, RECREATIONAL, ENVIRONMENTAL, OR CULTURAL/HISTORICAL VALUE, AND MINIMIZING CONFLICTS AMONG USERS.

VI.B. POLICIES:

- VI.B.1 Coordinate a broad range of planning, regulatory, and resource management programs which directly or indirectly contribute to the enhancement of fisheries resources.
- VI.B.2 Improve information on fishery resources for planning and management decisions.
- VI.B.3 Resolve fishery user conflicts and assure compliance with fishery regulations.
- VI.B.4 Enhance, where desirable and economically feasible, private development of fishery resources for long-term economic and social benefits to the State.
- VI.B.5 Improve the long-term production of commercially and recreationally valuable species by controlling the taking of stock and enhancing marine environments.

VI.C. IMPLEMENTING ACTIONS:

- VI.C.1 Examine current roles of government in developing the fishery industry and regulating fishery resources, and formulate a strategy to resolve policy conflicts. (Coordinate with I.C.6)

Suggested Lead Organization: DLNR/HFCC

Suggested Assisting Organizations:

State: DPED, DOT, SG

Federal: NMFS, WPFMC, COE, FWS, USN, USCG

- VI.C.2 Assess in detail and improve fishery data through:

- Incentives for accurate reporting.
- Assessment of recreational and subsistence fishery data.
- Establishing an automated fishery information system relating catch and effort data, important habitats, and ecosystems to geographic locations. (Coordinate with I.C.1)
- Researching population dynamics of selected species.

Suggested Lead Organization: DLNR

Suggested Assisting Organizations:

State: DPED, DOT, UH, OHA, SG

Federal: NMFS, WPFMC, USCG, FWS, COE

County: P&R, EDO

- VI.C.3 Prepare a plan for fisheries management which coordinates various Federal, State, and County programs to provide effective and comprehensive management of fishery resources for a variety of user groups. This should include programs limiting taking of fish and providing controls over consumptive activities, e.g., Fishery Management Areas (Kapukus), and Marine Life Conservation Districts. (Coordinate with I.C.6, III.C.1, and IX.C.5)

Suggested Lead Organization: DLNR

Suggested Assisting Organizations:

State: DOH, DOT, OEQC, DPED, SG, HIMB

Federal: NMFS, FWS, USCG, USN, WPRFMC

County: P&R

- VI.C.4 Facilitate communication of pertinent fishery information to interested parties and insure timely agency response to the various Federal, State, and County land and water development permits regarding potential impacts on fishery resources. (Coordinate with I.C.2)

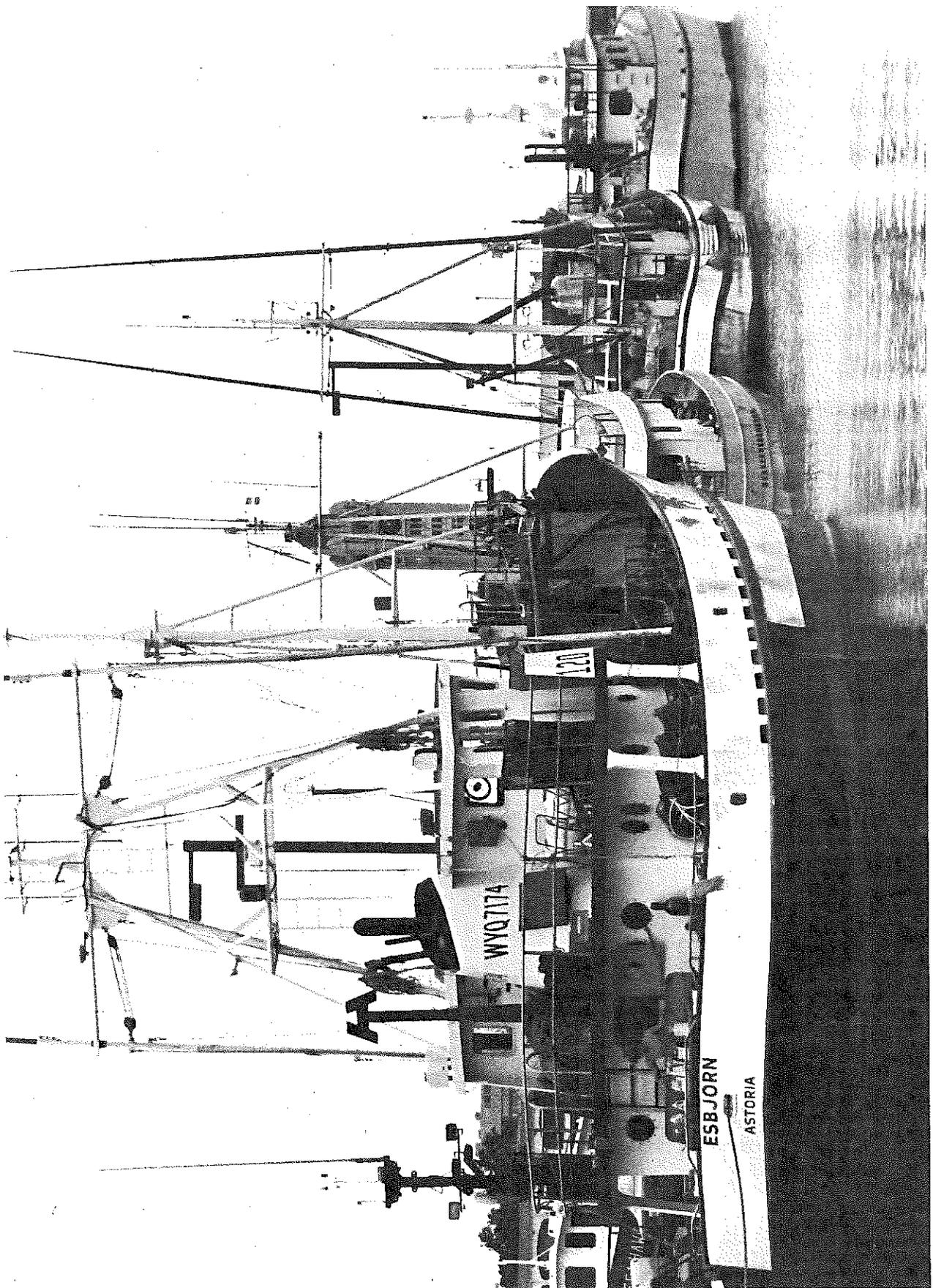
Suggested Lead Organization: DLNR

Suggested Assisting Organizations:

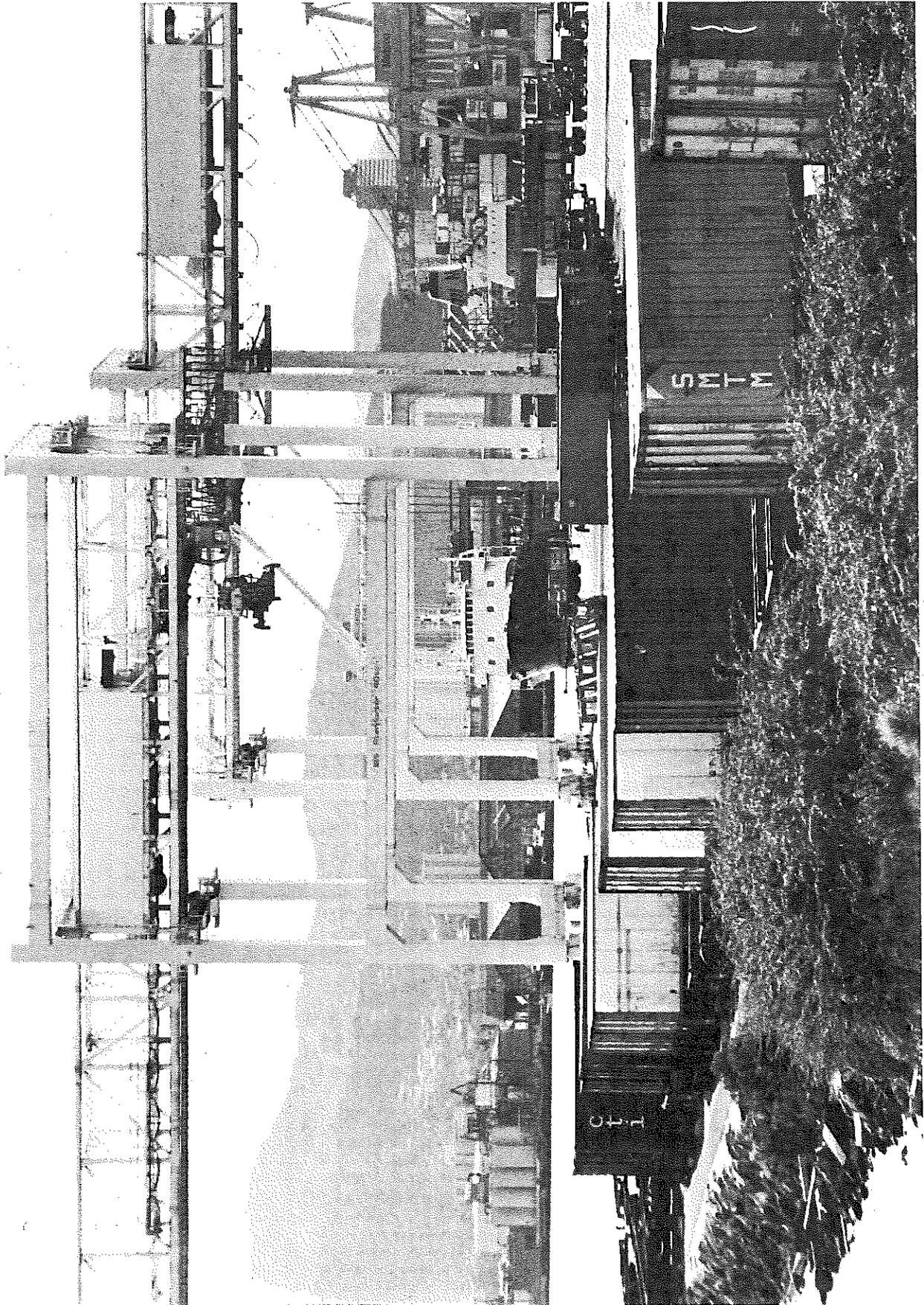
State: DPED, DOT, UH, SG

Federal: COE, NMFS, FWS, USCG

County: PD, DPW



- VI.C.5 Improve capabilities to manage fishing activities by enhancing efforts to:
- Educate recreational and commercial fishers, especially recent in-migrants, concerning applicable laws and rules.
 - Expand the State's fishery enforcement capabilities, such as through a volunteer officer program.
 - Support a program for public reporting of violations of fishery laws and rules.
 - Mediate conflicts involving fishers. (Coordinate with I.C.4)
- Suggested Lead Organization: DLNR
- Suggested Assisting Organizations:
- State: DOE, UH, SG, DOT, DSSH, AG
- Federal: NMFS, FWS, USCG
- County: P&R, Police
- Other: Commercial and recreational fishing organizations, Neighborhood Justice Center
- VI.C.6 Formulate and implement programs for promoting the development of fisheries in Hawaii by:
- Researching and developing artificial reefs, fish aggregation buoys, and other fishery enhancing technologies.
 - Supporting research, production, and tuna industry use of cultured baitfish and promoting programs to enhance the protection and increase production of natural baitfish.
 - Supporting research on the handling and processing of seafood to improve and maintain the quality of products from Hawaii.
 - Developing fishing facilities in the Northwestern Hawaiian Islands, in consideration of National Wildlife Refuge policies, for seafood processing and transshipment and research.
 - Investigating the effectiveness of new or underused fishing techniques and technologies to improve yields, including the development and production of fishing vessels and equipment uniquely suited for Hawaii fisheries.
 - Promoting the development of markets for fishery species caught or processed in Hawaii and researching market development for underused species.
 - Promoting programs to help commercial fishers obtain financing for vessel construction, acquisition, modernization, maintenance and repair and to minimize insurance costs, through crew and navigation safety improvements.
 - Periodically updating the Hawaii Fisheries Development Plan. (Coordinate with VII.C.2)
- Suggested Lead Organization: DLNR
- Suggested Assisting Organizations:
- State: DPED, DOT, SG, UH, DOH
- Federal: NMFS, WPRFMC, FWS, USCG, COE, USN
- County: EDO, PD, GP
- Other: Pacific Fisheries Development Foundation, Oceanic Institute, Hawaii Visitors Bureau, commercial and recreational fishing organizations, commercial seafood processors, commercial aquaculturists, wholesale and retail seafood outlets



VII. HARBORS

VII.A. OBJECTIVE:

DEVELOPMENT OF ENVIRONMENTALLY COMPATIBLE COMMERCIAL HARBOR FACILITIES IN THE STATE TO MEET ANTICIPATED POPULATION NEEDS AND PROMOTE A DIVERSIFIED ECONOMIC BASE.

VII.B. POLICIES:

VII.B.1 Maximize planning, coordination, and responsiveness of the State's harbor system to rapidly changing harbor facilities needs.

VII.B.2 Minimize potential environmental degradation and conflicts of harbor activities with other ocean activities and urban development.

VII.C. IMPLEMENTING ACTIONS:

VII.C.1 Formulate strategies to finance facilities that support economically valuable ocean-related or harbor industries. Possible funding sources which should be explored include the Federal government, the State government's General Fund, and the private sector. (Coordinate with I.C.6)

Suggested Lead Organization: DPED, DOT

Suggested Assisting Organizations:

State: DB&F, SG

Federal: COE

VII.C.2 Refine the present State intergovernmental planning system dealing with commercial fishing to assure that development of commercial and small boat harbors is coordinated to satisfy the total statewide needs of the commercial fishing fleets. (Coordinate with VI.C.6)

Suggested Lead Organization: DOT

Suggested Assisting Organizations:

State: DLNR, DPED, SG, Hawaii Fisheries Coordinating Council

Federal: NMFS, WPRFMC, COE, USCG

County: PD

VII.C.3 Comprehensively assess the role of the harbor system in achieving the State's economic development potentials, and formulate recommendations reconciling divergent land and water use interests, and facilitating processing of necessary permits and approvals while providing for proper assessment of potential adverse impacts. (Coordinate with I.C.1, I.C.6, IV.C.6 and XI.C.3)

Suggested Lead Organizations: DPED/DOT

Suggested Assisting Organizations:

State: DLNR, DOH, OEQC, DB&F, DOA

Federal: COE, USN, USCG, EPA

County: GP, DP, CCA, DPW

Other: Private shipping interests, environmental and community groups

VII.C.4 Develop a program to upgrade hazardous materials safety regulations and enforcement procedures in harbor complexes. Develop a plan for orderly movement of explosive products, such as the transfer of petroleum storage facilities in excess of harbor needs to the Barbers Point Harbor. The plan should also deal with the economic impacts and land use implications of such a move on the community and the development of facilities, either afloat or ashore, to prevent at Barbers Point Harbor the dangerous situation that now exists at Honolulu Harbor. (Coordinate with IV.C.4)

Suggested Lead Organization: DOT

Suggested Assisting Organizations:

State: DOH, DPED, DOD, OEQC, DLNR

Federal: USCG, EPA, USN, COE

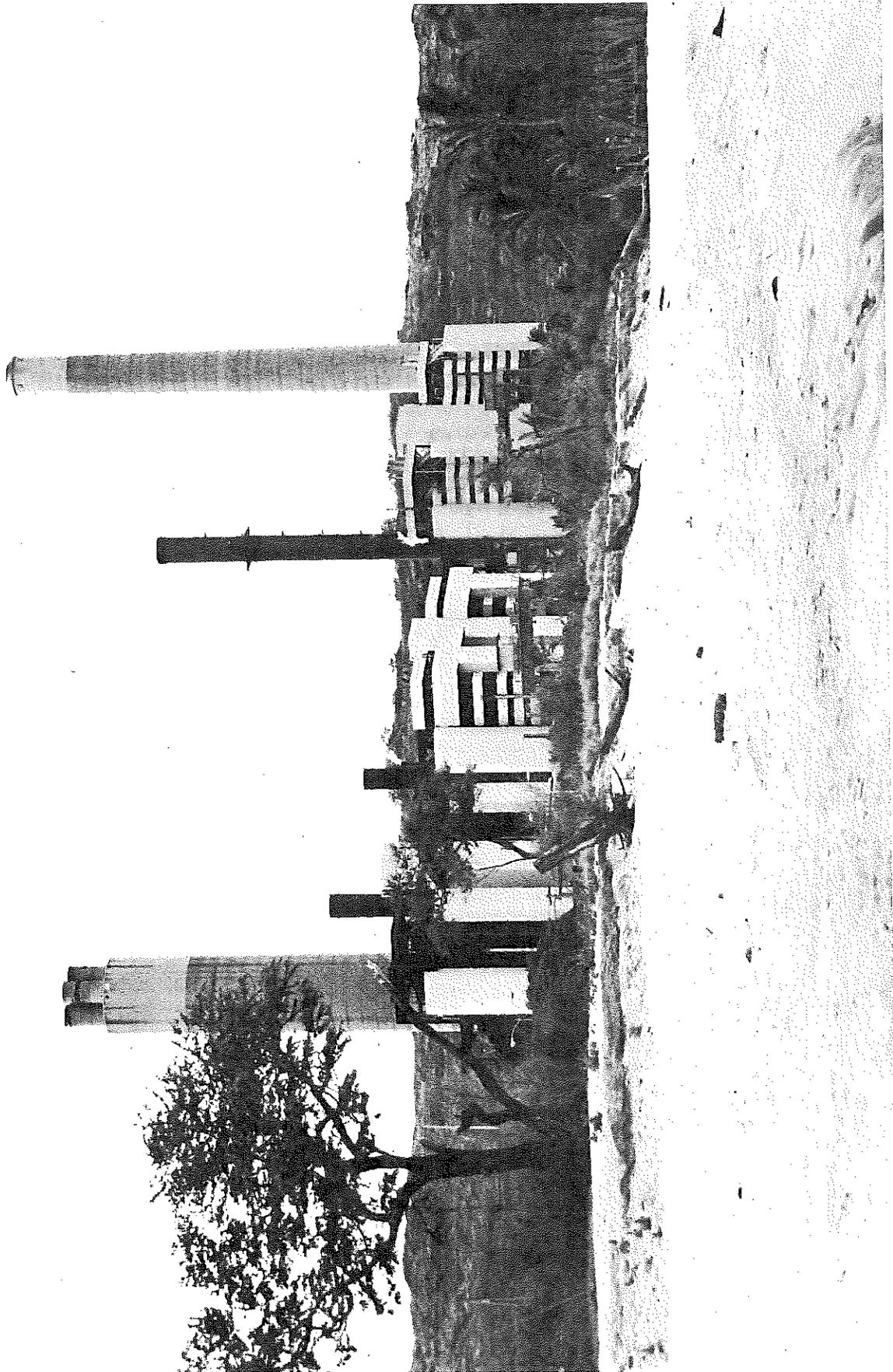
County: PD, CCA, DPW

Other: Private organizations

VII.C.5 Develop a computerized system for monitoring harbor revenues and costs as a planning tool to aid in formulating alternative harbor improvement strategies.

Suggested Lead Organization: DOT

Suggested Assisting Organizations: DPED, DB&F



VIII. COASTAL ENERGY FACILITIES

VIII.A. OBJECTIVE:

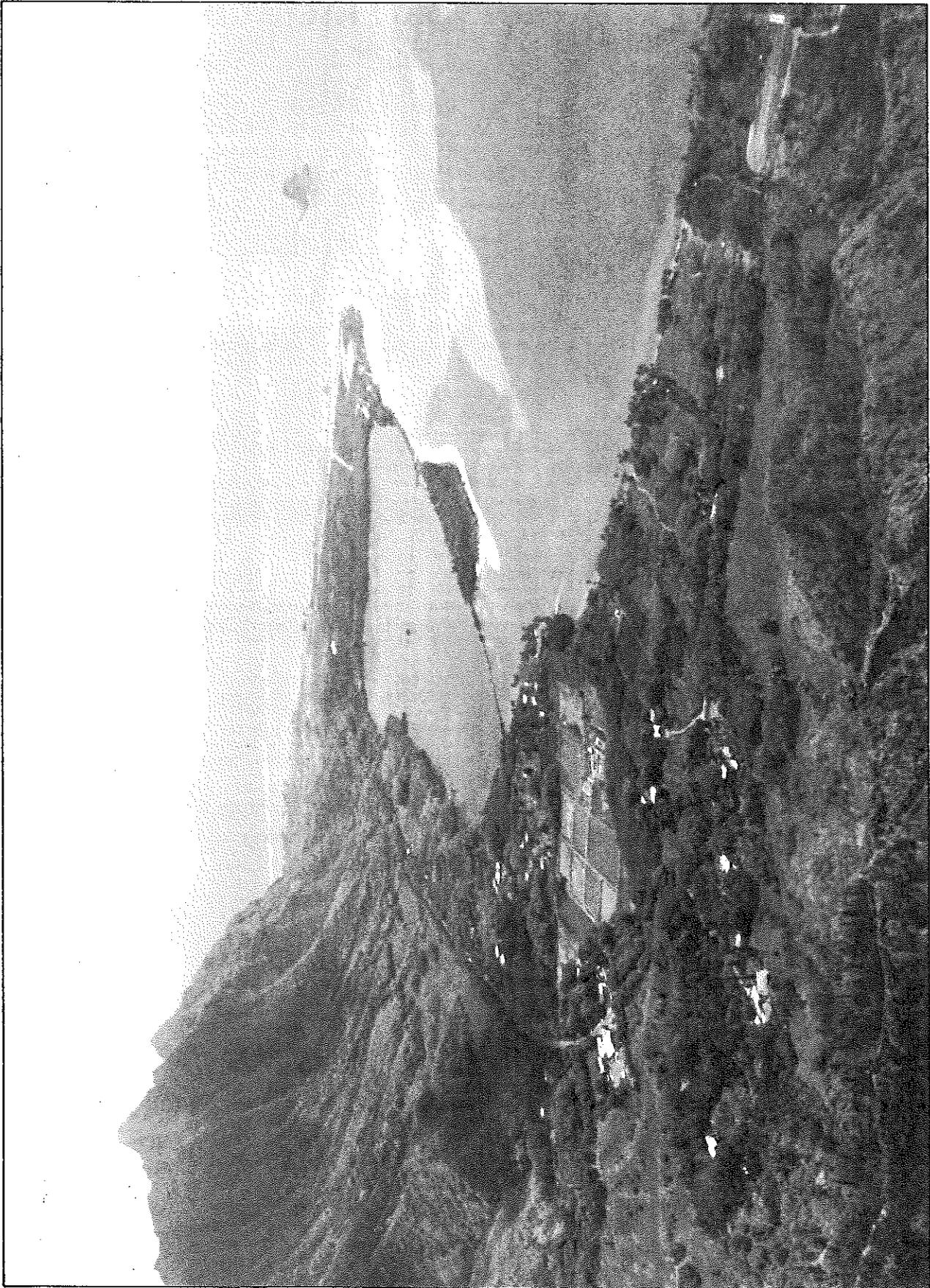
DEVELOPMENT OF COASTAL ENERGY FACILITIES IMPORTANT TO THE STATE OF HAWAII IN A MANNER THAT MINIMIZES BOTH THE DEGRADATION OF MARINE ENVIRONMENTS HAVING SCIENTIFIC, EDUCATIONAL, RECREATIONAL, ECONOMIC, AND CULTURAL/HISTORICAL VALUE, AND CONFLICTS WITH OTHER OCEAN-RELATED ACTIVITIES.

VIII.B. POLICIES:

- VIII.B.1 Identify potential environmental impacts and ocean-use conflicts associated with coastal energy facilities.
- VIII.B.2 Coordinate the various responsibilities to manage environmental impacts of coastal energy facilities.
- VIII.B.3 Develop energy generation and transmission alternatives to increase Hawaii's energy self-sufficiency.

VIII.C. IMPLEMENTING ACTIONS:

- VIII.C.1 Support the development and demonstration of interisland electrical energy transmission technology by the private sector. (Coordinate with I.C.6)
 - Suggested Lead Organizations: DPED
 - Suggested Assisting Organizations:
 - State: UH, DLNR, NELH
 - County: PD, GP, EDO
 - Other: Private industry
- VIII.C.2 Coordinate the management of environmental impacts and ocean-use conflicts resulting from the development and operation of coastal energy facilities. (Coordinate with I.C.6 and I.C.7)
 - Suggested Lead Organization: DPED
 - Suggested Assisting Organizations:
 - State: DOH, DOT, DLNR, OEQC, PUC, UH, HIMB
 - Federal: USDOE, EPA, NMFS, NOAA
 - County: PD, ESS
 - Other: Neighborhood Justice Center, private organizations, community organizations
- VIII.C.3 Develop a mapping system to identify potential sites for various coastal energy facilities, potentially sensitive environments, and conflicting marine uses. (Coordinate with I.C.1)
 - Suggested Lead Organization: DPED
 - Suggested Assisting Organizations:
 - State: DOH, DOT, DLNR, OEQC
 - Federal: USDOE, EPA



Courtesy of the Department of Land and Natural Resources, State of Hawaii

IX. MARICULTURE

IX.A. OBJECTIVE:

ESTABLISHMENT OF OCEAN-BASED MARICULTURE ENTERPRISES IN A MANNER THAT MINIMIZES BOTH THE DEGRADATION OF MARINE ENVIRONMENTS HAVING SCIENTIFIC, EDUCATIONAL, RECREATIONAL, ECONOMIC, AND CULTURAL/HISTORICAL VALUE, AND CONFLICTS WITH OTHER OCEAN-RELATED ACTIVITIES.

IX.B. POLICIES:

- IX.B.1 Manage the development of ocean-based mariculture in consideration of a wide range of potential environmental impacts and water use conflicts.
- IX.B.2 Pursue development of mariculture within the context of a broader Aquaculture Development Program.
- IX.B.3 Seek appropriate amendments to existing laws and review proposals for new laws to remove unnecessary impediments to the development of ocean-based mariculture.
- IX.B.4 Promote private investment in mariculture activities.
- IX.B.5 Support applied research activities for potentially valuable commercial mariculture in the State.

IX.C. IMPLEMENTING ACTIONS:

- IX.C.1 Assess potential sites to identify potential use conflicts and environmental impacts associated with various forms of mariculture. (Coordinate with I.C.1)
 - Suggested Lead Organization: DLNR
 - Suggested Assisting Organizations:
 - State: DPED, DOH, OEQC, HIMB
 - Federal: NMFS, FWS, COE, USN
 - County: PD, DPW, GP, EDO
- IX.C.2 Facilitate communication among Federal, State, and County regulatory agencies on activities and processes involved in ocean-based mariculture. (Coordinate with I.C.2)
 - Suggested Lead Organization: DLNR
 - Suggested Assisting Organizations:
 - State: DPED, UH, SG, DOH
 - Federal: COE, USN
 - County: PD, GP
- IX.C.3 Investigate existing public programs for aquaculture and seek appropriate expansions and new programs that would encourage and sustain mariculture development through technical support and economic assistance, crop insurance subsidies, and marketing promotion.
 - Suggested Lead Organization: DLNR
 - Suggested Assisting Organizations: DPED, DOA, UH, SG
- IX.C.4 Develop and support the operation of a research and demonstration program to assess the economic and biotechnical practicability of various mariculture activities in oceanic conditions and their potentially adverse effects. (Coordinate with I.C.9, I.C.10 and X.C.1)
 - Suggested Lead Organization: DLNR
 - Suggested Assisting Organizations:
 - State: UH, SG, DPED, NELH, HIMB
 - Others: Congressional delegation, private sector
- IX.C.5 Review existing State laws and regulations governing fisheries to identify conflicts with the development of ocean-based mariculture. (Coordinate with I.C.6 and VI.C.3)
 - Suggested Lead Organization: DLNR
 - Suggested Assisting Organizations:
 - State: DPED, DOT, OHA
 - Federal: NMFS, FWS, USCG, USN

IX.C.6 Assess the feasibility of a central permit coordination agency with a master permit application form and consolidated notices and hearings for State level permits applying to mariculture. (Coordinate with I.C.6)

Suggested Lead Organization: DPED
Suggested Assisting Organizations:
State: DLNR, DOT, DOH, OEQC
Federal: COE, FWS
County: PD

IX.C.7 Conduct limited experiments under an interim management regime to assess the feasibility of enforcing and maintaining exclusive ocean-use rights for mariculture, particularly as they relate to public access. (Coordinate with I.C.8 and II.C.2)

Suggested Lead Organization: DLNR
Suggested Assisting Organizations:
State: DPED, DOT
Federal: USCG, NMFS, USN
County: Police

X. OCEAN THERMAL ENERGY CONVERSION (OTEC)

X.A. OBJECTIVE:

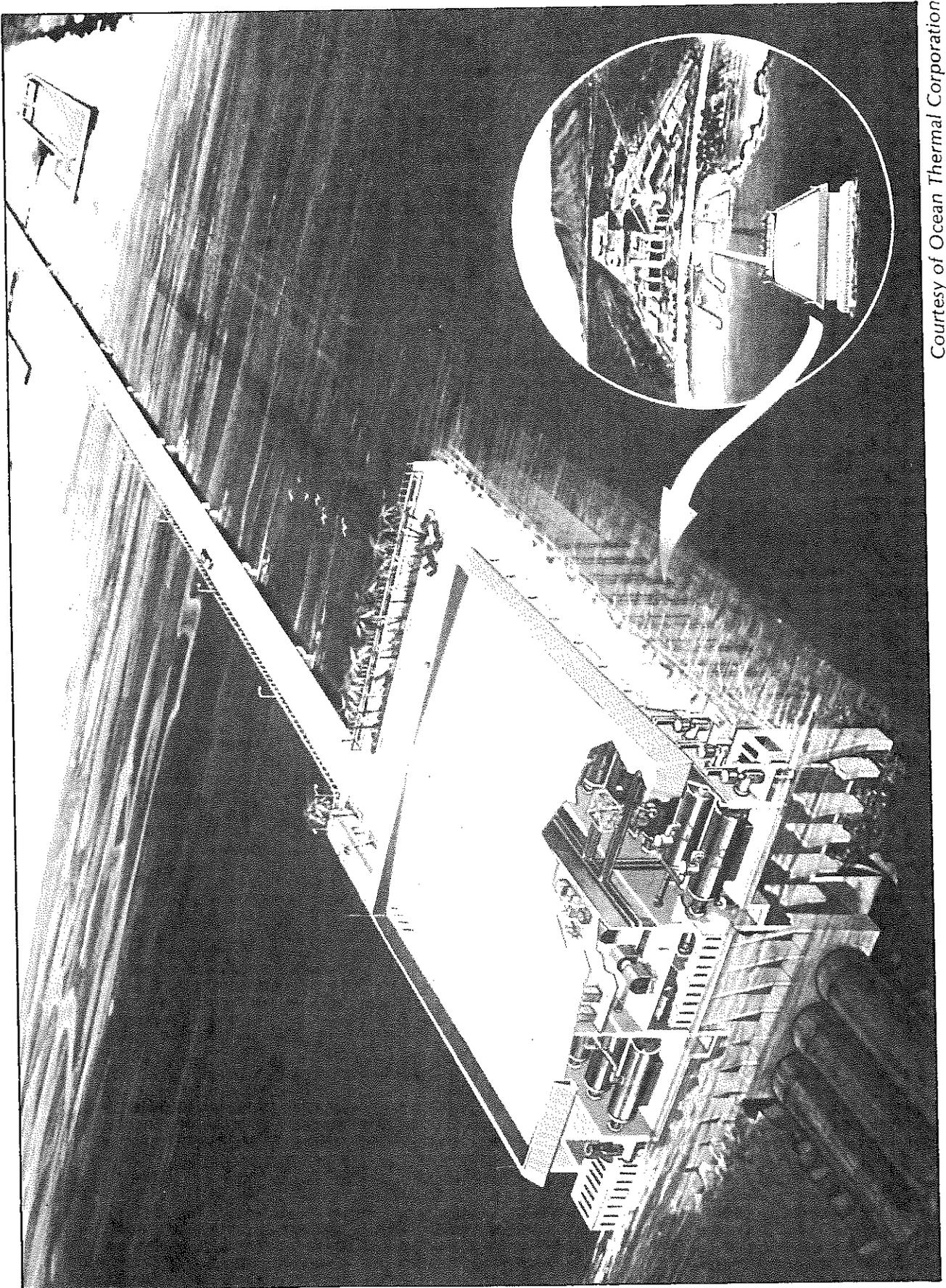
ESTABLISHMENT OF OCEAN THERMAL ENERGY CONVERSION FACILITIES FOR RESEARCH, DEVELOPMENT, DEMONSTRATION, AND COMMERCIAL POWER PRODUCTION, IN A MANNER THAT MINIMIZES BOTH THE DEGRADATION OF MARINE ENVIRONMENTS HAVING SCIENTIFIC, EDUCATIONAL, RECREATIONAL, ECONOMIC, AND CULTURAL/HISTORICAL VALUE, AND CONFLICTS WITH OTHER OCEAN-RELATED ACTIVITIES.

X.B. POLICIES:

- X.B.1 Assure adequate regulation of OTEC activities in waters under State jurisdiction.
- X.B.2 Seek development of a legal and regulatory framework that encourages research, development, and demonstration of OTEC facilities in Hawaii.
- X.B.3 Promote public awareness of and support for OTEC research, development, demonstration, and commercialization in Hawaii.
- X.B.4 Seek fiscal support from Federal, State, County, and private industry for OTEC research, development, and demonstration projects in Hawaii.
- X.B.5 Seek development of OTEC technology jointly with other nations.
- X.B.6 Promote research to identify and minimize potential adverse impacts of OTEC systems.

X.C. IMPLEMENTING ACTIONS:

- X.C.1 Develop research programs to investigate the use of OTEC technology for electrical power generation, freshwater production, aquaculture, and other uses. (Coordinate with I.C.10 and IX.C.4)
 - Suggested Lead Organization: DPED/UH
 - Suggested Assisting Organizations:
 - State: DLNR, SG, NELH
 - Federal: USDOE, NMFS
 - County: EDO
 - Other: Private industry
- X.C.2 Design and implement programs to enhance public awareness and understanding of the research, development, and demonstration of OTEC technology and attract commercial establishment of full scale, operational OTEC facilities. (Coordinate with I.C.4)
 - Suggested Lead Organization: DPED
 - Suggested Assisting Organizations:
 - State: DOE, NELH, SG
 - Other: Private industry
- X.C.3 Establish a program for developing OTEC technology jointly with other nations. (Coordinate with I.C.3 and I.C.9)
 - Suggested Lead Organization: DPED
 - Suggested Assisting Organizations:
 - State: UH, East-West Center, Pacific Basin Development Council, SG, NELH
 - Other: Private industry
- X.C.4 Develop a research program to identify potential beneficial and adverse impacts of full scale and multiple facility OTEC operations and ways to mitigate adverse impacts. (Coordinate with I.C.2 and I.C.7)
 - Suggested Lead Organization: DPED
 - Suggested Assisting Organizations:
 - State: DLNR, DOT, DOH, SG, NELH, UH
 - Federal: EPA, NMFS, NOAA, USDOE
 - Other: Private industry



Courtesy of Ocean Thermal Corporation

- X.C.5 Coordinate Federal support for OTEC projects in Hawaii with the private sector.
Suggested Lead Organization: DPED
Suggested Assisting Organizations:
State: DLNR, NELH, UH
Federal: USDOE
Other: Private industry
- X.C.6 Survey harbor facilities and services, assess their adequacy, and determine the cost of maintaining or expanding them to accommodate OTEC research and development. (Coordinate with I.C.6 and VII.C.3)
Suggested Lead Organization: DOT
Suggested Assisting Organizations:
State: DPED
Federal: COE, USCG



XI. OCEAN MINERALS

XI.A. OBJECTIVE:

ESTABLISHMENT OF AN OCEAN MINERAL PROCESSING INDUSTRY OR RELATED ENTERPRISES (SUCH AS SHORESIDE SUPPORT FOR MINING ACTIVITIES IN THE PACIFIC, RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROJECTS), IN A MANNER THAT MINIMIZES BOTH THE DEGRADATION OF MARINE ENVIRONMENTS HAVING SCIENTIFIC, EDUCATIONAL, RECREATIONAL, ECONOMIC, AND CULTURAL/HISTORICAL VALUE, AND CONFLICTS WITH OTHER OCEAN-RELATED ACTIVITIES.

XI.B. POLICIES:

- XI.B.1 Support and coordinate research and dissemination of information pertinent to decisions regarding ocean mineral processing and siting of facilities.
- XI.B.2 Coordinate government services and facilities for ocean mineral processing and related activities, in particular:
 - Harbors and related infrastructures.
 - Permit-streamlining.
 - Land and water use planning, regulation, monitoring, and enforcement.
- XI.B.3 Foster public awareness and informed public input on government efforts to attract private investment to ocean mineral processing or related efforts in Hawaii.
- XI.B.4 Support Federal efforts to clarify the legal aspects of ocean mineral mining and potential environmental impacts in international waters.

XI.C. IMPLEMENTING ACTIONS:

- XI.C.1 In consultation with private industry, assess potential environmental, social, and economic impacts of an ocean mineral processing industry in Hawaii. (Coordinate with I.C.2)
 - Suggested Lead Organization: DPED
 - Suggested Assisting Organizations:
 - State: DOH, DLNR, DSSH, DLIR, OEQC, SG, DOT
 - Federal: FWS, COE, NMFS, NOAA
 - County: PD, EDO
 - Other: Mining consortia, fishing industry, community groups
- XI.C.2 Improve public awareness through the media of potential positive and adverse impacts associated with the establishment of various ocean mineral recovery activities in Hawaii. (Coordinate with I.C.4)
 - Suggested Lead Organization: DPED
 - Suggested Assisting Organizations:
 - State: UH, DOH, DLNR, DOT, DOE, SG, OEQC
 - Federal: EPA, NMFS, NOAA
 - Other: Mining consortia, community and environmental groups
- XI.C.3 Survey harbor facilities and services, assess their adequacy, and determine the cost of maintaining or expanding them to accommodate ocean mineral processing. (Coordinate with I.C.6 and VII.C.3)
 - Suggested Lead Organization: DOT
 - Suggested Assisting Organizations:
 - State: DPED
 - Federal: COE
 - Other: Mining consortia

- XI.C.4 Examine regulations on ocean waste disposal in Hawaii, including water quality standards, geographic and activity jurisdictions, and pollutant types with emphasis on monitoring and enforcement, and seek amendments for improvements. (Coordinate with I.C.7 and IV.C.2)
- Suggested Lead Organization: DOH
 Suggested Assisting Organizations:
 State: DLNR, DOT, DPED, OEQC, HIMB
 Federal: EPA, COE, NMFS, USCG, USN, NOAA
 County: PD, DPW
 Other: Mining consortia
- XI.C.5 Support the implementation of environmental, regulatory, and planning activities of the Deep Seabed Hard Minerals Resources Act.
- Suggested Lead Organization: DPED
 Suggested Assisting Organizations:
 State: DOH, DLNR, DOT
 Other: Congressional delegation
- XI.C.6 Assess and coordinate State and County plans and programs to help establish ocean mineral processing and related activities. (Coordinate with I.C.6)
- Suggested Lead Organization: DPED
 Suggested Assisting Organizations:
 State: DOT, DLNR, DOH, OEQC, DOA
 Federal: EPA, COE
 County: PD, GP, EDO
- XI.C.7 Explore potentials for establishing services and facilities associated with ocean mineral mining and processing in Hawaii. (Coordinate with I.C.9)
- Suggested Lead Organization: DPED
 Suggested Assisting Organizations:
 State: UH
 County: EDO
 Other: Mining consortia
- XI.C.8 Establish an intergovernmental advisory committee to advise the DPED Manganese Nodule Program and coordinate activities of various Federal, State and County agencies.
- Suggested Lead Organization: DPED
 Suggested Assisting Organizations:
 State: DOT, DLNR, DOH, OEQC
 Federal: EPA, COE, NOAA
 County: PD, EDO

INSTITUTIONALIZATION

A. ROLE OF THE OCEAN MANAGEMENT PLAN

The objectives, policies, and implementing actions of the State of Hawaii Ocean Management Plan (OMP) deal with comprehensive and specific resource management and development activities. They are intended to guide the future direction and coordination of State agencies in the implementation of major responsibilities affecting the use of the ocean surrounding Hawaii. The OMP was formulated to be consistent with the statewide planning process set forth in the Hawaii State Plan Law, Chapter 226, Hawaii Revised Statutes. It further defines The Hawaii State Plan's comprehensive goals, objectives, policies, and priority directions as they apply to the management of ocean activities. The OMP will also serve the important role of prescribing interrelationships and bridging gaps concerning the use of ocean resources among the State Functional Plans and other State plans and programs.

B. PLAN IMPLEMENTATION

The OMP sets forth policies and actions which will be implemented mainly by the State agencies responsible for the development and/or conservation of marine resources. County and Federal agencies are encouraged to participate in the implementing actions.

Overseeing the implementation of the OMP will be the State Department of Planning and Economic Development (DPED). Ad hoc advisory groups will be formed on a temporary, as-needed basis to help evaluate and resolve specific issue areas. Under Chapter 205A-3(7), Hawaii Revised Statutes, the DPED is already responsible for reviewing State programs from the shoreline to the seaward limit of the State's jurisdiction and coordinating State agency activities related to the statewide planning process as specified in Chapter 226, Hawaii Revised Statutes. Furthermore, the DPED is responsible for planning, assisting, and coordinating State agency activities promoting the development of Hawaii's marine resources under Section 201-13, Hawaii Revised Statutes. The DPED will conduct the following activities:

- Prepare a biennial work program for submittal to the Governor and the Legislature,
- Facilitate implementation of the work program,
- Conduct OMP reviews and updates, and
- Provide other necessary support activities.

Preparation of a Biennial Work Program

The recommended implementing actions of the OMP are arranged to reflect general priorities. Refinement and priority-setting will be accomplished in the preparation of work programs.

The work programs will be prepared by the DPED in consultation with the assisting agencies and organizations and will be circulated for review among representatives of the diverse interests involved in the formulation and implementation of the OMP. The DPED will review all comments received and, in consultation with affected agencies, revise the work plan based upon the optimal achievement of relevant OMP objectives. The completed work plan, consisting of budgetary proposals for ocean management activities and proposed legislative amendments, will be submitted to the Governor for his review and approval and subsequently to the Hawaii State Legislature as the Administration's proposal.

Implementation of the Biennial Work Program

Following approval of the biennial work program, the DPED will support its implementation through the following activities:

- Provide legislative testimony and prepare legislative proposals called for in the work program,
- Support and assist the implementing agencies in securing funding, manpower and staff resources to carry out the implementing actions,
- Maintain communication among the implementing agencies by informing them of the OMP related activities undertaken and by facilitating coordination of their activities, and

- Provide input into the decision-making process through the Clearinghouse reviews, Capital Improvements Program budgetary reviews, and the budgetary review process of the State Department of Budget and Finance.

Conflict Resolution

Conflicts are likely to arise among the diverse interests which engage in ocean activities. To deal with them in a timely and comprehensive manner, the DPED may establish temporary issue-specific advisory groups to help resolve outstanding problems. Conflicts will be resolved based upon optimal achievement of all relevant OMP objectives.

Biennial Reviews and Plan Updating

To respond to constantly changing needs and to facilitate effective implementation of the OMP, the DPED will prepare a biennial evaluation report for the Governor. The report will outline the accomplishments and assess the progress in each of the 10 resource-specific areas. Recommendations for improving implementation will also be presented.

The OMP will be updated every five years. An evaluation team will be selected by the DPED to evaluate the plan and recommend improvements. The updated plan will be reviewed by the participating agencies and the public and presented to the Governor and the Legislature.

Other Support Activities

The DPED will support the implementation of the OMP through staff assistance to the ad hoc advisory groups, planning and research activities, and public awareness and participation programs.