Maine Coastal Program

Final Section 309 Assessment

January 16, 1992

Submitted to:
The National Oceanic & Atmospheric Administration
Office of Ocean & Coastal Resource Management
Washington, D.C.

Coastal Program
Planning Office
State Station No. 38

Augusta, Maine 04333
Tel. (207) 289-3261

M A I N E C O A S T A L P R O G R A M

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CONTENTS

SECTION 309 ASSESSMENTS (separate papers)

INTRODUCTION AND SUMMARY

INTRODUCTION

Maine Coastal Program

Congress in 1972 enacted the Coastal Zone Management Act (CZMA) to forge a partnership between federal, State and local governments to improve coastal resource management. Maine received federal approval of its Coastal Program pursuant to the CZMA in 1978.

In 1986 the Legislature reaffirmed the State's strong commitment to conservation, beneficial use and management of coastal resources with enactment of nine coastal management policies in the areas of port and harbor development, marine resources management, shoreline management and access, hazard area development, State and local cooperative management, scenic and natural areas protection, recreation and tourism, water quality and air quality.

Since 1978, Maine's Coastal Program has received federal funding assistance for a wide range of coastal management activities. Federally-approved activities at the local level have included small-scale waterfront acquisition and construction projects, and preparation by coastal towns of comprehensive plans, growth management and land use regulations, and harbor plans. State and regional planning agencies have received grants to provide technical planning assistance to towns.

At the State level, Maine receives CZMA assistance for enforcement of environmental laws in the coastal area, informing the public of priority coastal issues, and policy development regarding issues ranging from coastal access to growth management, ocean use, and protection of estuarine fish and wildlife habitat.

Coastal Zone Enhancement Program

Federal Coastal Zone Enhancement Grants were established by Congress in 1990 to provide States with additional incentives to address emerging national coastal problems. The grants are intended to encourage states with federally-approved coastal management programs to undertake improvements addressing one or more of eight specified coastal issues.

To establish Maine's eligibility to receive Coastal Zone Enhancement Grants, the federal Office of Ocean and Coastal Resources Management (OCRM) requires submittal of this Section 309 Assessment report, and a Section 309 Strategy to be submitted in March, 1992. The Strategy is to identify projects which address priority needs agreed upon by the State and the OCRM, and which will lead to formally adopted changes in Maine's Coastal Program.

Federal approval of Maine's Section 309 Strategy will release $100,000 through July, 1992, for projects identified in the Strategy. Preliminary figures for August 1, 1992 through July 31, 1993, range between $102,000 to $238,000, plus a potential of up to $300,000 additional depending on the outcome of a federally-sponsored coastal states competition.

The Public's Role in the Assessment Process

In May 1991, in order to determine the level of public concern for fresh and tidal water pollution along with each of the eight Section 309 issues, surveys were mailed to all 144 coastal municipalities and to over 400 additional environmental groups, land trusts, coastal newspapers, Cooperative Extension offices, regional planning agencies and State agencies.

About 15% of the surveys were returned. Three issues were of highest concern, both coastwide and region by region: Fresh & Tidal Water Pollution, Coastal Wetlands, and Cumulative Adverse Impacts of Growth. Water pollution, of course, is a key aspect of both wetlands amd cumulative impact issues, and wetland protection is a primary though not the only concern of cumulative impact analysis. More than 17% of the survey respondents indicated strong concern that the public needs to be better educated on coastal issues.

A summary of "Results of Initial Public Participation in the Assessment Process," August 8, 1991, is available. The summary reproduces all written comments received, and was submitted to OCRM.

In late November, more than 600 copies of a summary of the draft assessments in newsletter format, entitled 'Maine Coastal Futures,' were mailed to groups and individuals along the coast, including editors of coastal newspapers, coastal land trusts, chambers of commerce, rotaries, marine-related organizations, coastal town officials, and state, local, and federal agencies. This mailing announced the beginning of a formal 30-day public review period extending from November 26, 1991 to December 28, 1991. It announced availability of detailed draft assessments for public review, requested comments, and included a return questionnaire.

A total of 26 responses were returned. Of these, 7 were from coastal and municipal planners, 2 from town officials, 7 from state agencies, 6 from private conservation and landowner rights groups, 2 from private individuals and 2 from Maine offices of the USFWS.

Supplementing the request for comments in the newsletter, draft assessment papers were reviewed and face-to-face discussions were held with numerous staff in state agencies (Departments of Marine Resources, Environmental Protection, Conservation, Inland Fish and Wildlife, Economic and Community Development, and Transportation) and members of nonprofit interest groups (Maine Conservation Rights Institute (MECRI), Maine Audubon Society, Maine Coast Heritage Trust, Vinalhaven Land Trust, and the Constitutional Advancement, Literacy League of Maine (CALL ME) and Natural Resources Council of Maine. Additional comments were provided by the federal Office of Ocean & Coastal Resource Management (OCRM).

On December 10, 1991, the assessments were presented and discussed in a meeting with the DECD's Office of Comprehensive Planning and the regional Coastal Co-ordinators representing the various coastal regional planning councils. The group indicated the need for Coastal Program support for local comprehensive planning efforts along the coast and agreed that adverse cumulative impacts of development and the protection of coastal wetlands were priority issue areas. They also identified a need to develop island policies to address the unique pressures facing island ecosystems and communities.

On December 13, 1991, the assessments were discussed by the Marine Policy Committee of the Land and Water Resource Council, which is charged with policy coordination regarding natural resource issues among state agencies. The committee includes representatives from state agencies with responsibilities related to the marine environment and is chaired by the Commissioner of the Department of Marine Resources. Since many of its members were involved in the preparation of the draft assessments, there was general agreement with the findings. The group expressed special interest in ocean resource planning options in particular, and offered to assist in drafting the Section 309 strategy.

Response to Comments

Most comments received through the public review process, including those from OCRM, were incorporated into the final assessments documents. The majority of respondents endorsed the assessments and the options. Comments are reviewed below for each issue area. The Maine Coastal Program response is in italics.

Cumulative Impact Of Development

Reviewers generally identified the cumulative impact of development on the coastal environment as a priority issue, one perceived as relating in some aspects to all the other issues. The options: "to establish a program of comprehensive watershed planning and protection....", "to protect natural areas that are sensitive to the impacts of growth and development," "to identify areas in the marine and estuarine environment that are priorities for protection," and "to develop special area management plans" were most cited as priority options.

The need to connect natural resource protection with sustainable economic growth and prioritize uses of coastal resources was mentioned by several reviewers. One reviewer noted that while development is the source of many problems, development can expand public access opportunities and sustain important industries (fishing, shipping, tourism...) which rely on the natural resources of the coast.

The Maine Coastal Program agrees that these options are priority needs, and supports the development of creative plans and programs to sustain both ecological integrity and the human use of marine and estuarine environments.

Many respondents cited the impacts of development on Maine's shellfish industry. They expressed concern that coastal water pollution causes the closure of nearly 30 percent of Maine's softshell clam flats and impacts local economies dependent on fisheries. Other comments focused on the need to fund water quality monitoring programs, standardize water quality testing methodologies and pollution prevention efforts. Most respondents supported the assessment of impact fees on point and nonpoint source dischargers of pollution.

The Maine Coastal Program recognizes the importance of shellfish management, particularly as it relates to expanding employmenbt opportunities at the local level. While shellfish management (e.g. supporting shellfish ordinances and wardens, and reseeding clam flats) is not an eligible use of Coastal Program funding, the program does support interrelated activities. The Partners in Monitoring Program and the Shore Stewards Trust Fund overseen by the Coastal Program, for example, seek to facilitate and fund volunteer water quality monitoring activities.

Cumulative impact guidelines and education of local planning boards were mentioned as necessary to avoid negative cumulative impacts resulting from permitting decisions at the local level. Many reviewers mentioned the need to support local comprehensive planning as a means to anticipate and prevent the cumulative impacts of development.

The Maine Coastal Program supports local comprehensive planning and agrees that local planning boards need additional assistance in order to fairly and consistently include concern for cumulative impacts in local permit review.

Coastal Hazards

Incorporation of shoreline erosion data into shoreland zoning regulations was considered by some reviewers to be a priority option for enhancement.

The Maine Coastal Program agrees that shoreline erosion data needs to be available for permitting decisions in order to anticipate the cumulative impact of development, sea level rise, and change in shoreline habitats.

Marine Debris

The option proposing a model marine debris recovery and recycling project was supported by several reviewers.

The Maine Coastal Program does not recognize "marine debris" as a priority issue area for 309 funding at this time. Through coordination of annual Cleanups and Coastweek activities, the Maine Coastal program will strive to reduce the impact of marine debris by focusing and redirecting education efforts.

Public Access

Land acquisition and protection of visual access were mentioned as important by a Waldoboro resident who wrote "It is vital that we find ways to set aside areas of undeveloped or lightly developed land...in order that in 100 years we still have some green natural areas to look at. People need to see wildness." The reviewer supported establishment of a voluntary registry program for landowners to agree to limited public use of private lands, as well as low-impact access sites.

The option "to identify areas and negotiate easements where traditional access is threatened or cut off by development" was cited by many reviewers as a priority. Establishment of a real estate transfer tax was suggested as a source of revenue for public land acquisition by communities or the state. One reviewer commented that protection of access for traditional activities such as fishing and hunting should be a priority concern.

The Maine Coastal Program continues to be committed to expanding public access opportunities to the coast, though other issues currently have higher priority for limited Section 309 funds. Recent comprehensive planning efforts, supported by the

Maine Coastal Program, have laid the groundwork for identification of access needs in coastal communities for funding at a later date.

Respondents from MECRI and CALL ME indicated a concern that the private property rights and rights to local self-government of Maine's coastal citizens may be targeted for a "radical taking" by the Maine Coastal Program, NOAA and other federal agencies. One reviewer wrote: "You have neglected to incorporate the supreme role of our government into any of your proposed policies and that is to Protect the Rights of the Individual." Others objected to the brevity of the 30-day comment period and the portrayal of private property rights as problems.

The Maine Coastal Program recognizes the concerns of private property owners regarding regulation of land development; however, we believe that protection of natural resources through regulation protects the collective interests of society, and any regulatory or land acquisition programs will be conducted in full accord with existing law. The 30-day review period was established by federal rulemaking.

Siting of Energy and Government Facilities

Several reviewers cited the need to develop formal procedures for requiring alternatives to coastal locations of proposed energy and federal facilities.

This issue area is not a priority area for funding under the 309 Enhancement Grant Program at this time.

Ocean Resource Planning

Public comments showed strong support for ocean resource planning. The Planning Director of the Town of Eastport identified ocean resource planning as the key coastal management issue because: "Economic growth founded upon resource-based development can ensure a stable foundation for Maine workers and industry. New approaches to the management of Maine's ocean resources are needed to achieve the wisest use of these assets. ... A comprehensive plan which deals with the best use of marine resources would act as a guide for various levels of (government) which must make decisions concerning impact of development. Comprehensive planning is not only critical for small geographical units such as towns and cities. It is also of prime importance for large regions such as the State of Maine or the Gulf of Maine."

The Maine Coastal Program has supported and will continue to support ocean resources planning with Section 306 rather than limited Section 309 funding. Regional planning and the need for

coastal plans to include adjacent estuarine and marine areas also are acknowledged, along with the need for locally-derived plans that reflect regional and local differences.

The need to protect sensitive estuarine and marine habitats was cited as a priority concern by many reviewers. A wildlife biologist, noted that "...Ocean Resource Planning must happen to develop the "vision" for the Maine Coast...and (to) address inherent conflicts among and between (existing) individual (coastal) policies...".

Reviewers supported the creation of a "coastal coordinating committee" of state and federal agency staff to coordinate strategies and policies, and development of a "multiple-use" policy for marine and estuarine waters. The need to improve inventory and mapping of marine resources was also cited as a priority for action.

The Coastal Program is aware that Maine's coastal policies contain potential conflicts, and intends to develop guidelines to clarify legislative intent. The existing Marine Policy Committee of the Land and Water Resource Council serves to coordinate state management of marine resources. The Maine Coastal Program supports the formation of a task force to guide marine planning efforts.

One reviewer urged a review of the present system of classifying coastal waters and a rigorous application of standards which call for "maintaining existing biological structure and function." He also noted that commercial fishing and aquaculture are significant activities within the scope of coastal management, yet were not mentioned in the summaries. In particular, he suggested evaluation of the "impacts of aquaculture and certain fishing methods on coastal ecosystems" and environmental impact assessments for net-pen aquaculture.

Since the standards for classification of estuarine and marine waters are included within the core laws of the Maine Coastal Program, changes to the classification would constitute a "program change" and be eligible for 309 funding. The Maine Coastal Program agrees that the present classification system deserves review.

Commercial fishing and aquaculture activities were discussed in the full assessment report on Ocean Resource Planning. The Maine Coastal Program funded an analysis of the environmental impacts of netpen aquaculture, and the Gulf of Maine Program recently published a report on "The Environmental Impacts of Finfish Culture," which is available from the Maine Coastal Program. The federal Environmental Protection Agency is preparing a General Permit for finfish aquaculture which includes environmental parameters for permit review.

Coastal Wetlands

Coastal wetland definitions and exemptions of certain small freshwater wetlands from regulation were cited by many respondents as priority concerns. The need to expand and implement the significant habitat provisions of the Natural Resource Protection Act was also cited as a priority option by several respondents.

Many reviewers supported options that suggested convening of an interagency group to identify wetland restoration priorities, promotion of a coastal conservency, and improved protection of wetlands owned by state agencies.

The U.S. Fish & Wildlife Service in Bangor, noted the need to identify coastal wetlands with artificial restriction of natural tidal flow. They suggested documenting the extent of phragmites reed in coastal wetlands as an indication of stressed areas and recommended restoration of marshlands behind the tidegates on the Pleasant River in Addison.

The above comments have been incorporated into the assessments.

A city planner from southern Maine commented that the most important issue on the Maine coast was the difficulty in obtaining permits for harbor and channel dredging.

Dredging is an important coastal issue which has been addressed in a Dredging Management Strategy prepared by the Coastal Program and recommended by the Marine Policy Committee for adoption by the Maine Land and Water Resources Council.

Special Area Management Planning

Several reviewers commented on the need to focus resources on selected special areas of state significance and to increase involvement of local and state organizations working with state agencies in conservation efforts.

Maine Coast Heritage Trust and other reviewers supported special area management plans along the coast that promote sustainable use and protection of coastal resources. Many respondents suggested that special area management planning in some form would be an effective tool for managing the cumulative impacts of development.

Reviewers at the Land Use Regulatory Commission (LURC) noted that 305 islands are within LURC jurisdiction and called for the development of 'island policies' which would provide consistency and direction to the management of Maine's coastal islands.

The Maine Coastal Program supports the concept of special area management planning as a tool to manage the cumulative impact of development in certain areas. We believe that special area management planning efforts in Maine must be linked to ongoinglocal comprehensive planning efforts.

Maine islands are special features of our coast subject to unique problems because of geography. At this time, island areas are subject to the same regulation and protection as mainland areas. The Section 309 Enhancement Grants Program may provide an opportunity to improve management of these areas of biological and cultural significance.

General Comments

Many reviewers mentioned a need to improve enforcement of existing environmental regulations. Several reviewers suggested flexible, non-confrontational approaches that focus on education and prevention rather than reliance on legal action.

One reviewer wrote that too many agencies are involved in coastal decisions. Several reviewers noted the need for improved coordination between the Maine Coastal Program, the Department of Environmental Protection and The Department of Marine Resources regarding water quality information, community education, and other coastal management activities.

The Maine Coastal Program agrees that enforcement of existing regulations is a priority. We anticipate continuing to use Section 306 funding for the Code Enforcement Officer Training Program in the DECD to improve enforcement at the local level, and for State-level staff in the Dept. of Environmental Protection and Dept. of Marine Resources.

The Maine Coastal Program is a networked program composed of several state agencies concerned with coastal management. This decentralized approach has drawbacks and benefits. The Marine Policy Committee of the Land and Water Resource Council is an important new mechanism to improve coordination between agencies.

Finally, one last reviewer comment deserves quoting:

> "We need a true commitment to improving our coastal environment and a willingness to bear the cost before anything will change. We will know that commitment exists when our government is willing to raise tax dollars to support these efforts, and when our people are willing to give up small measures of personal freedom for the greater good. Until that time, all of your studies, plans, and guidelines will amount to no more than a sand castle at the low tide line."

SUMMARY OF PRIORITY NEEDS AND PROGRAM CHANGES

Priority Issue: CUMULATIVE IMPACTS OF DEVELOPMENT

Indirect and secondary effects of land and water activities on the health of the coastal ecosystem are a priority concern of coastal residents, interest groups, and government agencies with responsibility in the coastal region. Such activities are necessary for the enjoyment of the coast and for Maine's economic well-being, but they need to be conducted in a way that does not jeopardize the resources on which they depend.

The greatest threats are losses of function of tidal wetlands, estuaries and marine waters, such as loss of habitat, loss of flood storage, loss of protection which wetlands provide from erosion, loss of fisheries, etc. Pollution and other cumulative effects of shoreland and marine development are the causes of such losses.

GOAL

To identify and protect sensitive natural coastal areas and resources from adverse cumulative impacts of growth and development, using an eco-system approach, and by supporting state, regional and local planning, management, regulatory activities, public education and other means.

OBJECTIVE

Identify and protect natural coastal areas that are sensitive to the impacts of growth and development.

Priority Needs: Identify areas in marine and estuarine environments that are subject to rapid growth and priorities for protection; assess anticipated impacts; develop policies and land use controls for coastal watersheds, estuaries, embayments and islands of concern (AOC).

Program Changes: Amend NRPA to expand or alter significant habitat provisions; incorporate additional policies into MCP; designate Areas of Concern; amend State model shoreland zoning ordinance to reflect shoreline erosion rates.

Potential Projects: Study economic value of natural resources in AOC's.

Develop alternative strategies for land protection by private landowners.

Accelerate GIS mapping of marine areas.

Develop an estuarine/marine habitat classification system.

Develop maps/criteria for NRPA habitat provisions

Determine erosion rates of shoreline and tie rates with shoreland zoning setbacks.

Update state inventories of fresh and tidal wetlands in coastal watersheds; map and classify estuarine and marine wetland habitats; amend existing rules or legislation to improve protection, enhance enforcement of existing laws.

Convene an interagency group to identify wetland restoration priorities.

Develop model wetland ordinances for local municipalities.

Network existing environmental enforcement personnel in state agencies and at the local level to achieve more efficient enforcement of environmental laws.

Develop guidelines for dredging and dredged material disposal in coastal waters.

Develop guidelines for evaluating the ecological function of wetland types.

Evaluate the need to increase protection of unregulated (by the state) wetlands and forested wetlands.

Develop a wetland protection plan for wetlands owned by state agencies.

OBJECTIVE

To reduce and ultimately eliminate harm from point and nonpoint sources of pollution to Maine coastal waters, including pathogens, toxic contaminants, and sediment.

Priority Needs: Through a cooperative intergovernmental watershed planning process, target priority estuaries and embayments; develop education and prevention programs including volunteer water quality monitoring efforts; develop or enhance state programs or regulations which control NPS's of pollution. Establish baseline information on the pollutant levels in key estuaries and embayments.

Program Changes: Possible changes to state plumbing code; NPS priority watershed plans; siting standards; BMPs for forestry operations in coastal basins; Coastal Monitoring Program.

Potential Projects: Nonpoint source inventory & plans for priority estuaries & embayments.

Study of effectiveness of current subsurface sewage disposal standards in coastal areas. Study should include evaluation of current procedures, criteria for systems, setbacks, identification of sensitive areas where more stringent regulations should apply... etc.

Development of marina siting standards to prevent restriction in use of commercial and recreational shellfish beds.

Study need for "no discharge" or "no anchorage" areas.

Study effects of forest practices on estuaries.

Formalize cooperative agreement to share information on sources of pollution and pollutants of concern between DMR, DHS, DEP, and municipalities.

Study adoption of uniform NPDES permit renewal dates by watershed unit.

OBJECTIVE

To strengthen watershed, embayment and estuarine planning and management efforts, including pollutant reduction and prevention, habitat protection, harbor management, water use and supply, and public education efforts.

Priority Needs: Develop new local growth management legislation, provide small matching grants to towns to implement existing plans and develop plans and ordinances with a new watershed focus.

Program Changes: Add revised growth management legislation to the MCP. Adopt regional SAMPs to integrate local plans and ordinances.

Potential Projects: Establish a schedule of fees to be paid by point and nonpoint dischargers into bays, estuaries, and the ocean for use in watershed planning, water quality monitoring, and remediation and prevention projects.

OBJECTIVE

To improve consideration during environmental permitting, and in land acquisition and infrastructure programs, of the cumulative impacts of development in coastal areas, especially with regards to habitat, water, air, and scenic quality.

Priority Needs: Develop guidelines for use in local and state permitting review. Amend relevant legislation to include clear definitions of cumulative impact.

Program Changes: Amendments to NRPA, mandatory shoreland zoning guidelines, cumulative impact guidelines for planning boards and state agencies.

Potential Projects: Research how other states have included consideration of cumulative impacts in legislation. Develop proposed changes to Maine laws.

Develop guidelines for local planning boards (booklet), guidelines for state permits.

Complete a coastal scenic assessment to implement scenic provisions of NRPA.

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Section 309 Assessment

1. OCEAN RESOURCES PLANNING

Advisory Committee: Marine Policy Committee

Agency Contacts:

William J. Brennan, Commissioner, Department of Marine Resources
Rob Elder, Department of Transportation
Anne Hayden, State Planning Office
Dr. Joseph Kelley, Maine Geological Survey/DOC
Steve Oliveri, Bureau of Public Lands/DOC
Fran Rudoff, Department of Economic and Community Development
John Sowles, Department of Environmental Protection
Steve Timpano, Department of Inland Fisheries and Wildlife

Interest Group Contacts:

Friends of Casco Bay
Island Institute
Maine Audubon Society
Maine Fishermen's Cooperative Association
Maine Harbor Masters Association
Maine Lobstermen's Association
Maine Marine Trades Association
Maine Pilot's Association
Maine Sardine Council
Marine Law Institute

Ocean Resources Planning

CONTENTS

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1.0 SUMMARY

Commercial fishing, shipping, recreational boating, whale - watching, aquaculture, and waste disposal are just a few uses of Maine's coastal waters. These waters support a rich diversity of marine life; some of the most biologically productive marine environments in the world are found in the Gulf of Maine. It is becoming increasingly difficult both to accommodate multiple uses and protect the marine environment.

As use of marine resources increases and problems become more complex, coordination among the numerous state and federal agencies becomes more important. Declines in fishery landings and extensive shellfish closures suggest that intensifying use of the state's coastal waters is threatening its productivity and environmental health. New approaches to the management of Maine's marine resources are needed.

Accomplishments

- An interagency Marine Policy Committee of the Land and Water Resource Council has been established.
- The international Gulf of Maine Council on the Marine Environment was established in 1989; the council recently adopted a long-term Gulf of Maine Action Plan and Environmental Quality Monitoring Plan.
- A revised Dredge Management Strategy has been developed by the Maine Coastal Program for action by the state.
- The Casco Bay Project, a National Estuary Program, was established in Casco Bay and is developing a regional management plan for the area.

Problems

- There are signs of degradation of the marine environment. For example, about 30 percent of the state's shellfish beds are closed or restricted for harvesting due to bacterial contamination.
- No comprehensive state policy exists for the use of state coastal waters. Several agencies are involved in decisions which affect the marine environment, yet they pursue differing and sometimes conflicting mandates.
- No comprehensive planning process exists for the use of Maine's coastal waters.

- Competition among marine-related uses is increasing, yet no mechanism exists to resolve these conflicts. Competition between water and non-water dependent uses is also on the rise.
- The state has no marine habitat protection program.
- Coordination between state agencies is inadequate.
- Adequate natural resource information for decision making does not exist.

1.1 Maine's Key Coastal Management Policies (38 MRSA 1801)

* MARINE RESOURCE MANAGEMENT. Manage the marine environment and its related resources to preserve and improve the ecological integrity and diversity of marine communities and habitats, to expand our understanding of the Gulf of Maine and coastal waters and to enhance the economic value of the State's renewable marine resources.

* WATER QUALITY. Restore and maintain the quality of our fresh, marine and estuarine waters to allow for the broadest possible diversity of public and private uses.

* PORT AND HARBOR DEVELOPMENT. Promote the maintenance, development and revitalization of the State's ports and harbors for fishing, transportation and recreation.

* SHORELINE MANAGEMENT & ACCESS. Support shoreline management that gives preference to water-dependent uses over other uses, that promotes public access to the shoreline and that considers the cumulative effects of development.

1.2 CZMA Legislative Objective

§ 309(a)(7) Planning for the use of ocean resources.[1]

1.3 Federal CZMA Assessment Characterization

Characterize current & prospective ocean resources & uses of state concern, & specify existing & future use conflicts.

> **** Inventory ocean resources that are important to the state.***
>
> **** Identify current and probable near-term and long-term ocean uses. Describe the intensity of those uses and the extent and severity of conflicts (both current and anticipated) among the various activities.)***

1.31 Scope & Definitions

Maine's marine waters support a tremendous diversity of marine life and economic activity. Some locations contain the highest diversity of marine life reported in the coastal waters of the United States. These waters are home to at least 1600 different types of bottom-dwelling organisms, about 100 types of birds, 73 different types of fish and 26 different kinds of whales, porpoises and seals.[2] This high diversity of sea life is supported by a variety of marine and estuarine habitat types. Salt marshes, eel grass beds, muddy and sandy sediments, gravel beds, rocky substrates, sheltered coves, high energy environments and variable levels of salinity and temperature are all present in Maine's coastal waters.

Maine's coastal waters and the Gulf of Maine traditionally have supported a wide variety of uses, most notably fishing and commerce. Over 5,000 years ago prehistoric peoples fished these waters for cod and haddock. The first Europeans, who settled along the coast in the 1600s, were drawn to this area because of the plentiful stocks of fish. More recently, foreign fishermen from many nations fished those Gulf stocks, which eventually caused a major decline in the region's fisheries. Shipping and ship building have also played major roles in the state's economy. Today, in addition to those traditional uses of the sea, Maine's marine waters also support relatively newer uses, such as recreational boating, aquaculture and waste disposal.

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[1] Italicized text is excerpted from federal guidance for Section 309 assessments.

[2] U.S. Fish and Wildlife Service, An Ecological Characterization of Coastal Maine, Volume Two, 1980.

Ocean resources planning involves the policy, planning, and regulation of all uses of Maine's coastal and marine waters and their interaction. Management of individual uses is not as much of a concern as is the management of all the uses in a comprehensive and integrated manner. Issues of concern in Maine include dredging and dredge spoil disposal, net-pen aquaculture, submerged lands management, oil transportation, mobile and fixed gear fishing, and habitat protection. Oil and gas development on Georges Bank and sand and gravel mining are issues of potential future interest to the state.

1.32 Available Information/Studies

Numerous studies have been conducted on various ocean resources in Maine. The topics covered include oil spill prevention and response, net-pen aquaculture, marine policy, marine research, dredging management, and marine water quality. These studies have covered these issues in fairly comprehensive detail and further assessment work is not needed. However, implementation of the numerous recommendations contained within the reports is necessary. These recommendations will be important components of the ocean resources planning strategy. Issue areas that are in need of further assessment include identification and protection of critical marine habitats and marine wildlife.

1.33 Inventory of Ocean Resources and Uses

A. Aquaculture

To supplement the harvesting of marine resources from natural populations, aquaculture, or the "farming" of the sea, has become common practice worldwide. Maine's coastal waters provide a prime environment for the culture of fish and shellfish because of the numerous protected coves and bays, high flushing rates, relatively clean waters, and proximity to markets.

Maine's aquaculture industry, virtually non-existent 20 years ago, is emerging as a significant and growing use of the state's coastal waters. Both finfish and shellfish are produced in coastal waters which are leased by the state to private operators. Species under cultivation include mussels, clams, oysters, salmon, and trout. Shellfish are generally produced by bottom culture and salmon are raised in floating net pens.

Growth of the industry has increased rapidly throughout the 1980s, with continued rapid growth projected for the future.[3] Currently there are 86 fish and shellfish leases totalling over

[3]See, State Planning Office, An Aquaculture Development Strategy for the State of Maine. (State Planning Office, Augusta, ME, 1990).

1,100 acres of coastal waters. Leases are located along the entire Maine coast with 45 percent located east of Bar Harbor. Other clusters of leases are located along the Blue Hill peninsula, near Damariscotta and Bristol, and in southern Maine from Freeport to York and Kittery.

The number of sites leased for salmon farms in Maine's coastal waters has increased from zero to 41 in just four years. Currently, salmon farms are exclusively located east of Penobscot Bay, with the majority located in Cobscook Bay, because of favorable water temperatures. With the advent of new technology, however, the possibility exists that salmon aquaculture could develop in the mid- and southern coast areas as well.

The "Maine Aquaculture Strategy" (SPO,1990) projected meteoric growth in the finfish aquaculture industry over the next decade. Demand for aquaculture leases will continue as wild stocks decline. The areas with water quality suitable for aquaculture activities and supportive of wild species will depend on the ability of the state to control and monitor bacterial and other types of pollution in nearshore waters.

B. Marine Transportation

Overall, commercial vessel traffic along the Maine coast has increased slightly over the past 15 years and it appears that this trend will continue into the future. Maine's major commercial ports include Portland, Searsport/Bucksport, and Eastport. During the past ten years, the amount of dry cargo (primarily lumber) transported through Maine ports has nearly tripled to about one million tons. Oil, bulk goods, wood products, frozen foods, passengers, and tourists all move through Maine's coastal waters by ship. Passenger ships serve as important links to Maine's many offshore islands, to Canada and to a growing tourist trade.

In 1988, 51 percent of Maine sea cargo passed through Searsport, while 35 percent was handled by Portland, 13 percent by Eastport and one percent by Winterport. In recent years there has been a steady increase in the amount of oil flowing through the state's ports. Since 1986, oil shipments have increased 64 percent. Indications are that this trend will continue as demand increases in Canada and Maine, as production decreases in western Canada, and as oil fields are developed offshore Newfoundland, Can. The Portland Pipeline, which transports the vast majority of oil brought into Portland to Montreal, expects a doubling of oil traffic over the next two to five years.[4] Jet fuel is transported via pipeline in Harpswell to the Brunswick Naval Air

[4]Ralph Wink, Portland Pipeline, personal communication, March 15, 1990.

Station and via pipeline in Searsport to Loring Air Force Base. Additional traffic off the Maine coast is bound for Portsmouth, N.H. and St. John, New Brunswick.

Maine ports average about 65 cruise ship arrivals per year with 250 to 1200 passengers on each ship (and with crew sizes ranging from 75 to 500). Maine ports can expect to handle over 90 ship calls in the summer of 1991. Portland, Boothbay Harbor, Camden, and Bar Harbor are major destinations for cruise ships.

Maine's coastal waters are also used by ferries serving Canada and Maine's numerous offshore islands. More than 60 boat cruises, excursions and charters also operate along the coast. Ferry traffic serves commuters, tourists, and provides goods to island communities. Ferry ridership has steadily increased throughout the last decade largely due to tourism, which results in a seasonal pattern of ridership with peak travel occurring from late spring to early fall and then falling off to relatively low levels throughout the remainder of the year. Islands served by ferries include Vinalhaven, North Haven, Swan's Island, Islesboro, Long Island, Monhegan, and Matinicus in the Penobscot Bay/mid-coast region and Little Diamond, Great Diamond, Long Island, Peaks, Cliff, Cousins, and Great Chebeague Islands in Casco Bay. In addition, international ferries provide services from Portland and Bar Harbor to Yarmouth, Nova Scotia, and from Eastport to Deer and Campobello Islands in New Brunswick.

C. Marine Recreation

Maine's coastal waters have seen tremendous growth in recreational activity including pleasure boating, tourism, recreational fishing, whale watching, sea kayaking and other activities. The number of boats registered in the state that use Maine's coastal waters has nearly tripled from about 21,000 in 1970 to 56,000 in 1989. An additional 2,000 boats are documented with the U.S. Coast Guard and may not necessarily be registered with the state. These figures, however, do not include a possibly substantial number of boats which use Maine's coastal waters but are registered in other states.

Another indication of the level of recreational boating activity is the number of moorings and waiting lists for moorings in Maine's harbors. There are about 11,000 moorings in the state's coastal waters according to a survey conducted in 1989 by the Department of Economic and Community Development.[5] An additional 1,110 people are on waiting lists for moorings in various

[5]This information was collected from 78 harbors. No information was received for 50 coastal communities, of which 18 have significant harbors. see, Harbor Ordinance and Mooring Survey, September 11, 1989, Department of Economic and Community Development.

coastal towns. In addition, there are about 125 marinas in the state with several thousand slips. Marinas in Portland and South Portland contain roughly 1,500 slips.[6]

Whale-watching and other wildlife sightseeing cruises (e.g. for seabirds and seals) off the Maine coast are other activities that have grown substantially in the past ten years. On Mt. Desert Island, for example, the number of people using whale-watching services (from Bar Harbor, Northeast Harbor and Bass Harbor) jumped from about 30 people per day in 1985 to about 600 people per day at the height of the season in 1990.[7] Whale-watching boats leave principally from Kennebunkport, Boothbay Harbor, and Bar Harbor, while other coastal and marine wildlife sightseeing trips leave from numerous spots on the coast, including Portland, Camden, New Harbor and other towns. About 11 companies now ferry tourists and researchers to sites offshore in search of humpback and fin whales.

Recreational fishing is another popular use of Maine's coastal waters. Of the numerous species sought after by recreational fishermen, the most popular are bluefish, mackerel, groundfish, and tuna. Accurate figures on the number of recreational fishermen using Maine's coastal waters are not available, however, since the state does not require a recreational saltwater fishing license. The National Marine Fisheries Service estimates a total of about 267,000 recreational fishermen used Maine's coastal waters in 1987.[8]

D. Waste Disposal

Industry, municipalities, vessels, and dredging of the state's ports and harbors produce wastes, some of which are disposed of in the marine environment. In addition, runoff from the state's cities and farms also contributes pollution to the coastal waters.

Dredge Spoil Disposal-- Ocean disposal of sediments dredged from channels, harbors and other marine areas, may be contaminated with pollutants such as PAHs, PCBs, and metals. Dredging activities disperses the pollutants into estuarine or ocean sites potentially causing ecological problems in those

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[6]Maine Department of Environmental Protection, 1989. Agenda for Action: Casco Bay. (Department of Environmental Protection, Augusta, ME).

[7]Robert Bowman, College of the Atlantic, personal communication, November 19, 1990.

[8]U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, September, 1988. Marine Recreational Fishery Statistics Survey, Atlantic and Gulf Coasts, 1987. (National Marine Fisheries Service: Washington, DC).

areas. The natural hydrology of estuarine areas may also be modified by the removal of bottom sediments.

Decisions on the location of disposal sites for dredged material are based principally on economic considerations, such as the cost of hauling the material to the site and, in the case of a land-based site, any fees required for its use. In Maine's case, the vast majority of dredged material has been disposed of in estuarine or marine waters. Given scarce land areas for disposal of dredged material and increased pressure to create more marinas and to increase activities in the state's commercial ports, the need for ocean disposal will likely increase.

Between 1950 and 1989 the U.S. Army Corps of Engineers conducted 98 dredging projects in Maine, removing some 4.5 million cubic yards of dredged material (SPO,1991). Currently, 79 coastal towns have had some degree of dredging by the Army Corps and numerous other coastal towns have private dredging projects. Just under 600,000 cubic yards, or 13 percent of the material dredged between 1950 and 1989, were dredged between 1982 and 1989. Disposal of the material occurred as follows:

Ocean sites	41%
Estuarine sites	36%
Upland sites	15%
Unidentified	8%

Dredged material is disposed of either in permanent, EPA approved-ocean disposal sites, or in ad hoc Corps nearshore disposal sites if the dredging project is located too far away from an EPA site. Officially designated ocean disposal sites are located off Cape Arundel in southern Maine, Portland, and Rockland. The Cape Arundel site, located several miles offshore the southern Maine coast, is used by the Port of Portsmouth and several small harbors in southern Maine. The Portland site, which receives dredged material from Portland harbor, is located just outside western Casco Bay, about seven miles offshore at a depth of about 150 feet. The Rockland site is located offshore Rockland and serves Rockland harbor and several other small harbors in Penobscot Bay. Numerous other sites along the coast are used on a project-by-project basis.

Point-Sources - Nearly 60 municipal sewage treatment plants discharge directly into marine or estuarine waters. Thirteen plants which discharge into estuarine and marine waters only provide primary treatment. Maine Yankee Atomic Power Plant and fossil fuel-powered electrical generating plants use tidal waters to cool turbines. Almost 3000 residential overboard discharge licensees exist along the Maine coast. In 1987, the Maine Legislature prohibited the construction and use of new overboard discharge systems and required the gradual phaseout of most of the existing systems. Forty-five industries are licensed to

discharge wastewater to Maine's coastal watersheds. These industries include pulp and paper mills, tanneries, metal finishing operations, textile manufacturing, and chemical companies.

As population increases along the coast, greater volumes of wastewater will be discharged to tidal waters unless alternative systems are developed. With increased volume of automobile traffic and road and residential construction activities, increased volumes of surface waters will run-off to near-shore waters as well as increased loadings of pollutants associated with development and population growth.

E. Commercial Fishing

The Gulf of Maine supports a significant commercial fishery for finfish and shellfish. In 1990, the state's landings were 170 million pounds, consisting of over 40 species of fish, shellfish, and other sea creatures, with a landed value of about $130 million. Maine's commercial catch is dominated by Atlantic herring, lobsters, groundfish, and menhaden by weight and lobsters, clams, scallops, and groundfish by landed value. Lobsters are economically the most important fishery in the state.

About 14,000 licenses were issued to commercial fishermen in the state of Maine in 1990. The number of licenses issued increased dramatically from 1950 to 1974, from just over 8,000 to just under 19,000 -- a 138 percent increase. The number of licenses has been declining steadily since that time, however, with a slight increase the last two years. Despite fewer licensed fishermen, greater effort is being expended to catch fewer fish. For example, there were 6,660 licensed lobster harvesters in 1960. Their numbers climbed to a peak of 10,500 in 1974 then decreased to 6,600 in 1990. Despite this trend, the number of lobster traps deployed in Maine's coastal waters has actually increased from roughly 700,000 in 1960 to more than two million in 1989.[9] While effort has increased substantially, the landings have remained relatively constant.

In the last decade, overall fish and shellfish landings fluctuated greatly and are currently in a downward trend. Total landings of both fish and shellfish in Maine have declined by over 44 percent since 1980 -- from 244 million pounds in 1980 to 169 million pounds in 1990. Several species, such as lobster, continue to bring in strong landings. Landings of haddock, ocean perch (redfish) and flounder have experienced the greatest

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[9]Kenneth Sherman, Edward B. Cohen, Richard W. Langton, 1989. "The Northeast Continental Shelf: An Ecosystem at Risk," in The Gulf of Maine: Sustaining Our Common Heritage Conference Proceedings, ed., by Victor Konrad, et. al (Augusta: Maine State Planning Office). pg. 129.

decline. Total nominal landed value, on the other, hand has grown steadily from a 1980 value of $108 million to a 1990 value of $129 million. Discounting for inflation, however, the total value has actually decreased by 24 per cent.

Two political events have profoundly affected Maine's commercial fishing industry. The first was the passage of the Magnuson Fishery Conservation and Management Act, which granted the United States jurisdiction over fishing within 200 miles of its shores. This act effectively eliminated foreign fishing fleets from the Gulf of Maine and spurred a tremendous expansion of the commercial offshore fleet -- as evidenced by the number of commercial fishing licenses and the amount of fish landed in Maine in the mid- to late- seventies. The second event was the 1984 World Court decision on the U.S./Canadian maritime boundary. This boundary effectively cut off valuable fishing grounds to Maine fishermen who had traditionally used these areas and has contributed to the decrease in landings in several species of finfish.

F. Energy and Mineral Resources

Over the years there have been a number of proposals to explore for oil and gas in the Gulf of Maine/Georges Bank region. However, currently there is no active exploration for energy or mineral resources in Maine's coastal waters or the broader Gulf of Maine. In the late 1960s, the Maine Mining Bureau (predecessor to the Maine Geological Survey) granted oil and gas exploration rights off the Maine coast to King Resources.[10] The company was granted rights to a 3.33 million-acre area running roughly from Kennebunkport to Bar Harbor. At the closest point, the area was 11 miles off the coast, and 80 miles at its furthest. The area proved not to be promising for development. In 1981 and 1982, five American companies drilled eight wells on Georges Bank, but discovered no economically exploitable quantities of oil or gas. Industry interest in the region persists, but environmental concerns have indefinitely delayed any prospects for drilling on Georges Bank.

Lease sale cancellations by the Department of the Interior exclude the Georges Bank region from lease activities from 1992-1997. The Department of the Interior announced that no lease sale will be held until after the year 2000 and "then only if studies show that the development is warranted because of resource

[10]Resources from the Sea and Federal Limitations on State Control: Maine Law Affecting Marine Resources, Vol. Four. Report carried out under the joint sponsorship of: The School of Law of the University of Maine and the National Science Foundation, Office of Sea Grant Programs, 1970.

potential and is environmentally safe."[11]

In prior policy statements, the state of Maine has recommended that the Gulf of Maine not be considered for oil and gas development and that only the most promising areas on Georges Bank should be offered for lease. The state has advocated a cooperative arrangement between Canada and the U.S. to address joint planning and management of oil and gas resources on Georges Bank.[12]

Minerals other than oil and gas are of potential future interest in the Gulf of Maine. An intertidal mine located in Harborside on Cape Rosier in Penobscot Bay operated for a number of years in the late 1960s and 1970s and ceased production in 1977. Copper, lead, and zinc were taken from this mine. In the future, interest may turn to the large quantities of sand and gravel that lie on the seabed of the Gulf of Maine. The economic feasibility of developing these resources, however, has not been examined. Other than the Harborside mine, no mining has occurred directly in the state's coastal waters but it is possible it will become economically feasible to exploit these resources at some future time.

Sand from dredging operations has been used in beach renourishment projects in southern Maine. Although removal of sand and aggregate from glacial deposits is a major activity on uplands in coastal counties, no operations have been proposed to commercially remove the resources from submerged or intertidal lands, except as a by-product of dredging projects to improve navigation channels or harbors.

A potential future use of tidal waters is for energy production either by large or small-scale tidal generators, or thermal generators that convert the difference between surface and bottom water temperatures into electrical current.

G. Submerged Land Activity

Estuarine and marine intertidal and subtidal lands are used for the harvest of shellfish and the placement of fishing and aquaculture gear, moorings, docks, and wharves near shore or along the shoreline. About 700 leases and easements are in place on Maine's submerged lands. This activity has been increasing

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[11]The White House, Office of the Press Secretary, Fact Sheet: Presidential Decisions Concerning Oil and Gas Development on the Outer Continental Shelf, June 26, 1990.

[12]Letter from Governor John R. McKernan, Jr. to Secretary of Interior Manuel Lujan, Jr. on the Department of the Interior's Draft Proposed Comprehensive Outer Continental Shelf Natural Gas and Oil Resource Management Program for 1992-1997.

sharply since the submerged lands leasing program was first established in 1975. In the last ten years, the number of leases has increased 500 percent.

Thousands of bushels of shellfish (primarily mussels, ocean quahogs, and scallops) are dragged from bottom sediments by commercial fishermen each season. While dragging and digging activities are transitory disturbances to ocean lands, the construction of tidal impoundments (to hold lobsters and in years past, to power saw mills), seawalls and placement of riprap are examples of permanent alterations or modifications of intertidal and subtidal lands common to the coast.

Incremental development of submerged and intertidal lands with docks, piers, and other localized alterations will continue, especially as the demand and value of shoreland rises. As population increases along the Maine coast, use of the marine and estuarine water resources will likely increase. Denser settlement will require residential wastewater collection and treatment in sewage plant rather than in-ground disposal. Surveys of mooring fields and marina developments in Maine harbors over the past five years indicate an increase in recreational boating and demand for shoreside services associated with the recreational boating industry.

H. Protected Marine Species

While clearly not a "use" in the same sense as those described above, several species of marine wildlife are afforded special protection by state and federal law and thus affect the manner in which other uses may operate. These species include marine mammals, endangered and threatened species of seabirds and shorebirds and other coastal wildlife. Seabirds, shorebirds and marine mammals dominate the list of protected coastal and marine wildlife. This may be due more to the lack of information on other marine organisms than to existence of other endangered or threatened species.

1.4 Federal CZMA Programmatic Objective I -- Regulatory, Planning, and Intragovernmental Coordination

Develop & enhance regulatory, planning & intra-governmental coordination mechanisms to provide meaningful state participation in ocean resource management & decision-making processes.

- ***Analyze existing laws, regulations, and programs affecting the management of ocean resources.***

- ***Develop or enhance mechanisms to ensure full state participation in existing planning and management programs, including coordination with federal agencies.***

1.41 Existing Laws, Regulations and Programs

a. Scope

Numerous laws have been passed at the federal, state, and local levels which affect the use of ocean resources. Relevant federal laws include the Coastal Zone Management Act, Marine Mammal Protection Act, Fisheries Conservation and Management Act, Marine Protection, Research and Sanctuaries Act, National Environmental Policy Act, Clean Water Act, Port and Tanker Safety Act, Oil Pollution Act, Act to Prevent Pollution from Ships, Outer Continental Shelf Lands Act, and others. This section will discuss the major state laws that affect activities in Maine's marine waters and protect its habitat.

b. Major State Laws

The major state laws that affect the use of ocean resources include:

Natural Resource Protection Act (38 MRSA 480 A-S, DEP Chs. 310, 343-345, 355). The act regulates all construction, filling, or draining activities within or adjacent to coastal wetlands and "protected natural resource" areas (e.g. sand dune systems, and "significant wildlife habitats" such as habitats for endangered species, shorebird nesting, and critical spawning and nursery areas for Atlantic sea-run salmon). The term "coastal wetland" is defined to include all intertidal and subtidal lands. As such, the law covers essentially any development activity on the state's submerged lands. Provisions that are of particular relevance to "ocean resources" are: (i) a prohibition on activities that would cause unreasonable harm to significant wildlife habitat and estuarine and marine fisheries; (ii) a requirement that the proposed activity cannot unreasonably interfere with existing uses including navigational uses; and (iii) requirements that call for dredge spoil disposal applicants to ensure that the transportation of dredge spoils minimizes adverse impacts on the fishing industry, and that the dredge spoils are tested within one year before submitting an application for disposal.

Submerged Land Leasing law (12 MRSA 558-573) - The law grants the Department of Conservation's Bureau of Public Lands authority to lease submerged lands for dredging, filling, and the erection of permanent structures (such as bridges, causeways, marinas, wharves, and pilings). Leases on submerged lands must not unreasonably interfere with navigation, fishing, or other existing marine uses, diminish the availability of commercial fishing services and facilities, or the ingress and egress of riparian owners.

Aquaculture Leasing Act (12 MRSA 6072-6074, DMR Ch. 2) This act gives the Department of Marine Resources authority to lease

the submerged lands and water column for the culturing of marine organisms. A separate leasing system is established from that of the BPL. DMR may issue 10-year leases for five acre tracts, up to 100 acres per site and 150 acres per applicant. The act provides for extensive environmental controls of aquaculture sites.

Marine Resources Law & Regulations (12 MRSA Chap. 601-627) The state's Marine Resource laws give the Department of Marine Resources authority to regulate the harvesting of any marine organism for commercial or recreational purposes. The law gives DMR the authority to regulate the taking of marine organisms by: time; method; number; weight; length; or location. The department has the power to close contaminated shellfish beds.

Mining on State Lands (12 MRSA 541-550) This law gives the Maine Geological Survey authority to issue exploration permits and leases for exploration and extraction of minerals other than sand and gravel on state lands, including submerged lands. Bonds must be posted to ensure the reclamation of mined areas. Leases for sand and gravel mining would be granted by the Bureau of Public Lands. The Mining on State Lands statute, however, has no specific language concerning mining on the submerged lands. If seabed mining ever becomes a reality in Maine, this statute would have to be substantially revised.

Coastal Management Policies (38 MRSA 1801-1803) The legislature adopted nine coastal policies and requires all state agencies to conduct their activities "consistent" with those policies. The Department of Economic and Community Development has prepared a handbook suggesting how local officials may incorporate the coastal policies into local comprehensive plans and land-use ordinances. The former Coastal Advisory Committee prepared "guidelines" to assist state agencies implementing the policies. Neither the guidelines nor the handbook, however, are enforceable.

Protection and Improvement of Waters (38 MRSA 361-434, 464-470, DEP Chs. 514-596) This is a broad statute that regulates discharges into ground water, fresh-surface water, and marine waters. The act directs the DEP to monitor groundwater, marine and estuarine water quality; provide financial and technical assistance for municipal pollution abatement plans and construction projects; license all direct or indirect discharges of pollutants; and establish a water classification system for all fresh, salt and groundwater.

Oil Discharge Prevention and Pollution Control (38 MRSA 541-560, DEP Chs. 600-680). This law regulates the transport and transfer of petroleum products and assigns responsibility and liability for containment and cleanup of spills. The Department of Environmental Protection is authorized to license the opera-

tion of any oil terminal facility or vessel used to transport oil; approve local oil spill contingency plans for all licensed oil terminals; undertake and ensure that clean up is conducted by responsible parties; and administer the Maine Coastal and Inland Surface Oil Clean Up Fund to reimburse clean-up expenses.

Endangered Species Law (12 MRSA 7751-7758, DIF&W Ch. 8) This statute gives the Department of Inland and Fisheries and Wildlife the authority to designate threatened and endangered species and to protect their habitat. No state agency or municipal government shall permit, license, fund, or carry out any project that will alter the habitat of or violate the protection guidelines for any endangered or threatened species. Hunting, trapping, possessing, feeding, baiting, processing, exporting, transporting, or harassing an endangered or threatened species is prohibited.

c. Major Programs, Plans and Strategies

Casco Bay National Estuary Project Casco Bay was designated an estuary of national significance by the EPA in 1990. This designation set in process a five-year planning process to protect the bay. A Management Committee, co-chaired by EPA and the Department of Environmental Protection, was established to oversee the development of a comprehensive management plan for the bay.

Coastal and Marine Sensitive Area Mapping Program This interagency effort is an outgrowth of a report from the Commission to Study Maine's Oil Spill Cleanup Preparedness. The report recommended that such a program be established to identify, map, and prioritize areas that may be susceptible to an oil spill. The Department of Environmental Protection is coordinating this effort along with the Maine Geological Survey, Department of Marine Resources, and Department of Inland Fisheries and Wildlife. This new program will be primarily used for oil spill purposes, however, the information generated will be useful for numerous other coastal management efforts.

Dredge Management Strategy - This is a five-part strategy to improve dredging management in the state. The strategy calls for (1) coordination of dredging management by the Marine Policy Committee; (2) the development of a dredging management plan; (3) the federal government to base its dredging priorities on measures of the overall need of each state as a whole, rather than on factors related to the size of individual ports; (4) the evaluation of the state regulatory process and recommend necessary changes; and (5) the establishment of an interagency dredging management database and library. The Marine Policy Committee has recently adopted the strategy for approval by the Land and Water Resources Council.

Marine Research Board - The Marine Research Board consists of a broad spectrum of marine interests from throughout the state, the Commissioners of Environmental Protection and Marine Resources, and the directors of the State Planning Office and the Maine Geological Survey. The purpose of the board is to develop a biennial priority statement and action plan of marine research needs of the state. The purpose of the plan is to guide funding recommendations and activities of the board. In addition, the board is authorized to develop and administer a competitive, merit-based grant program to address marine research needs of the state.

Gulf of Maine Program - The Gulf of Maine Council on the Marine Environment was created recently by the Governors and Premiers of Massachusetts, New Hampshire, Maine, New Brunswick and Nova Scotia to discuss and act upon environmental issues of common concern in the Gulf of Maine region. These issues include the protection and conservation of the ecological balance within the Gulf ecosystem, marine debris and medical waste, the relationship between land use and the marine environment, the sustainable use of resources within the Gulf and cooperative programs to better protect and conserve the Gulf's natural resources. The Council has prepared a 10-year natural resources action plan and a monitoring plan for the Gulf of Maine. The Council is composed of two representatives from each of the Gulf states and provinces appointed by the respective Governors and Premiers.

1.42 Assessment of Problems, Issues and Effectiveness of Current Laws and Programs

Activities in Maine's marine waters are becoming more intense and new uses have recently been introduced. Commercial fishing and lobstering, shipping, recreational boating, whale - watching, aquaculture, and waste disposal all occur within the state's coastal waters. In some regions of the state it is becoming increasingly difficult to accommodate these multiple -- and often -- conflicting uses. As the uses of the marine environment increase and problems become more complex, coordination among the numerous state and federal agencies becomes more critical, yet more problematic. State government must be able to respond effectively to resolve conflicts and minimize damage to the marine environment.

- No comprehensive State policy for the use of state coastal waters exists.

While numerous state and federal laws and policies apply to specific uses of the marine environment, no comprehensive policy describes the state's overall goals and objectives in the marine environment. That is, policies tend to address specific uses of the coastal waters such as fishing, oil transportation, and waste disposal independently of one another -- despite the reality that

each of these uses can and does affect the other. The individual policies should be established within a broader context to ensure they are coordinated. The individual policies do not add up to a unified state agenda for the marine environment.

- No comprehensive planning for the use of Maine's coastal waters exists.

Maine, like most coastal states, lacks a tradition of comprehensive planning for the use of the state's coastal waters. Land-use planning requirements generally stop at the water's edge, and the coastal waters are generally free for all to use. Problems resulting from oil spills, pollution, habitat destruction, use conflicts and others that have plagued coastal waters of other states demonstrate that it is much more difficult and expensive to restore the environment and resolve conflicts after the fact, than it is to plan for the orderly development of the environment in a sustainable manner. Since Maine's coastal waters have not reached a "crisis stage" yet state and local governments should be engaged in planning now.

- There are inadequate criteria for resolving conflicts among competing uses.

Conflicts generally occur because of: (i) the need or desire to use the same space for two or more different and incompatible purposes; or (ii) real or perceived environmental threats caused by one use affecting the environment's ability to sustain other uses. Despite the oceans' vast size, in fact, only limited areas are desirable for lobster fishing, placing salmon pens for aquaculture, clam harvesting, anchoring boats, placing marinas and other uses. It should be emphasized that the perception that a conflict exists is as important as the fact that a conflict exists. Increased communication between the various interests should help to resolve real and perceived conflicts.

When conflicts arise between uses of the marine environment there is very little guidance in law or regulation to assist in resolving those conflicts. For example, if a pending aquaculture lease conflicts or could conflict with a pending submerged land lease, the state's Aquaculture Lease law requires the Commissioner of Marine Resources and the Commissioner of Conservation to determine which project is "in the best interest of the State."[13]

The legislature has provided limited guidance to resolve conflicts between users of different types of fishing gear. The Commissioner of Marine Resources has the authority to develop

[13]12 MRSA, section 6072, para. 14.

regulations to prevent conflicts among harvesters of marine resources. In developing such regulations the commissioner must consider (i) traditional uses of marine organisms; (ii) total economic benefits to the area in which the organisms are harvested; and (iii) optimum economic and biological management of marine resources.[14] The law also requires the commissioner to "accommodate the needs of all interested parties to the maximum extent possible, through provisions of joint use, alternate use or other methods." While this law applies only to resolving conflicts between harvesters of marine resources, such considerations could be adapted for guiding the resolution of other conflicts within the marine environment.

- There are jurisdictional gaps in existing state laws.

State laws have not been enacted specifically to cover marine protected areas, seabed mineral mining, and marine salvage. The protection of coastal habitats has long been a priority of the Maine Coastal Program. The Department of Inland Fisheries and Wildlife, the Department of Environmental Protection, and local governments carry out habitat protection programs under several mandates including the Natural Resources Protection Act, Endangered Species Law, and the Mandatory Shoreland Zoning Act. These and other laws, however, do not accord the subtidal, marine environment the same proactive protection that is given the coastal environment. For example, under the NRPA, IF&W is required to identify "significant wildlife habitats." A similar requirement does not exist for significant habitats in the marine environment. Similarly, the Shoreland Zoning Act covers areas within a 250 foot strip along the coast. Within this strip, communities are required to adopt zoning and land-use controls. However, these zoning requirements do not extend into the coastal waters.

As pointed out above, mining on state lands including submerged lands is covered by the Mining on State Lands statute. This law, however, does not specifically consider mining on submerged lands and the different circumstances under which such mining would occur. The state should consider the necessity of developing a specific statute for mining on submerged lands.

- Coordination between state agencies should be improved.

Twenty-eight different state agencies and six different federal agencies have some decision-making or planning responsibility in the marine environment. While the number of agencies is not, in and of itself, a problem, the inadequacy of coordination between and among the agencies is. Each of these agencies

[14] 12 MRSA 6171-A

has its own mandates, goals, policies and procedures, which often conflict with one another. Separate agencies manage fisheries, marine birds, marine mammals, vessel traffic, and dredging and dredge spoil disposal. Inadequate coordination confuses the public, the regulated community, and the federal government as to which agency is responsible for policy and management decisions. Decisions regarding the use and protection of the marine environment demand, by their very nature, *consistent* interagency coordination. Few marine policy or management decisions affect only one use or value in the marine environment.

- There is a lack of adequate information for sound decision making.

Planning and policy development can be only as good as the quantity and quality of information accessible to decision-makers. Indeed, it is imperative that we have a sound understanding of the marine ecosystem and the dynamics of human use of that ecosystem. More information and better methods for exchanging that information are needed for such items as:

- the location of ecologically important marine habitats;
- carrying capacity or tolerance levels of bays and other semi-enclosed marine water bodies;
- the natural variability of the marine environment;
- physical oceanographic characteristics of Maine's coastal waters;
- socio-economic trends in marine industries;
- regional needs for various types of marine infrastructure;
- relative value of the uses of the marine environment; and
- the true cost of using the marine environment for waste disposal.

1.5 Federal CZMA Programmatic Objective II -- Comprehensive Ocean Resource Management Plan

Where necessary and appropriate, develop a comprehensive ocean resource management plan that provides for the balanced use & development of ocean resources, coordination of existing authorities, & minimization of use conflicts.

1.51 Options for Improvement

- Develop a unified, coordinated, state-wide agenda for the marine environment that includes a coordinated effort to determine the state's collective needs and vision for use of coastal waters of the state.

- Embark on a comprehensive planning effort in the marine environment that considers the following options: marine use designations; capability/suitability analyses; special

management areas; marine resource and habitat inventory and mapping; and designation of the Gulf of Maine as the primary management unit.

- Create an institutional entity to coordinate state policy, planning, and management of the marine environment such as an interagency coordinating committee, a marine and coastal resources council, or consolidation of marine programs into one department.

- With substantial input from environmental, economic and recreational interests and the general public, consider designation of coastal water uses consistent with the existing state marine/estuarine water classification program.

- Expand marine habitat inventory efforts. Undertake an ecological research program focused on the uses and habitats of all the state's coastal waters.

- Suitability analysis or strategic planning to determine the suitability of a given region for a particular activity or activities, taking into consideration the human, physical and ecological constraints of that region.

- Designation of marine conservation areas as outstanding resource waters or marine ecological reserves.

- Improvement of the marine resource and habitat information base on the state Geographic Information System (GIS).

1.6 Available Information/Studies

Catena, J., 1991. "Policy and Planning Options for Maine's Marine Waters," (Draft) Maine State Planning Office, Augusta, ME.

Doggett, L. and J. Sowles, 1989. "Maine's Marine Environment: A Plan for Protection, A Report to the 114th Legislature," Maine Department of Environmental Protection, Augusta, ME.

Maine Department of Conservation (DOC), 1989. "Submerged Lands Study," Bureau of Public Lands, DOC, Augusta, ME.

Maine State Planning Office (SPO), 1990. "An Aquaculture Strategy for the State of Maine", Maine Coastal Program, Maine State Planning Office, Augusta, ME.

Maine Marine Infrastructure Task Force, (draft). "Maine Marine Infrastructure, A Report to the Governor."

Marine Law Institute, 1991. "Comparative Assessment of State Laws Protecting the Marine Environment of the Gulf of Maine." Prepared for the Gulf of Maine Council on the Marine Environment.

McMahon,J., "An Ecological Reserves System for Maine: Benchmarks in a Changing Landscape, Report to the 115th Legislature," February 1991. Maine State Planning Office.

Office of Policy and Legal Analysis, 1990. "Final Report of the Subcommittee to Study Salmon Aquaculture in Maine, report to the Joint Standing Committee on Marine Resources, October 1990," Office of Legal and Policy Analysis, State of Maine 114th Legislature, Augusta, ME.

Office of Policy and Legal Analysis, 1990. "Report of the Commission to Study Maine's Oil Spill Cleanup Preparedness, November 1990," Office of Policy and Legal Analysis, State of Maine 114th Legislature, Augusta, ME.

Van Dusen, K. and A.C. Johnson Hayden, 1989. "The Gulf of Maine, Sustaining Our Common Heritage," Maine State Planning Office, Augusta, ME.

Other States

Christie, Donna R., 1989. "Florida's Ocean Future, Toward a State Ocean Policy," March 1989, Office of Planning and Budgeting, Tallahassee, FL.

"Hawaii Ocean Resources Management Plan," January, 1991. Hawaii Ocean and Marine Resources Council, Honolulu, HI.

McLaughlin, Richard and Laura S. Howorth, 1991. "Mississippi Ocean Policy Study." Mississippi-Alabama Sea Grant Legal Program, University, MS.

"North Carolina and the Sea: An Ocean Policy Analysis Report of the Ocean Policy Committee of the N.C. Marine Science Council, Nov. 1984," Raleigh, N.C.

"The Oregon Ocean Resources Management Plan," 1991. Oregon Ocean Resources Management Task Force, Portland, OR.

Section 309 Assessment

2. MARINE DEBRIS REDUCTION

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Marine Debris Reduction

CONTENTS

2.0 SUMMARY

Marine debris is defined as any manufactured material that is accidently or purposefully disposed of in the sea. Marine debris, that accumulates on Maine shores and in tidal waters may persist for decades. More than 60% of the items collected in annual Cleanups are made of plastic.

Marine debris endangers coastal and marine life. Seabirds and fish amass plastic in their digestive systems. 'Ghost' traps and nets entangle marine life including seals, sea turtles and porpoises. Debris may displace natural vegetation and alter habitats.

The volume of trash in the marine environment continues to increase, despite annual state-sponsored clean up efforts, stronger federal regulation of trash dumped at sea, and a public awareness of the need to remove debris from the marine environment.

Accomplishments

- The Maine Coastal Program has sponsored annual Coastal Cleanups for the past seven years. The Cleanups remove tons of debris from Maine shores, involve thousands of volunteers and provide data on the amount and type of debris found on the coast.
- State legislation requiring deposits on certain containers and promoting community-based recycling programs has effectively reduced the amount of plastics and beverage containers in the waste stream.
- The U.S. Coast Guard in Maine enforces the MARPOL Treaty which prohibits ocean dumping of plastics, except for certain accidental loss of fishing nets and regulates the disposal of other solid waste. The U.S Coast Guard also inspects port facilities of a certain size to ensure that the facilities can accommodate solid waste from ships.
- At least 70 coastal towns have local harbor ordinances, most of which prohibit the dumping of waste or refuse.

Problems

- Despite Coastal Cleanups and education efforts, marine debris continues to accumulate in coastal environments.
- Laws prohibiting disposal of litter at sea are difficult to enforce.

2.1 Maine's Key Coastal Management Policies (38 MRSA 1801)

* MARINE RESOURCE MANAGEMENT. Manage the marine environment and its related resources to preserve and improve the ecological integrity and diversity of marine communities and habitats, to expand our understanding of the Gulf of Maine and coastal waters and to enhance the economic value of the State's renewable marine resources.

* WATER QUALITY. Restore and maintain the quality of our fresh, marine and estuarine waters to allow for the broadest possible diversity of public and private uses.

* SCENIC AND NATURAL AREAS PROTECTION. Protect and manage critical habitat and natural areas of state and national significance and maintain the scenic beauty and character of the coast even in areas where development occurs.

2.2 Federal CZMA Legislative Objective

§ 309(a)(4) Reducing marine debris entering the Nation's coastal and ocean environment by managing uses and activities that contribute to the entry of such debris. [1]

2.3 CZMA Assessment Characterization

Identify the impact of marine debris on the coastal zone and the primary sources responsible.

2.31 Scope & Definitions

Plastic bottles, old lobster traps, pieces of net and rope, aluminum cans, and styrofoam chunks that accumulate on beaches and tidal waters are collectively referred to as marine debris. Marine debris includes any manufactured object of wood, plastic, glass, metal, cloth or other material that is disposed of in the marine environment, either purposefully or accidently.

2.32 Available Information/Studies

Marine debris in Maine has been informally surveyed through data collected as part of annual Coastal Cleanups since 1985. Coastal Cleanups are one-day trash collection events coordinated along the Maine coast each fall by the Maine Coastal Program of the State Planning Office. Volunteers record their finds on data cards supplied by the Center for Marine Conservation. Maine Coastal Program staff tally the Maine data and the Center for Marine Conservation compiles the results with other state totals. Survey results are approximate, since data collection is not rigorously controlled, but they are the best indication to date of the types, sources and volume of debris cluttering Maine's coast.

2.33 Assessment of Problems & Issues

a. Impact of Marine Debris

Marine debris is a persistent and growing problem in Maine waters. More than an unsightly mess or nuisance, marine debris can cause serious harm to the marine environment and poses risks to navigation, and human health. Marine debris degrades coastal beaches and habitats and endangers the health of marine and estuarine plants and animals. Marine debris resting on beaches, tidal flats, and submerged bottomlands, covers and displaces the indigenous vegetation and habitat.

Plastics are of particular concern because plastic products float and persist in the marine environment for hundreds of years. Plastic products and styrofoam do not degrade into

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[1] Italicized text is excerpted from federal guidance for the 309 assessments.

harmless products; they break into smaller and smaller pieces of plastic. Fish, birds, marine mammals (including seals and whales), and sea turtles, occasionally ingest or become entangled in plastic marine debris.

Active and abandoned fishing gear presents a hazard to marine wildlife. Lost traps, monofilament line, nets and other fishing gear may continue to entrap marine life for years after disappearing from the harvesters' care. Data on numbers of 'ghost' traps and nets is unavailable; present estimates rely on anecdotal evidence. Current regulations that require degradable vents on lobster traps will reduce the numbers of ghost traps.

A National Marine Fisheries Study in Maine estimated that between 300 to 1,000 harbor porpoises and 50 harbor seals are entangled in active fishing gear along the coast each year (Van Dusen and Schauffler, 1988). These numbers have been challenged, and efforts are underway by marine observers on fishing vessels to substantiate the NMFS estimates. The recent resurgence of the gillnet fishery may pose an increased hazard to marine wildlife.

Marine debris is a visual eyesore affecting the aesthetic value of shore areas. This visual impact may have an economic impact if local property values and use by residents and visitors declines. Marine debris also can foul nets and other fishing gear as well as damage boat props and engines, causing economic loss and safety hazards. Debris-related losses to Maine fishing vessels are unknown, but in 1987, commercial fishermen from the Port of Newport, Oregon reported losses of nearly $1,000 per vessel per year from damage related to marine debris.

b. Extent of Marine Debris in Maine

During the 1991 Coastal Clean-up, an estimated 17 tons of trash was collected from 200 miles of shoreline. Debris was collected all along the coast from urban harbors to remote island shores. According to Maine's Coastal Cleanup Coordinator, the volume of debris has not dwindled with the annual pickups -- beaches scoured clean one year are littered with trash the next. The table below suggests the persistence of the marine debris problem, despite yearly clean-ups.

Summary of Maine's Coastal Cleanup Results (1985-1990)

	Miles of Coastline Covered	Collected per Mile # of Pounds	Collected per Mile # of Items
1985	30	53	439
1986	70	86	338
1987	81	88	240
1988	114	133	455
1989	176	103	689
1990	190	157	684

c. Debris Sources and Categories

The major sources of marine debris in Maine are: boaters--recreational and commercial; sea-side visitors--including tourists, residents and recreational fishermen; run-off of surface waters--including waters from storm drains and CSOs; illegal direct dumping; and shipwrecks. Debris from foreign fishing and merchant vessels outside the Gulf of Maine does not appear to be a problem on the Maine coast. The amount of debris from military operations and vessels is undocumented in Maine waters.

The breakdown of items found during Maine's 1989 Coastal Cleanup, by type of material, was as follows:

Plastic	41%
Styrofoam	16%
Glass	16%
Metal	11%
Paper	9%
Rubber	4%
Wood	2%
Cloth	1%

Styrofoam and polystyrene, used as flotation for docks, buoys, and floats, comprise a significant portion of the marine debris found on the Maine coast. Styrofoam and plastic items accounted for 57 percent of the debris collected during the 1989 cleanup and 61 percent in 1990.

The 121,342 items collected in 1989 included 7,981 plastic bags; 4,550 styrofoam cups; 4,054 glass bottles; 1,192 milk/water jugs; 498 six-pack yokes; 536 balloons; and 359 tires and miscellaneous items (such as a bedpost, windshield, waterbed mattress, hair dryer. Not included in the count were 3 dead herring gulls which apparently died from debris entanglement or ingestion and a bird whose head was caught inside a plastic jug.

Packaging debris such as oil cans, bleach bottles, beverage cans and bottles, styrofoam cups and plastic bags are common on Maine shores. Such debris is left by recreational and commercial boaters and by seaside visitors to beaches, parks and other public access points. An unknown amount of packaging debris washes off roads through combined sewer overflows and storm sewers during heavy rains. Coastal rivers transport trash from inland areas, particularly during spring floods and storms.

In the summer of 1989, medical waste washed ashore on Crescent Beach State Park in southern Maine. This incident sparked concern for medical waste disposal, and the Department of Conservation developed a policy for handling medical waste items in the event medical waste is discovered on state managed beaches. The Crescent Beach event appears to be an isolated incident since no further medical waste has been discovered during coastal cleanups.

Fishing and boating gear (nets, lobster traps, pieces of rope, rubber boots, plastic fish totes, and clamming gloves) account for approximately 9.6 percent of the marine debris collected during the 1989 cleanup in Maine. Commercial fishing, recreational fishing, and aquaculture activities account for most of this type of debris.

Boat accidents and abandonments contribute marine debris to Maine waters. Recent efforts to salvage the Empire Knight, a vessel which sunk off the coast of Kittery in 1944 with military and civilian cargo, has focused attention on the potential for hazardous waste releases during salvage operations. Rotting hulls of schooners lie in many coves along the coast. While some view the boat skeletons as historic reminders of a bygone era, others view them as marine debris.

d. Projections/Trends

The table above from Maine Coastal Cleanups indicates that marine debris continues to accumulate on Maine shores despite yearly removal, and that the amount of debris is increasing. Marine debris will continue to impact Maine waters as use of coastal waters and shorelands intensifies.

2.4 Federal CZMA Programmatic Objective -- Reduction of Marine Debris

Develop or revise programs that reduce the amount of marine debris in the coastal zone.

* *Develop or enhance state and local programs that require recycling and reduce littering and wasteful packaging in the coastal zone.*

* *Establish state and local regulations consistent with the Marine Plastic Pollution Research and Control Act of 1987 and develop enforcement strategies and programs.*

* *Incorporate marine debris concerns into harbor, port, marina and coastal solid waste management plans.*

* *Develop or enhance programs within the state which educate the marine community about debris, and state and local reduction requirements.*

2.41 Existing Laws, Regulations, Programs

a. Recycling and Litter Reduction

Title 17, the Litter Law, sections 2264-2267, prohibit the disposal of litter on public land or private property not owned by the litterer and all waters and ice. The law further specifies that "no person shall throw, drop, deposit, discard or otherwise dispose of litter from any watercraft upon private or public property ....upon any public beach or into any waters within the jurisdiction of this State". All enforcement officers of the State (including State Police, local police, county sheriffs, Department of Marine Resource wardens and Department of Inland Fish and Wildlife wardens) are authorized to enforce the litter laws.

In 1991, six-pack rings were banned from use in packaging by the State legislature, with a provision that the Department of Food and Rural Resources could exempt six-pack rings that met certain criteria. A bill introduced in the same session to prohibit the outdoor release of helium-filled balloons failed passage.

Effectiveness: Legislation to promote community-based recycling programs and the formation of the Maine Waste Management Agency has effectively reduced the amount of plastics and beverage containers in the waste stream and increased public awareness of waste disposal issues. The state bottle bill has undoubtedly decreased the amount of beverage containers left as marine debris. The Center for Marine Conservation reports that states with bottle deposit laws have significantly fewer beverage containers collected during cleanups (CMC 1989).

b. State Consistency with the Marine Plastic Pollution Research & Control Act

The federal government regulates the disposal of waste at sea outside of Maine waters (beyond the three-mile limit). State law regulates the discharge of waste into State waters and issues NPDES permits.

Annex V of the International Convention for the Prevention of Pollution of Ships is an international treaty ratified December 31, 1988, that prohibits ocean dumping of plastics (except for certain accidental loss of fishing nets) and regulates the distance from shore that other solid waste materials may be dumped. Known as the MARPOL treaty, Annex V

requires party nations to have adequate port facilities to accommodate ships' garbage. Debris from military vessels is exempt from MARPOL jurisdiction.

The Marine Plastic Pollution Research and Control Act of 1987 (Public Law 100-200, Title II) was enacted by the U.S. Congress to implement the MARPOL Treaty. Title II required the U.S. Coast Guard to be responsible for enforcement. The Act to Prevent Pollution from Ships (33 USC 1901 et seq.) authorizes the Coast Guard to administer and enforce the provisions of Annex V and provides for civil and criminal penalties for willful violators of the Act.

Effectiveness: Enforcement of the MARPOL discharge provisions is difficult and the Coast Guard is concentrating on education and increasing the availability of port-side disposal facilities to ensure compliance. The Coast Guard requires ports which receive ships subject to Annex I and II of the MARPOL Treaty or which receive more than 500,000 pounds of fishery products to have a Certificate of Adequacy (COA). The COA assures that the port has adequate facilities to handle ship refuse. In addition, all marinas and recreational boating facilities with slips for over 10 boats are required to have adequate waste reception facilities (USDOC, 1990). In Maine, 46 port facilities have COAs for garbage and/or oily waste. Port facilities with COAs include power stations and shoreside industrial facilities (ie., BIW). All commercial vessels and recreational boats beyond a certain size are required to post placards with MARPOL regulations and procedures for trash disposal.

Various state laws regulate the discharge of substances into Maine coastal waters, but do not specifically mention marine debris. Sections of the Protection and Improvement of Waters (Chapter 3 of Title 38, Waters and Navigation Act) requires licenses for the discharge of pollutants to inland and coastal waters of the state. Section 423 prohibits the discharge of sewage, garbage and other pollutants from watercraft into inland waters, on ice or banks. Coastal waters are not included in the language of this section.

c. Coastal Solid Waste Management Plans

Under Title 38, towns have the authority to adopt local harbor ordinances which may include sanitation regulations that prohibit the discharge of debris and other substances into harbor waters. Local harbor masters must enforce state statutes as well as locally adopted ordinances.

Effectiveness: As of October 1991, 70 coastal towns (out of 96 with significant harbors) have local harbor ordinances. Although the language of the ordinances varies, most include a standard provision prohibiting the dumping of waste or refuse.

d. Educating the Marine Community

In the past, coastal communities often located dumps on salt marshes and along bays. Old automobiles and tires were routinely disposed of in the ocean, ostensibly to provide artificial reefs for fish. Household trash was commonly dropped off the edge of the fishhouse dock each day before the fishermen boarded his boat. These practices were discontinued decades ago, although until recently, some island communities continued to dispose of municipal trash in the sea.

State environmental regulations and educational campaigns by state agencies and private conservation groups have raised public awareness of the consequences of disposing of plastics and other debris in the ocean. In 1990, the Bureau of Parks and Recreation/ Department of Conservation instituted a carry in/carry out policy at state parks that encouraged visitors to take their trash home for appropriate disposal. The program began in response to the mounting costs and time spent on solid waste disposal at state parks and historic sites. The program has been successful and reduced rubbish at some areas by 80 percent.

Yearly Coastweek and Coastal Cleanup events, organized by the Maine Coastal Program of the State Planning Office, have focused attention on marine debris and have been an effective vehicle to directly involve the public in conservation efforts and to generate publicity on marine debris issues. Maine Audubon, Maine Island Trail Association and other private conservation groups throughout the state have worked to reduce the amount of marine debris by participating in coastal clean ups and developing public education materials.

2.42 Options for Improvement

- The effectiveness of Coastal Cleanup efforts should be reviewed and evaluated.
- Develop a campaign to educate tourists about the importance of proper disposal of trash while visiting the coast and the problem of marine debris. Target visitors who may not have bottle return or recycling programs in their home states.
- Propose legislation that places deposits on oil bottles and boat-related products (toxic paints, cleaners, etc.). Promote refillable bottles.
- Extend local recycling programs to marinas, public docks and commercial wharves.
- Establish a model marine debris recovery and recycling project in an active port. The pilot project would explore incentives to promote compliance with debris disposal laws and funding strategies.

- Target education efforts at major marine user groups such as, beach goers, commercial fishermen and recreational boaters. Publicize local regulations and federal laws prohibiting disposal of debris at sea. Distribute information on recycling and marine debris with boat licenses.

- Develop incentives for proper disposal of boat waste (and sewage pump-out) at marinas.

- Expand the BPR/DOC carry in/ carry out program to include recycling efforts at state parks and campgrounds.

2.43 Baseline for Measuring Progress

Coastal Clean-up Data Collection -- Monitor track specific stretches of shore in diverse areas of the coast for change in composition or volume of trash over a number of seasons and years.

2.5 Available Information/ Studies

Debenham, Patty and L.K. Younger. 1991. "Cleaning North America's Beaches, 1990 Beach Cleanup Results," Center for Marine Conservation, Washington, DC.

Griffin, Nancy and K. Van Dusen. 1990. " Report on Coastweek/Cleanup 1990," Maine Coastal Program, State Planning Office, Augusta, ME.

Recht, Fran. 1988. "Dealing with Annex V - Reference Guide for Ports," NOAA Technical Memorandum NMFS F/NWR-23, U.S. Department of Commerce, NOAA, National Marine Fisheries Service, Seattle, WA.

Schauffler, Flis. 1989. "Maine's Coastal Cleanup '89 Summary Report and Recommendations," Maine Coastal Program, State Planning Office, Augusta, ME.

Section 309 Assessment

3. PUBLIC ACCESS

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Public Access

CONTENTS

3.0 SUMMARY

Public access to the coast embraces both physical access to the shore as well as visual access to traditional coastal landscapes. Access to the coast of Maine is limited. Although Maine has more than 3,600 miles of tidal coastline, less than 7 percent is owned by public entities. Public access sites are used for recreation, boat launching, shellfish harvesting, hunting, fishing and many other traditional uses.

Accomplishments

- Maine has over 1,000 documented public access sites on the coast, including state and federal lands and parks, town-owned lands, boat ramps, picnic areas, lands in conservation ownership, and privately-owned lands and paths traditionally used by residents and visitors.

- State agencies administer several programs funded with federal and state dollars to acquire access sites on the coast.

  In particular, the Land for Maine's Future Program, established with a voter-approved bond issue in 1988, has acquired over 3,553 acres of coastal property with more than 16 miles of combined shore frontage.

  More than 35 coastal boast launching facilities are maintained by the Department of Conservation.

  The Land and Water Conservation Fund managed by the Department of Economic and Community Development and funded by federal dollars, has also acquired properties along the coast for public use.

- More than 60 local land trusts and other non-profit organizations retain easements on or own islands and other coastal lands in Maine.

- The towns of Brunswick, Freeport, Yarmouth and Cumberland recently discovered a 1727 ordinance that allows the public expanded rights to access shorelands within the boundaries of colonial North Yarmouth.

- State laws and regulations promote public access to the coast.

  State shoreland zoning guidelines and the Subdivision Review Act instruct local planning boards to to ensure that proposed activities conserve access to inland and coastal waters.

Submerged Land Rules that cover leasing of submerged tidal lands, may require applicants to provide public access.

In addition, local comprehensive plans must be consistent with the state coastal policies promoting public access and giving preference to water-dependent uses over other uses.

- Coastal Public Access in Maine , a report prepared by the Maine Coastal Program, inventories public access sites along the coast. Many coastal communities have inventoried public access sites and needs as part of past and current comprehensive planning efforts.

- The State Planning Office recently completed an assessment of port and harbor needs including repair or new construction of piers and docks as well as access facility needs.

Problems

- Subdivisions and transfer of ownership of coastal shorefront lands jeopardies the Maine tradition of free and easy passage over private lands to tidal waters.

- Funding for public land acquisition and maintenance has declined significantly.

- Current laws and regulations lack the criteria needed to consistently expand access opportunities during the land use permitting process at the state and municipal level.

- Access to the shore is limited by private ownership rights that extend down to the low tide mark. The public has the right to access intertidal areas for fishing, fowling, and navigation activities. In other states, public access rights in intertidal areas include recreation.

- Public beach sites in southern and mid-coast Maine are intensively by the public, resulting seasonal parking problems and overcrowding.

- In some areas of the coast, recreational users compete with traditional maritime users for mooring space and land-based service facilities.

3.1 Maine's Key Coastal Management Policies Relating to Public Access (38 MRSA §1801)

* SHORELINE MANAGEMENT & ACCESS. Support shoreline management that gives preference to water-dependent uses over other uses, that promotes public access to the shoreline and that considers the cumulative effects of development.

* PORT AND HARBOR DEVELOPMENT. Promote the maintenance, development and revitalization of the State's ports and harbors for fishing, transportation and recreation.

* RECREATION & TOURISM. Expand the opportunities for outdoor recreation and encourage appropriate coastal tourist activities and development.

3.2 Federal CZMA Legislative Objective

§ 309(a)(3) Attaining increased opportunities for public access, taking into account current and future public access needs, to coastal areas of recreational, historical, aesthetic, ecological, or cultural value.[1]

3.3 Federal CZMA Assessment Characterization

Characterize the adequacy of existing public access site improvements and maintenance programs.

3.31 Scope & Definitions

In Maine, coastal access includes physical and visual access to coastal shorelands, waters and resources by the public for a variety of uses. Under state statute, water-dependent uses, those shoreline uses that require a shoreside location--such as fish docks and boatyards--are priority uses of shorelands.

There are over 1,000 access sites (publicly and privately-owned) along Maine's 3,500-mile coastline. Access sites in coastal Maine include state and federal lands and parks, municipally-owned lands, boat ramps, picnic areas, undeveloped lands in non-profit conservation ownership, and privately-owned accessways and shore sites historically used by fishermen and other residents.

Less than 7 percent of Maine coastal shoreline is publicly-owned. A small percentage is owned by non-profit conservation groups and the remainder by private individuals and corporations. Of the known public access sites along the coast approximately 40 percent are owned by local governments and approximately 38 percent are privately-owned. These limited access opportunities must serve the more than 600,000 residents living in the 144 coastal municipalities as well as the influx of seasonal visitors that migrate to the coast each summer.

3.32 Available Information/Studies

In 1988, the Maine Coastal Program updated previous access inventories and compiled a data base of over 1000 known coastal access sites including 682 publicly-owned access sites in coastal communities (Dawson, 1990). To date, the Dawson report is the most authoritative source of information that characterizes the extent of shore access opportunities. At the local level, many

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[1] Italicized text is excerpted from federal CZMA guidance for Section 309 assessments.

coastal communities have inventoried public access sites and assessed access needs as part of comprehensive planning efforts.

A recent planning study of Maine's port and harbor facilities included public access and land acquisition needs as well as needs for new construction, repair and rehabilitation of piers, docks and wharves. Priority projects were identified by surveying municipal officials, user groups and State agencies, and a funding strategy recommended for legislative action in 1990 (Sasaki Associates, 1990).

3.33 Assessment of Problems & Issues

a. Access Issues

Recreational access -- In coastal areas with strong tourism and recreation industries, shore access for recreational purposes and visitor management are key concerns. These areas are primarily in southern and mid-coastal Maine.

Commercial fishing -- In areas with fishing fleets, commercial fishermen are threatened by competition from recreational boaters vying for shoreside facilities and use of marine waters. In addition, water dependent uses also compete with residential and commercial users for location along the limited coastal shoreline.

Overcrowding -- Irrespective of the type of access being provided, Maine is concerned about the environmental, economic and cultural impact of the increased use of the waters and shorelands. Several island communities have taken measures to limit the impact of visitors, for example.

In 1986, approximately two thousand state residents were surveyed to identify the problems, at that time, concerning access to the coast (SPO, 1986). The survey found about 41 percent of the boaters, commercial fishermen, diggers, and surfcasters surveyed from all sections of the coast, perceived that access to the coast was more difficult at the time of the survey than in the past and that traditional access paths over private lands to the coast for clam and worm digging and duck hunting were significantly restricted because of posting and changes in property ownership. Most respondents agreed that government should establish more rights-of-way.

Although survey respondents perceived that certain state parks were overcrowded and parking was a problem at some access facilities. Recent surveys by the Bureau of Public Recreation show that crowding is not a problem and that Reid and Popham state parks (two of the most popular Maine beaches) are filled to capacity on only about ten days during the summer.

Other access issues include: concerns about the liability of landowners who provide public access ways for recreational users; a decline in coastal water quality attributable in part to increased water and shoreland use; the need to increase protection of public trust rights; the need for increased protection of sites for water-dependent uses; and the need for improved management of tourism in ecologically sensitive areas.

b. Coastal Access Needs

Maine currently has very limited information to assess the current level of use at most access facilities and the quality and condition of those facilities. Furthermore, the need for specific access facilities have not been identified on the local level. Consequently, a priority for Maine is to develop a rigorous approach to evaluating public access needs along the coast. This approach would define access needs geographically and the types of access needed. In lieu of this rigorous approach, Maine has developed the following inconclusive information on coastal access needs.

The extent and type of public access needs vary regionally along the coast. There are numerous access facilities on the Maine coast, but, they are unevenly distributed. Demand for different types of public access varies from region to region. For example, some crowded harbors need more and improved facilities (i.e. wharves, moorings, etc.) for all types of boaters. Other harbors require service facilities to accommodate recreational boaters and to keep commercial harvesters. Shellfish and worm diggers often require accessways over private lands to reach productive flats.

In 1988, the Maine Bureau of Parks and Recreation (BPR) prepared a regional needs analysis for recreational facilities as part of the Maine Assessment and Policy Plan for Outdoor Recreation. The coastal access information was organized to correspond to five planning regions:

South Coast Region -- Coastal towns in York and Cumberland counties except Brunswick and Harpswell.
Mid-Coast Region -- Brunswick, Harpswell, all coastal towns in Sagadahoc County except Richmond, and all coastal towns in Lincoln, Knox, and Waldo Counties.
Kennebec Valley Region -- Richmond and all coastal towns in Kennebec County.
Downeast/Acadia Region -- All coastal towns in Penobscot and Hancock Counties.
Sunrise County Region -- All coastal towns in Washington County.

The BPR study projects acreage needs by 1993 for ocean swimming, picnic, and boat access in each planning region. The

analysis concludes that needs vary considerably along the coast, with projected general access needs the highest for the Downeast/ Acadia Region followed by the South Coast Region, the Mid-coast Region, the Kennebec Valley region, and finally, the Sunrise County Region.

The Dawson study (1990) concludes from previous SPO and BPR surveys that boat access sites are most needed in the South Coast region, followed by the Mid-coast, Kennebec Valley and Downeast/Acadia Region; ocean swimming sites are most needed in Downeast/Acadia, followed by the Mid-coast, Sunrise County and South Coast Regions, and coastal picnic sites are most needed in Downeast/Acadia followed by South Coast and the Kennebec Valley Regions.

3.4 Federal CZMA Programmatic Objective I -- Coastal Access Regulations

Improve public access through regulatory, statutory, and legal systems.

- *Develop and revise state/local statutes and regulations to better provide public access, including utilization of permit conditions.*

- *Assist and encourage local governments in revising local ordinances to provide for additional public access.*

- *Develop legal strategies based on the public trust doctrine and other public interest doctrines to protect and enhance opportunities for public access.*

- *Increase the use of federal consistency as a tool to require public access.*

3.41 Existing Laws and Regulations

a. Legal Doctrines Securing Public Access Rights --

Ownership & Access Rights under the Colonial Ordinances

Most owners of shorefront property in Maine own the land between the high and low tide marks as well as adjacent uplands. Land below the mean low water mark (out three miles to federal waters) is owned and managed by the State. Under the Colonial Ordinance of 1641-1647, the public has certain rights in intertidal areas which include access for fishing, fowling and navigation. In the Moody Beach case of 1988, Maine's Law Court ruled that the traditional public rights in intertidal areas did not include recreational use.

Easement by Prescription

The public may acquire rights to continue to use a piece of

property by prescriptive use, if the general public has made continuous and uninterrupted use of the property for at least twenty years "under a claim of right, adverse to the owner, with his knowledge and acquiescence, or by use so open, notorious, visible and uninterrupted that knowledge and acquiescence will be presumed." Legal establishment of these rights may be quite difficult, however, as illustrated by the Moody Beach Case.

The doctrine of custom can also be used to secure public rights to land and is recognized by the Maine Law Court as part of common law. To establish rights under this theory several conditions must be proved including that use has been in effect "so long as the memory of man runneth not to the contrary."

b. State Laws Establishing Access Rights

Five state laws grant the state and towns authority to establish and protect public access to coastal resources. Those laws are:

the Comprehensive Planning and Land Use Regulation Act of 1988 (Growth Management Act) (30-A M.R.S.A. 4311 et seq.);
the Coastal Management Policies Act of 1986 (38 M.R.S.A. 1801 et seq.);
the Mandatory Shoreland Zoning Act (38 M.R.S.A. 435 et seq.);
the Subdivision Review Act (30-A M.R.S.A. 4401 et seq.); and
the Submerged Lands Act (12 M.R.S.A. 558-573).

The Coastal Management Policies and the Growth Management Goals expressed in the Growth Management Act, seek to promote coastal access for recreational and commercial uses. Local comprehensive plans and implementation programs required for all communities by the Growth Management Act must be consistent with these state policies. The Office of Comprehensive Planning (OCP) in the Department of Economic and Community Development reviews comprehensive plans of coastal communities to ensure that the coastal policies and state goals are addressed.

The minimum guidelines for ordinances required by the Mandatory Shoreland Zoning Act encourage designation of appropriate areas that are uniquely suited to water-dependent use development. The Submerged Lands Act gives priority to commercial fishing interests over other uses for submerged lands.

The Subdivision Review Act allows towns with subdivision review authority to consider a development proposals' effect on public access to the shore. The act specifies that proposal approval must not have "undue adverse effect on ... public rights for physical or visual access to the shoreline."

Submerged Land Rules, Chapter 3.6 (A)(2)(d), of the Submerged Lands Act allow the Bureau of Public Lands to require applicants to provide free public access for water dependent or associated uses (MLI,1987). The Submerged Lands Law is the only state legislation that specifically mentions the Public Trust Doctrine, and then only with reference to lands below the low water mark. The conversion of existing water dependent use sites to non-water dependent uses are limited on submerged lands and state-owned tidelands.

Federal Consistency

The Maine State Planning Office, through the Maine Coastal Program (MCP), can require federal projects to be consistent with state coastal policies and laws. The consistency provisions are authorized under Section 307 of the Federal Coastal Zone Management Act (CZMA, 16 U.S.C. 1456). Examples of listed direct federal activities eligible for consistency review by the MCP which may be used to improve public access are: proposed new National Park or U.S. Fish and Wildlife acquisitions, locations and design of communication, air navigation and Coast Guard facilities, and the disposal of federal surplus lands. Many federal licenses are also subject to consistency review, such as Section 404, Army Corps of Engineers permits and NPDES (discharge) permits from the Environmental Protection Agency.

c. Effectiveness

Current state laws and regulations were not written to be used in a proactive manner to increase the extent of shore access sites. In 1986, state legislation was approved that required the provision of shore access under certain conditions but it was subsequently rejected by the law court.

The Mandatory Shoreland Zoning Act authorizes, but does not require protection of physical and visual access to the shore. The model Minimum Shoreland Zoning Ordinance does not include specific criteria and standards for conservation of public accessways. Towns may adopt general zoning ordinances which overlay shoreland areas to include public access and use provisions. Towns which adopt the minimum state ordinance without modification to include access provisions or criteria, lack the legal framework to include access consideration in permit review decisions.

To date, few coastal towns have incorporated guidelines or criteria designed to protect public access into local shoreland zoning or subdivision ordinances. Towns that have obtained access provisions or easements in shoreside developments usually acquire the concessions during negotiations while the plan is being reviewed by the town planning board.

Shoreland and other ordinances (including subdivision

ordinances) must be based on a comprehensive plan. If the town does not address public access in its comprehensive plan, access provisions cannot be included in town ordinances.

State law regarding prescriptive easements is clear and allows municipalities to explore historic rights-of-way to determine their ownership. To establish rights by prescriptive use, the land must have been used with the owner's knowledge and "acquiescence"--meaning that consent was given silently without express permission. This is difficult to prove under Maine law. Maine courts presume use of "wild and uncultivated land," including private beaches used by the public, are used with permission of the owner (Burrowes, 1990).

The Moody Beach Case decision which barred the public from recreational use of a privately-owned beach in Wells, Maine is a serious setback to the use of the doctrine of custom as a tool for establishing public access rights, although recent work researching the 1727 North Yarmouth Colonial Ordinance may offer some new possibilities.

The Submerged Lands Law authorizes the Director of the Bureau of Public Lands to require public benefits (such as public access) from submerged lands leases. Specific rules detailing implementation of this provision are under review.

3.42 Existing Programs

a. Scope

Coastal Access Coordination -- Coastal access inventory data and technical assistance materials are available from the Maine Coastal Program. In addition, the office of Comprehensive Planning (OCP) provides technical assistance to towns regarding public access and reviews public access components of municipal comprehensive plans. Handbooks available from OCP/DECD include:

* "Coastal Right-of Way Discovery Programs"
* "Liability"
* "Planning and Implementing Public Shoreline Access."

The Coastal Right-of Way Discovery Project -- The Marine Law Institute of the University of Southern Maine researched traditional access points in eight Maine communities to determine if the public had access rights to certain areas. A handbook, "Coastal Right-of Way Rediscovery Programs" was developed to assist communities interested in discovering and maintaining traditional rights-of way to the coast.

Interagency Task Force on Marine Infrastructure - In 1989, the Legislature established a Task Force to assess marine infrastructure needs and priorities. The final report from this

task force will be published in early 1992.

Several towns have passed bond issues to purchase land, and others have worked with public and private groups to acquire important shorefront parcels.

b. Effectiveness

The Coastal Right-of Way project ceased with the publication of the handbook. Efforts by local officials to establish traditional rights-of way have been hampered by the costs involved in documentation and legal difficulties involved with establishing prescriptive easements.

3.43 Options for Improvement

- Identify areas where traditional access to intertidal areas is threatened or has been cut-off by development and negotiate easements. Support local efforts to acquire access through technical assistance and grants.
- With local land trusts, support a voluntary landowner cooperation program which pursues agreements with private landowners to allow limited public use of shorelands.
- Develop criteria and guidelines to ensure public access provisions in certain shoreland development projects subject to local shoreland zoning and subdivision ordinance review. Develop sample ordinance provisions that address access and continue technical assistance to towns.
- Amend the Natural Resources Protection and the Site Location of Development rules to require developers to demonstrate that their project does not interfere with existing legal rights of access.
- The Maine Coastal Program should actively use consistency requirements of the federal Coastal Zone Management Act to expand public access opportunities during federal activities such as sale of surplus government property along the coast.
- Develop a strategy to expand the public trust doctrine in Maine. Investigate applications of the public trust doctrine to intertidal lands beyond the narrow interpretation of the Moody Beach Case.
- Continue implementation of the Right-of-Way Discovery Project by defraying expenses of local documentation efforts.

- Convene periodic access workshops with towns, non-profits and other entities to address coastal access issues.

- Legally reassert the traditional rights of the public along the shorefront of the towns of Brunswick, Freeport, Yarmouth, and Cumberland. A 1727 North Yarmouth colonial ordinance was recently rediscovered that set aside an upland shorefront path, about 50-feet wide, from the Royal River to the Cumberland-Falmouth border and designated the area between the high and low tide mark as a public commons.

- Incorporate the Submerged Lands law as a core law of the Maine Coastal Program.

- Amend the model state Shoreland Zoning Ordinance to include guidance and language for consideration of physical and scenic access in permit review decisions more specific.

- Encourage municipalities to develop public access plan addenda to their comprehensive plans.

3.5 Federal CZMA Programmatic Objective II -- Funding & Acquisition of Coastal Access Sites

* *Acquire, improve, and maintain public access sites to meet current and future demand through the use of innovative funding and acquisition techniques.*

- o *Develop and enhance a unified state process for funding acquisition, improvement, and maintenance of coastal public access sites.*

  -- *Assess impact fees and utilize special assessments, bond issues, and other techniques.*
  -- *Assess user fees and other techniques, where appropriate.*

- o *Coordinate with other state and federal agencies that provide funds related to the provision of public access to insure that highest priority sites are acquired, improved, and maintained.*

- o *Coordinate with other public and private entities that own or manage shoreline areas in order to meet the needs for public access.*

  -- *Encourage cooperative efforts between land trust organizations and government agencies providing funds*

for acquisition of public access sites.

-- *Coordinate with the National Flood Insurance Program to acquire property that has been damaged by natural hazards and is unsuitable for rebuilding.*

-- *Encourage the utilization of surplus public properties, abandoned railroad corridors, and other opportunities to help meet needs for shoreline public access.*

o *Develop or enhance programs to encourage landowners to dedicate property and easements for public access.*

3.51 Existing Programs

a. Scope

Public Facilities for Boats Program - Administered by the Department of Conservation/ Bureau of Parks and Recreation, the program maintains 35 coastal launching facilities and acquires new sites with revenue from the Boating Facilities Fund. The fund annually receives a portion (approximately 1 percent) of the state gasoline tax that is paid by non-highway users of fuel.

Waterfront Access Grant Program - Administered by the Department of Economic and Community Development/ Office of Comprehensive Planning, the Waterfront Access Grant Program is funded through the Maine Coastal Program with federal funds. The program provides matching grants on a competitive basis to communities for acquisition and improvement of public access sites. This program requires all sites and approach roads to be posted with standard Shore Access signage.

Wallop-Breaux Fund - Administered by the Department of Inland Fisheries and Wildlife, Wallop-Breaux monies are used to acquire coastal lands for habitat protection and recreational access. Monies from the federal fuel tax are allocated to the fund.

Land For Maine's Future Program - Established in November 1988 with a voter-approved bond issue, LMFB has acquired over 3,553 acres of coastal property with more than 16 miles of combined shore frontage. The Land for Maine's Future Program is administered by the Natural Resource Policy Division of the State Planning Office. The original funds allocated for land acquisition by LMFB are nearly spent. Maine voters will vote on a referendum to replenish funding with a five million dollar bond issue this November (1991).

Land and Water Conservation Fund (LAWCON) - Administered by the Department of Economic and Community Development/ Office of

Comprehensive Planning, LAWCON has played a major role in funding access acquisitions along the coast and inland. Revenue for the fund comes from fees paid by offshore oil well leases to the federal government. The National Park Service disperses the funds to the states annually. Maine's annual share has ranged from a high of 3.2 million to recent funding levels of approximately 165,000 dollars.

Recently, LAWCON funds were used to help develop beach facilities at Sandy Point Beach, acquired in the coastal town of Stockton Springs under the Land for Maine's Future Board Program. This is a good example of the use of multiple funding sources for access projects where individual sources are insufficient by themselves. Some cooperative projects involving LAWCON, Coastal and Community Development Block Grant (CDBG) sources include the Belfast waterfront improvements, the Augusta Waterfront Park, and the Gardiner Landing.

Shoreline Access Protection Fund - This account was never funded, since a bond issue, to be used to finance the fund, was defeated by Maine voters in 1986.

Non-profit Conservation Organizations - Conservation organizations including Maine Coast Heritage Trust, National Audubon Society, Maine Audubon, The Nature Conservancy, Island Institute, local land trusts and municipalities are actively acquiring easements or property on coastal lands for conservation and public access enhancement purposes.

b. Effectiveness

The Waterfront Action Grant (WAG) Program has successfully promoted access initiatives at the local level, as indicated by the descriptions of funded projects available from the Office of Comprehensive Planning in the Dept. of Economic and Community Development, and by the interest in new grants. Limited funding by the Maine Coastal Program is the primary constraint on the program; no funds were available in 1991. Reactivation of the WAG program will require raising its priority in relation to other State uses of CZMA funds, and depend on overall federal CZMA funding levels.

There is coordination among state agencies acquiring and managing lands. The Land for Maine's Future Board's strategies and guidelines for acquisition (LMFB, 1990) were developed in cooperation with the Departments of Agriculture, Food and Rural Resources, Conservation, Economic and Community Development, Inland Fisheries and Wildlife, Transportation and the State Planning Office and with input from private conservation groups in the state.

Scarcity of funding and soaring land costs limit the extent

of coastal land purchases for public access and other purposes. Private conservation organizations and state agencies are employing options to fee-simple land acquisitions such as purchase of development rights and conservation easements. Recent slow real estate market conditions have allowed the purchase of several large waterfront parcels by LMFB and other groups at reasonable costs.

3.52 Options for Improvement

- Explore alternative sources of funding to support land acquisitions and public access facility repair at the state and local levels.
- Develop tax incentives and other tools needed to facilitate the transfer of easements, development rights and right-of-ways from private landowners to the public while protecting the revenue base of coastal communities.
- Fund and support local research into historic right-of-ways to the coast.
- Publish a coastal access guide to inform people of coastal access locations and the range of access possibilities.
- Fund and provide technical assistance to towns for the development of harbor plans which establish priorities for the use of harbor waters and waterfront.
- The Maine Coastal Program should convene a workshop to discuss access needs, current programs and ways to improve them such as, how to strengthen existing public/ private partnerships to improve access. Participants in the workshop should include all access program managers, individuals active in land conservation, selected municipal leaders and the public.
- Restore Waterfront Action Grants and raise their priority for Coastal Program funding. Seek federal approval for a ceiling higher than $50,000 on Waterfront Action Grants to reflect costs of coastal access acquisition and development more realistically.
- Investigate alternative funding for the Shoreline Access Protection Fund.
- Facilitate cooperation between municipalities and State and national parks to ensure consistency with local plans.

- Ensure that Maine ports and harbors continue to be open to all on an equal basis regardless of residency.

- Establish a single State point of contact to provide coordination for public access issues.

3.53 Baseline for Measuring Progress

Specific objectives for improving the quantity and quality of access sites along the coast need to be developed. These objectives would be established once a rigorous process for evaluating current access needs is developed and implemented.

3.6 Federal CZMA Programmatic Objective III -- Coastal Access Plan

Develop or enhance a Coastal Public Access Management Plan which takes into account the provision of public access to all users of coastal areas of recreational, historical, aesthetic, ecological, and cultural value. The plan should have adequate implementation mechanisms and include sections that:

* *Develop or update public access inventory, maps of and guide to all existing and potential public access sites.*

* *Identify site selection and design criteria, management, and maintenance issues for each type of public access.*

* *Assess current and future demand for public access.*

* *Incorporate pertinent sections of the State Comprehensive Outdoor Recreation Plan into the Coastal Public Access Management Plan.*

* *Update and/or designate public access sites as Areas of Particular Concern, Areas for Preservation or Restoration, or special management areas.*

* *Ensure that signage is provided for all public access sites.*

* *Ensure that all users of the coast, including handicapped individuals, are afforded the same public access opportunities.*

* *Increase community support and cooperation through public education and involvement.*

* *Incorporate existing public access policies.*

3.61 Existing Coastal Access Plans

a. Scope

To date the only coastal access management plan is the "State Comprehensive Outdoor Recreation Plan (SCORP)(BPR, 1988) which summarizes access needs and information for the coastal planning regions. In addition, the Maine Island Trail Association and the Bureau of Public Lands have prepared plans that respond to priority coastal island issues including coastal access.

b. Effectiveness

The SCORP is reasonably effective in identifying and analyzing coastal access issues. Improvements in the Plan would be possible if additional funding were made available for access planning.

3.62 Options for Improvement

- The Maine Coastal Program should work with the SCORP steering committee planning the 1993 SCORP to include a coastal section emphasizing coastal specific access issues.
- Develop a 10-year coastal plan that all coastal towns and interested federal and State agencies can agree to.
- Establish goals for each type of public access facilities in each planning region or section of coast. Work with municipalities to incorporate these goals into public access sections of their comprehensive plans.

3.7 Federal CZMA Programmatic Objective IV -- Minimizing Adverse Impacts of Public Access

Minimize potential adverse impacts of public access on coastal resources and private property rights through appropriate protection measures.

a. Balance the provision of public access in meeting current and future demand with the protection of environmentally-sensitive areas and other natural resources.

- *Develop a system to evaluate the environmental sensitivity and amount of use of existing and proposed access sites.*
- *Provide for periodic site inspections to assess the impact of public access use on the surrounding ecosystem.*

- *Provide for alternatives such as visual access to protect sensitive coastal areas.*

b. Safeguard the rights of private property owners who dedicate property for public use, and those of adjacent property owners.

- *Encourage the adoption of a limited liability provision for property owners who donate property or easements.*

- *Provide for the security and maintenance of public accessways on or adjacent to private property.*

3.71 Existing Laws, Regulations, Programs

a. Scope

Liability -- The Maine Tort Claims Act (MCTA) limits the liability of the state of Maine and municipalities with respect to use of public recreational facilities. 14 M.R.S.A.159-A (Statutory Liability Limitation) limits liability of private landowners that allow the public to access their land. The "Limited Liability for Recreational or Harvesting Activities" provides that a landowner does not have to protect a person who enters his or her land for recreational or harvesting purposes from injury.

The DECD distributes information on public access including a booklet which deals with the liability issue. In addition, the Marine Law Institute (1990) publishes a brochure "Protection against Liability for Landowners who Allow Public Access" discussing laws protecting private property owners from liability.

Environmental Impacts -- Fragile coastal environments are threatened by the increasing numbers of people drawn to the coast. The Natural Resource Protection Act (NRPA) prohibits development that impacts sea bird nesting sites, bald eagle nests, certain wetlands of high value and other natural areas of significance. Many small developments and public access activities are not regulated by NRPA. Managers in the resource agencies that manage public lands along the coast design appropriate conservation plans for the sites including appropriate types of public access. Several private conservation organizations promote visitation to certain sites that do not disturb the wildlife or habitat. Coastal islands, in particular, are very vulnerable to human disturbance.

b. Effectiveness

Existing laws and programs rarely address the potential adverse impacts of increased access on coastal resources. Impacts from public access are considered after the effects are noticed

and are seldom anticipated in state and local permitting processes.

3.72 Options for Improvement

- Ecotourism, tourism which minimally impacts the environment, should be promoted and facilities developed to encourage this type of coastal use.

- The MCP should work with other agencies (and non-profit groups) that design access opportunities to pursue development of low-impact access sites such as greenways that would be different from the traditional (high impact) drive-up sites with boat ramps and camping services.

- Tourism carrying capacity studies should be conducted that would include the quality of the visiting experience and the environmental impact of tourism on sites being visited.

- As part of the 10-year Coastal Plan, state agencies should work cooperatively to develop a physical and visual access plan for Route 1 (as Pacific States have done) that seeks to preserve the water views and scenic vistas, as well as relieve automobile congestion. This activity should be consistent with local comprehensive plans approved by the DECD. The use of zoning should be considered for maintaining views from Route 1, other State highways and town roads.

3.8 Available Information/Studies

Bureau of Parks and Recreation, 1988. "State Comprehensive Outdoor Recreation Plan (SCORP)," Volume I, Assessments and Policy Plan, Bureau of Parks and Recreation, Maine Department of Conservation, Augusta, ME.

Burrows, T.R. and E. Paine, 1989. "Maine Shore Access, Public Access Series: Liability", Marine Law Institute for the Department of Economic and Community Development, Office of Comprehensive
Planning, Augusta, ME.

Dawson, M., 1990. "Coastal Public Access in Maine," Maine State Planning Office, Augusta, ME.

Land for Maine's Future Board, 1990,revised. "Land for Maine's Future Fund, Starategy and Guidelines for Acquisition," State Planning Office, Augusta, ME.

Maine Office of Comprehensive Planning, 1990. Public Access Handbook Series: Liability; Coastal Right-of-Way Rediscovery Programs; and How to Conduct a Inventory of Scenic Areas. Maine Department of Economic and Community Development, Augusta, ME

Maine State Planning Office, 1986. "Public Access to the Maine Coast," Maine State Planning Office, Augusta, ME.

Marine Law Institute (MLI), 1991. "Protection Against Liability for Landowners Who Allow Public Access,"Marine Law Institute, Sea Grant Marine Advisory program, University of maine Orono, ME.

Marine Law Institute, 1989. "Coastal Right-of-Way Discovery Project, Summary of Results of Research by Town", Marine Law Institute, Portland, ME.

Sasaki Associates, 1990. "Planning Study of Maine Coastal Port and Harbor Needs," Me. State Planning Office, Me. Dept. of Transportation, Augusta, ME.

Section 309 Assessment

4. COASTAL HAZARDS

Advisory Committee: Marine Policy Committee

Agency Contacts

Joe Kelley, Steve Dickson - Maine Geological Survey/DOC
Rob Elder - Port Division/ DOT
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Public Interest Contacts

Natural Resource Council of Maine
Maine Municipal Association
Maine Audubon Society

Coastal Hazards

CONTENTS

4.0 SUMMARY

Beach and bluff erosion, riverine flooding, sea level rise, land subsidence, hurricanes, nor'easters, ocean storms, and earthquakes are natural hazards of the Maine coast. Of these, hurricanes and nor'easters (and the associated flooding, erosion, and storm surge) occur most frequently.

Sea level is rising along the coast at a rate of approximately one foot per century and is expected to accelerate in coming decades. The predicted future rise in sea level will eventually flood some Maine coastal communities and port facilities.

Accomplishments

- The Sand Dune Rules of Maine's Natural Resource Protection Act (NRPA) are some of the strictest in the country. The rules prohibit development seaward of a frontal dune and include standards for construction techniques and coverage by development. Maps of hazard areas in sand dunes are available from the Maine Geological Survey.

- State Mandatory Shoreland Zoning Guidelines detail minimum setbacks and erosion control measures that must be included in local shoreland zoning ordinances. Under the guidelines, floodplains, areas of steep slopes and other hazard areas are to be designated as Resource Protection Districts which prohibit significant new construction.

- The Maine Floodplain Management Program, administered by the Department of Economic and Community Development, assists communities with floodplain ordinances, mapping and planning.

- Thirty-two beaches along the Maine coast areas are designated as coastal barrier resources, a designation that ensures that no state funds or state financial assistance will be expended to develop these areas. In addition, 12 areas are identified as geologically unstable and federal funds cannot be used to support development in these areas.

Problems

- Continued development and alteration of the shoreline threatens the natural protective features of unaltered shorefronts and risks loss of public and private property.

- Basic information on coastal erosion rates and other natural shoreline processes is needed in order to design effective and progressive programs that limit development, protect private property, and conserve protective coastal features and natural habitats in areas prone to coastal hazards.

- The predicted rise of sea level along the Maine coast has

tremendous implications for private property owners and managers of public lands and port facilities.

- Existing federal and state regulations allow reconstruction of structures after coastal hazard events in certain circumstances.

- There is a lack of adequate funding for field checks of activities permitted by the Department of Environmental Protection and local code enforcement officers.

- Inadequate enforcement of shoreland zoning provisions in some communities stems from a lack in understanding of the rationale and need for shoreland zoning.

4.1 Maine's Key Coastal Management Policies Applicable to Coastal Hazards (38 MRSA 1801)

* HAZARD AREA DEVELOPMENT. Discourage growth and new development in coastal areas where, because of coastal storms, flooding, landslides or sea-level rise, it is hazardous to human health and safety.

* PORT AND HARBOR DEVELOPMENT. Promote the maintenance, development and revitalization of the State's ports and harbors for fishing, transportation and recreation.

* SCENIC AND NATURAL AREAS PROTECTION. Protect and manage critical habitat and natural areas of state and national significance and maintain the scenic beauty and character of the coast even in areas where development occurs.

4.2 Federal CZMA Legislative Objective

§ 309(a)(2) Preventing or significantly reducing threats to life and destruction of property by eliminating development and redevelopment in high hazard areas, managing development in other hazard areas, and anticipating and managing the effects of potential sea level rise and Great Lakes level rise.[1]

4.3 Federal CZMA Assessment Characterization

Characterize the extent to which the coastal zone is at risk from the following coastal hazards: hurricanes, flooding, storm surge, episodic and chronic erosion, sea and Great Lakes level rise, subsidence, earthquakes, tsunamis, and any other significant coastal hazards.

4.31 Scope & Definitions

Coastal hazards common to the Maine coast include shore and bluff erosion, riverine flooding, sea level rise, land subsidence, hurricanes and "nor'easters" (and attendant storm surge), and earthquakes. Forest fires are a particular concern on wooded islands and coastal peninsulas, and caused disasters this century on Mt. Desert Island and Monhegan Island. Fires, however, are outside the scope of this assessment.

In Maine, coastal hazard area development includes development in river flood plains, on sand dunes, and in areas subject to storm surge and coastal erosion.

4.32 Available Information & Studies

The State of Maine Hazard Mitigation Plan (Maine Emergency Management Agency, 1988) reviews the history of natural disasters in Maine. Hazards assessed in the plan include dam failure, earthquake, flood, hurricane, and forest fire. The mitigation plan proposes measures designed to reduce disaster damage.

Hazard areas in sand dunes are mapped by the Maine Geological Survey (MGS) to provide information on the location of flood hazard zones and front and back dunes. The National Flood Insurance Program identifies areas vulnerable to flooding and storm surge.

4.33 Assessment of Problems & Issues

a. Sea Level Rise

At the present time, sea level is rising along the Maine coast at a rate of approximately one foot per century, in part due to local subsidence of the coast. The Maine Geological

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[1] Italicized text is excerpted from federal guidance for the 309 assessments.

Survey (1989) estimates that global warming trends may accelerate the rise, resulting in a net sea level rise of 20 to 50 inches along the Maine coast by 2090.

As sea level rises, new areas of coastline will be subject to flooding and other coastal hazards. Present-day marsh environments and other edge habitats will persist only if they can migrate landward. Coastal ecosystems, already fragmented by development, will be further threatened by sea level rise. In response to environmental and physical changes, the biodiversity of coastal ecosystems will change and perhaps diminish. Saltwater will intrude upon coastal groundwater supplies and sedimentation of harbors and basins will increase as coastal erosion rates increase (MGS 1989). When salinity regimes change in estuaries, and current and sedimentation patterns shift from the rise in sea level, other effects on coastal ecosystems will become apparent.

The Maine Department of Transportation is concerned that the existing marine infrastructure of docks, piers and port facilities may be threatened by changes in sea level.

b. Coastal Erosion

Slumping bluffs and eroding dunes continually cause incidents of property damage and loss along the coast. Beach erosion events at Popham Beach in Phippsburg, and Camp Ellis in Saco toppled several homes in the past few years. Local landslides and slumping of bluffs in Rockland and Cutler periodically cause property loss. Only a few of Maine's beaches and shore areas have been profiled over time to determine erosion rates.

The Maine Geological Survey (MGS) and the Office of Comprehensive Planning (OCP), estimate that several hundred houses are in areas subject to damage from coastal storms in southern and mid-coastal Maine. Approximately 30 of the houses are located along Higgins Beach in Scarborough, another 52 in Camp Ellis, and the others scattered along the York County coast in areas of Ocean Park, Fortune Rock and Drake's Island.

Coastal depositional landforms--sand dunes, beaches, and bars--protect inland areas from erosion by buffering wave and wind action, and contribute to the dynamic flow of sediment between near- and off-shore environments. Marshes and sea grass meadows slow wave action and cause sediments to settle out, thereby replenishing near-shore intertidal environments. Beach grass and other shoreline vegetation buffer wave action, retain sediments and aid in stabilization of coastal landforms. Marshes along coves and tidal rivers reduce flooding by absorbing and slowly releasing flood waters.

Protective functions of natural coastal features are threatened by shoreline development, inappropriate stabilization of the shoreline, and dredging. Seawalls and artificial shore

stabilization measures alter natural sediment transport and dissipation of wave energy. As waves hit a seawall, the energy is dissipated down as well as up, thus scouring the toe of the wall, resulting in the necessity for continued maintenance and future construction of a larger structure and ensuring the complete erosion of the beach. For this reason, construction and repair of seawalls is generally prohibited by the Department of Environmental Protection. Shore stabilization measures inhibit the landward migration of barrier features, marshes and flats in response to gradual rises in sea level.

c. Coastal Flooding & Storm Surge

Coastal flooding events are related to combinations of high tides and storm surge. Spring tides, during full and new moons, can raise ocean levels 3-4 feet above mean high water. Base Flood Elevations vary along the coast and run as high as 44 feet in eastern Maine. Base Flood Elevations, stillwater plus storm surge elevations, have been established for areas along the coast subject to storm surge and coastal flooding.

The Federal Emergency Management Agency (FEMA) has mapped and identified areas at risk from storm surge and coastal flooding. The most vulnerable coastal areas are beaches, dunes, coastal bluffs, and glacial till headlands; the least vulnerable are rocky headlands and sheltered coves (MEMA 1987). The prevalence of vulnerable landforms and high population density make the southern coast and mid-coast regions the most susceptible to severe storms and surges. In January and February 1978, coastal flooding from two "northeasters" back to back with storm surges of 5 feet caused more than 16 million dollars in property damage in York County.

Coastal and riverine floodplains are mapped on Flood Insurance Rate Maps (FIRMs). Storm surge is typically a secondary cause of coastal flooding. Riverine flooding is usually caused by sudden rainfall events.

Riverine flooding typically occurs every spring, causing damage when excessive rainfall combines with snow melt to flood river drainages. Three conditions determine the vulnerability of river basins to flooding--the extent of drainage area, the river gradient, and the extent of development along the floodplain of the river (MEMA, 1988). In the spring of 1987, heavy rainfall added to snow pack melt resulted in severe flooding along many coastal rivers, and in particular, along the Kennebec River in mid-coast Maine. The Kennebec and Androscoggin are the most vulnerable Maine rivers to flooding (MEMA, 1988).

Riverine flooding effects a variety of coastal resources such as shellfish beds, public water supplies, and waterfront structures. Above-ground oil storage tanks, industrial facilities, or waste water treatment plants, can pollute and destroy habitat in down-stream shellfish areas if severely damaged by flooding or subsidence.

d. Hurricanes and "Nor'easters"

The hurricane season in Maine usually starts in September, although Hurricane "Bob" hit the coast in mid-August 1991. Hurricanes originate in the tropics, travel up the eastern seaboard, and often are diminished in force by the time they reach Maine waters. Nevertheless, the entire Maine coast is vulnerable to the primary and secondary effects of hurricanes. Southern coastal areas have a greater density of development subject to damage; the downeast coast is subject to potentially greater storm intensity.

"Nor'easters" generally start in the Gulf of Mexico or off the Atlantic coast in the fall or winter and move northeast, reaching their greatest intensity in the New England area. Storm surge from these storms can increase tidal water levels from 1 to 3 feet. Significant coastal storms occurred during recent winters of 1977, 1978, 1980, 1985, 1987, 1990, 1991. A "sou'easter" in the winter of 1978 produced a storm surge that reached levels of a 100-year storm. Hurricanes and coastal storms can cause coastal flooding, erosion of shorelands, property and infrastructure damage from wind and water, as well as disruption of electricity and other services.

e. Subsidence

Subsidence along the Maine coast is a natural event caused by downwarping of the earth's crust. Varying degrees of subsidence along the coast are partially responsible for variations in the relative sea-level rise. Problems associated with subsidence are the same as those associated with sea-level rise.

f. Earthquakes

Maine regularly experiences measurable earthquakes. To date, due to their location in sparsely populated areas, earthquakes in Maine have caused minimal damage; however, earthquakes may trigger landslides at coastal bluff locations, and a quake with an epicenter in a heavily settled metropolitan area could result in significant damage.

4.4 Federal CZMA Programmatic Objective I -- Direct Development Away From Hazard Areas

Direct future public and private development and redevelopment away from hazardous areas, including the high hazard areas delineated as FEMA V-zones and areas vulnerable to inundation from sea and Great Lakes level rise.

** Develop or enhance programs that identify and restrict development in areas that are unsuitable for development or redevelopment, including programs which:*

-- Establish state and local policies that eliminate development and redevelopment in high hazard areas and manage development in other areas either directly or indirectly.

-- Establish or improve programs/policies for the siting of structures away from hazardous areas after a storm.

-- Restrict the use of public funds for infrastructure or other projects that would allow or encourage development in high hazard or hazardous areas.

4.41 Existing Laws, Regulations & Programs

a. Scope

Coastal Barrier Resources System (38 MRSA § 1901-1904) -- The U.S. Coastal Barriers Resource Act (COBRA) prohibits federal assistance or expenditures for development activities within a designated system of coastal barriers. Paralleling the federal COBRA, Maine law provides that no state funds or state financial assistance may be expended for development activities within thirty-two of these designated coastal barriers.

Natural Resource Protection Act (NRPA) (38 MRSA § 480-A - 480-S) -- The NRPA requires a permit for any structure in, on, adjacent to, or over a water body. The Sand Dune Rules (Ch. 355, 480A-480U), address siting of structures in sand dune areas identified as vulnerable to storm damage. The Rules prohibit construction on or seaward of a frontal dune or in the V-zone (areas subject to wave action or a one percent or greater chance of flooding in any given year). Development is not allowed to cover more than 40% of the surface area of the lot, and buildings may not cover more than 20% of the lot. Projects which are likely to be damaged from changes in the shoreline within 100 years will not be permitted.

The lowest structural member of a single family residential structure must be at least one-foot above the 100-year flood elevation, or four feet in the case of a multi-family dwelling. A building damaged by more than 50% cannot be rebuilt.

The rules also prohibit construction of new seawalls and require removal of structures that have been encroached on by wetlands for at least six months. Building standards include windproofing requirements and are outlined in the Sand Dune Rules aa well as detailed in the "Coastal Construction Manual" available from the Maine Department of Economic and Community Development.

Certain activities are exempt from the Sand Dune Law, such as construction of temporary structures; construction of walkways and paths across lawn or areas filled with non-sandy material; maintenance and repair of septic systems; roads and driveways; building repair (as long as the damage does not exceed 50% of the building value); open fences; and seawalls, if the work is done with hand tools, the dimensions of the seawall are not increased and if the building behind the seawall sustains damage of more than 50% in a ocean storm.

Floodplain Management Program -- The National Flood Insurance Program (NFIP) is a partnership between federal, state and local governments to control development in flood hazard areas. The Maine Floodplain Management Program is administered through the Department of Economic and Community Development by the Office of Comprehensive Planning. The State Flood Insurance Coordinator assists communities with developing, administering, and enforcing floodplain management ordinances and review of maps, as well as flood mitigation planning.

Another facet of the National Flood Insurance Program is the "Upton-Jones" amendment, which provides that for structures that are subject to "imminent" collapse, the NFIP will pay either 40% of the damage claim for relocation, or 110% of the value of the structure for demolition and debris removal. Under the program, the owner retains ownership of the property. To date, Maine does not participate in the state certification portion of the Upton-Jones provisions. To do so, the state must develop a coastal erosion rate data base.

Flood Plain Ordinances -- In order for a community to participate in the NFIP, floodplain management ordinances must be passed and administered in areas subject to riverine or coastal flooding. Most towns have adopted ordinances based on a state model floodplain ordinance that is more stringent than the federally mandated requirements. In addition to the federal standards, the state model ordinance requires that all new or significantly improved structures be elevated at least one-foot above the base flood elevation, with the burden of compliance placed on the applicant. An inspection by the Code Enforcement Officer of the community is required when the lowest floor is completed to insure compliance. Flood Insurance Studies in most coastal communities map areas at risk from storm surge, flooding and other coastal hazards and establish Base Flood Elevations (stillwater elevation plus storm surge).

Mandatory Shoreland Zoning (38 MRSA § 435-446) -- This law requires municipalities to adopt Shoreland Zoning Ordinances for areas within 75 feet of streams and 250 feet of other water bodies. Ordinances must comply with minimum standards established by Department of Environmental Protection Guidelines. A Shoreland Zoning Coordinator in the Department of Environmental Protection assists communities with ordinance development.

State "Guidelines for Municipal Shoreland Zoning Ordinances" require all new principal and accessory structures to have a mandatory 100-foot setback from the normal high-water line of great ponds and rivers which flow to great ponds, and a 75-foot setback from the normal high-water line of salt-water bodies, rivers, tributary streams, and the upland edge of wetlands.

In designated "Resource Protection Districts," no significant new construction is permitted. These districts include flood plains; areas with two or more contiguous acres with sustained slopes of 20% or greater; and lands subject to either severe bank erosion or mass movement which are adjacent to moderate or high value wetlands, rivers and tidal waters.

For existing non-conforming structures, if any portion of the structure is less than the required setback, that portion of the structure cannot be expanded in floor area or volume by 30% or more. Construction or enlargement of the foundation can occur provided that the setback requirement is met to the fullest extent possible, as determined by the local Planning Board.

Existing structures that are damaged by more than 50% of the market value may be reconstructed provided a permit is obtained within one year of the date of damage, again provided the reconstruction or replacement is in compliance with the required setback to the greatest practical extent, as determined by the local Planning Board.

Local Code Enforcement Officer Training and Certification Program -- The Department of Economic and Community Development provides training and technical assistance for code enforcement officers responsible for enforcing local shoreland zoning and floodplain ordinances.

Coastal Erosion Database -- The Office of Comprehensive Planning and the Maine Geological Survey have initiated a program to establish erosion rates on coastal sand beaches. Maine Geological Survey publishes sand dune maps and distributes information on areas subject to coastal erosion and sea level rise.

Emergency Planning -- The Maine Emergency Management Agency (MEMA) offers guidance in the development of local emergency plans for communities and counties, and conducts hazard awareness workshops. MEMA also operates a disaster communications network to plan for and coordinate the State's response to and recovery from disasters.

b. Effectiveness

There are several obstacles to controlling development in areas subject to coastal hazards. The first is a provision in the Sand Dune Rules that allows for a private appraisal of the amount of damage to a structure by storm event. By making an subjective assessment of damage, a homeowner may be able to avoid the requirement of a building permit for reconstruction work by claiming that the work is maintenance or repair costing less than 50% of building's value. Unless State enforcement staff were familiar with the building before the event, a questionable assessment may go unchallenged.

The provision in the Rules which allows restoration of non-conforming structures within a frontal dune, prolong the effective lifetimes of poorly-sited structures. Lack of data to forecast long-term shoreline movement due to sea level rise, erosion and accretion further hamper effective implementation of the Sand Dune Rules as well as local shoreland ordinance setbacks.

One of the limitations of the "Upton-Jones" provision of the NFIP is the requirement that property be insured for two years prior to making a claim. The largest obstacle to effective use of this provision is that involvement in the National Flood Insurance Program is voluntary. Thus, efforts to relocate unsafe structures in communities with areas of severe hazards (such as Camp Ellis) are limited by the number of structures and properties which have flood insurance, and thus are eligible to participate in the Upton-Jones portion of the program. In addition, certain areas of the coast will not be able to benefit from the acquisition portion of the NFIP due to severe erosion and the Federal government's unwillingness to buy intertidal land.

Another deficiency in the National Flood Insurance Program (NFIP) is the lack of construction prohibitions in areas other than those designated "V" or "AO" zones (areas most susceptible to direct damage from coastal storm events). In these zones, construction is required under State Sand Dune Rules to meet certain minimum standards designed to reduce potential flood hazards, but which are barely adequate to protect structures. For instance, the lowest structural member of a single family structure must be only one foot above "base flood elevation" (BFE); multi-family structures need be only four feet above BFE. Structures are allowed to be built (with Flood Insurance Program coverage) in areas subject to either wave action or flooding.

Shoreland zoning setbacks deter, but may not prevent construction or inappropriate land use in high hazard areas. The minimum setback of 75' may not be an effective setback given the typical life span of a structure in erosion-prone areas. For example, a structure with a life span of 90 years will be protected for only 75 years if the average erosion rate is one foot per year, or less if the erosion rate increases overtime.

Adherence to shoreland zoning minimum setbacks may not provide long term protection for structures located in high hazard areas, especially with the inevitability of sea level rise.

Shoreland zoning ordinances are enforced at the local level with varying amounts of diligence depending on the local political will. Often guidelines limiting removal of trees and vegetation within the minimum 75-foot setback are not enforced and violations are noted only after it is too late. Removal of natural vegetation may promote erosion on steep slopes and bluffs, yet the state guidelines do not apply more stringent rules to erosion-prone areas.

A major obstacle to controlling development in areas subject to coastal hazards is the lack of sufficient data to support setbacks more stringent than currently legislated. DEP, MGS and OCP recently began developing an erosion rate data base, both pursuant to the requirements for state certification under the "Upton-Jones" amendment, and as the scientific basis for more realistic setbacks based upon identifiable erosion rates.

4.42 Options for Improvement

- Modify provisions of the Natural Resource Protection Act rules that allow the placement of rip-rap on the shore and other erosion-prevention measures to include requirements for consideration of the cumulative effect of minor modifications to the shoreline over time.

- Incorporate erosion rate projections in shoreland zoning setbacks to adjust for shoreland erosion and sea level rise during the lifetime of a proposed structure in the state model shoreland zoning guidelines and local ordinances.

- Identify high hazard areas that are at risk for development and appropriate for public acquisition.

4.5 Federal CZMA Programmatic Objective II -- Protective Functions of Natural Shoreline Features

Preserve and restore the protective functions of natural shoreline features, such as beaches, dunes and wetlands.

a. *Minimize the degradation or destruction of natural shoreline protective features.*

-- *Conserve natural protective features through acquisition, condemnation, and other means.*

-- *Regulate public and private activities that impair the function of natural protective features including restrictions on erosion control structures, building setbacks from beaches, dunes, wetlands, and other protective features.*

-- *Control development adjacent to natural protective features to minimize the adverse effects of such development on the natural features and the processes that enhance those features.*

b. *Enhance the protective function of natural shoreline features.*

-- *Reduce impediments to natural sediment transport.*

-- *Encourage plantings, dune fencing, and other efforts to stabilize features.*

-- *Provide for comprehensive renourishment of the beach and dune where appropriate.*

-- *Develop and implement state-wide renourishment planning, including developing long-term and predictable funding mechanisms and methods to establish project priorities.*

4.51 Existing Laws, Regulations & Programs

a. Scope

Seawall Construction & Repair Policy in the Coastal Sand Dune Rules -- The Board of Environmental Protection has adopted a policy of 'presumed mobility' that guides against construction of new bulkheads and seawalls. Coastal wetland permits are granted only if the proposed development will not unreasonably interfere with natural sand and water flow or wildlife habitat. Buildings over 2500 square feet are permitted in sand dunes only if they are outside an area flooded by a 3-foot rise in sea level. Beach nourishment is acceptable provided that sand budgets, grain size,

public benefit and costs are thoroughly examined. The Sand Dune Rules also prohibit repair of seawalls after storm damage.

State Coastal Barriers Resources System -- See discussion under 4.41.

Shoreland Zoning Guidelines -- State mandatory guidelines limit removal of natural vegetation within required setback areas. See discussion under 4.41.

Local Revegetation Efforts -- Old Orchard Beach, through the use of a Waterfront Action Grant from the Office of Comprehensive Planning, replanted grasses in dune areas in an effort to stabilize and rebuild the dune system.

b. Effectiveness

The unavailability of Waterfront Action Grant monies for at least the 1991-1992 fiscal year effectively puts an end to beach and dune restoration projects funded by the Maine Coastal Program. When this money is restored, projects such as the Old Orchard Beach Revegetation Project (which successfully protected the beach environment and, in so doing, educated the citizenry about the importance of sand dune systems as a whole) can be continued and expanded.

4.52 Options for Improvement

- Promote natural vegetation restoration and protection projects in communities with sand dunes, coastal bluffs, and other areas prone to erosion. Develop technical assistance materials for shorefront property owners.

- Map projected changes in sea level on the Maine coastline as a first step in evaluating the impacts of sea level rise on coastal communities and ecosystems. Track and determine coastal erosion rates with aerial photography and other techniques.

- Develop and maintain a coastal erosion rate data base on the state Geographical Information System (GIS) in order to assist with permitting decisions.
Develop and maintain a coastal erosion rate data base on the state Geographical Information System (GIS) in order to assist with permitting decisions.

- More technical information, workshops and outreach efforts are needed to encourage sound planning and conservation programs.

- Studies of the costs and benefits of coastal

development, given the probability of future sea level rise and coastal hazard events will enable communities to make intelligent and informed decisions about coastal land use.

- As coastal towns complete local comprehensive plans, provide implementation grants to enable towns to create programs to acquire high hazard areas along the shorefront or to improve protection of natural shoreland features.

4.6 Federal CZMA Programmatic Objective III -- Prevent or Minimize Threats to Populations & Property

Prevent or minimize threats to existing populations and property from both episodic and chronic coastal hazards.

-- Develop annual erosion rate-based retreat policies and implementation mechanisms to limit redevelopment in high hazard areas (FEMA V-Zones) and in areas vulnerable to inundation from sea level rise over time.

-- Institute mechanisms to control development density in coastal communities to help prevent significant increases in evacuation times for populations threatened by coastal hazards. Develop means of educating shoreline property owners and local officials about episodic and chronic coastal hazards.

-- Develop post-event redevelopment plans which:
- *limit development densities*
- *restrict development in high hazard areas*
- *provide for relocation of structures out of hazard areas*
- *restrict erosion control devices, such as seawalls, revetments, and groins.*

-- Develop programs for building retrofit to meet building codes designed for high hazard areas.

-- Develop programs to protect important coastal habitats and other public resources from loss due to sea and Great Lake level rise.

4.61 Existing Laws, Regulations and Programs

a. Scope

National Flood Insurance Program -- The NFIP discourages development in hazard areas by establishing building standards to minimize damage, and by requiring communities to adopt minimum

flood plain management standards, for eligibility for insurance.

Local Shoreland Zoning -- Local ordinances mandated by the State establish setback standards and restrict use and development of flood plains and other hazard areas.

Sand Dune Rules -- See discussion under 4.41.

b. Effectiveness

The NFIP is limited by the methodology used to determine the 100-year flood level and the limited enforcement of standards (NERBC, 1976). The conversion of seasonal dwellings to year-round permanent dwellings in hazard areas may be encouraged by the availability of subsidized insurance through the NFIP. Accuracy of the USGS base maps used is limited by the 1:24,000 scale and 10-foot contour intervals. In some areas, Flood Insurance Rate Maps (FIRM) do not reflect rapid erosion occurring since the maps were drawn. Thus, areas that were identified only as "AO" (subject to flooding due to overwash) now may be in "V" zones (areas subject to flooding due to wave action).

Local ordinances, if enforced, have the potential to prevent inappropriate new construction, however, little can be done about existing non-conforming uses. Over time, destructive coastal storms eventually will eliminate structures responsible for intensifying erosion of nearby areas.

4.62 Options for Improvement

- Revise the state plumbing code to require adjustment of well and septic system setbacks in coastal areas to account for projected sea level rise.
- Participate in the 'Upton-Jones' program of the National Flood Insurance Program which provides financial compensation for the relocation or removal of structures (covered by federal Flood Insurance) in imminent danger of collapse from damages resulting from coastal hazards.
- Evaluate the effectiveness of the Sand Dune Rules of the Natural Resource Protection Act, especially provisions allowing restoration of non-conforming structures in frontal dune areas and assessment of storm damages.
- Seek innovative funding sources for state and local enforcement programs.

- Network existing enforcement personnel in state agencies and at the local level to promote more thorough enforcement of Maine's environmental laws.

- Develop public information campaigns that foster support for enforcement of shoreland zoning provisions.

- Amend the State Coastal Barriers Law to prohibit new private construction projects within the Coastal Barrier System, rather than merely withholding State expenditures for public facilities or other State assistance. (The federal COBRA affects only projects reliant on the federal financial assistance.

- Study the economic implications of shoreline loss, and implications for public trust rights.

4.7 Available Information/Studies

Kelley, J., A. Kelley and O. Pilkey Jr. "Living with the Coast of Maine", Maine Audubon, Duke University Press, Durham, N.C. 1989.

Belknap, D.F., Sea Level Rise on the Maine Islands. Proc. 1988 Island Institute Conference, Rockland, ME.

Belknap, D.F. et al., 1984. "Sea-level Change Curves for Coastal Maine," Report from the Maine Geological Survey to the U.S. Nuclear Regulatory Commission, Augusta, ME.

Federal Emergency Management Agency (FEMA), 1986. "Coastal Construction Manual," Federal Emergency Management Agency, FEMA-55/February, 1986. Washington, DC.

Maine Emergency Management Agency (MEMA), 1988."State of Maine Hazard Mitigation Plan 1987, Maine Emergency Management Agency, Maine State Planning Office, Maine Department of Economic and Community Development, Augusta, ME.

Maine Geological Survey (MGS), 1989. "Anticipated Sea Level Rise in Maine", a brief for the Maine Science and Technology Commission, 15 November 1989, Maine Geological Survey, Dept. of Conservation, Augusta, ME.

New England River Basins Commission, 1976. "Digest of a Workshop on Identifying Coastal Flood Hazard Areas and Associated Risk Zones, February 1976, New England River Basins Commission, Boston, MA.

Ten Broeck, Craig W., 1978. "Policy Recommendations for Reducing Coastal Storm Damages, A Report to the Governor's Committee on Coastal Development and Conservation," Maine Land and Water Resources Council, Maine State Planning Office, Augusta, ME.

Titus, James G., 1991. "Greenhouse Effect and Coastal Policy: How Americans Could Abandon an Area the Size of Massachusetts at Minimum Cost," Environmental Management Vol.15, No.1, pp.39-58, Springer-Verlag, New York, NY.

U.S. EPA, 1988. "Greenhouse Effect, Sea Level Rise, and Coastal Wetlands," Ed. by J.G. Titus, U.S. Environmental Protection Agency, Office of Policy, Planning, and Evaluation, Washington, D.C.

Section 309 Assessment

5. ENERGY AND GOVERNMENT FACILITY SITING AND ACTIVITIES

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Maine Municipal Association
Maine Audubon

Energy and Government Facility Siting and Activities

CONTENTS

[jr.nrg] 1/14/92

5.0 SUMMARY

The State of Maine does not have siting policies specific to energy or federal government facilities. All proposed private or quasi-public developments of a certain nature must satisfy state environmental laws as well as local land use ordinances. Certain types of facilities such as hazardous waste landfills and low-level radioactive waste facilities must meet additional siting criteria primarily concerned with local hydrology and geology.

Accomplishments

- Local governments have a great deal of control over the siting of energy and energy-related facilities if they choose to exercise it. Local planning boards must approve utility proposals, from the siting of a new plant to the placement of transmission lines, before the Public Utilities Commission will grant a Certificate of Public Convenience and Necessity.

- Municipal governments have the opportunity to direct the location of energy-related development with industrial zoning and local comprehensive plans. Local planning boards must review applications for developments that are located in shoreland areas and any other areas subject to local ordinances.

- All proposed private developments of a certain nature and size must satisfy the criteria of state environmental laws as well as local land use ordinances.

- Federal government projects must satisfy federal environmental regulations, receive water quality certification from the State, and obtain State concurrence that they are consistent with the core law authorities composing Maine's Coastal Program. Since the core laws include the Mandatory Shoreland Zoning Law and the Subdivision Law as enforced through local regulations, federal projects also must be found consistent with such regulations.

Problems

- Siting of private power plants is guided by economics and standard environmental review criteria rather than by state energy or coastal land use policy.

  The state lacks specific siting policies for location of low-level radioactive waste sites or hazardous waste landfills in coastal areas. The Maine Low-Level Radioactive Waste Authority is charged with locating a disposal site for low-level radioactive waste in Maine before a federally imposed deadline of December 31, 1992. Several sites considered by the authority are in coastal watersheds.

- Towns adjacent to a proposed major energy or energy-related project lack a mechanism to directly participate in permit review or local tax benefits from a project. Adjacent towns may share in the risks, negative impacts and costs associated with large-scale industrial development, yet usually do not share in the property tax benefits.

- Military bases in Maine have hazardous waste sites that are not subject to state regulation. The Brunswick Naval Air Station has 12 dump sites, two of which are among the 100 sites on the Environmental Protection's Superfund list of the nation's most hazardous sites. Any military facility affecting coastal areas is subject to federal consistency procedures pursuant to the core laws contained in Maine's Coastal Program, but State environmental regulations otherwise do not apply.

- The State does not have a formal policy or mechanism for considering economic or social need in applying environmental regulations. For example, in the case of maintenance dredging of a federal navigation channel by the Army Corps of Engineers, several environmental issues must be balanced against possible state-wide propane shortages if the channel is not dredged before winter.

5.1 Maine's Key Coastal Management Policies (38 MRSA §1801)

* SCENIC AND NATURAL AREAS PROTECTION. Protect and manage critical habitat and natural areas of state and national significance and maintain the scenic beauty and character of the coast even in areas where development occurs.

* STATE AND LOCAL COOPERATIVE MANAGEMENT. Encourage and support state and municipal management of coastal resources.

* WATER QUALITY. Restore and maintain the quality of our fresh, marine and estuarine waters to allow for the broadest possible diversity of public and private use.

* AIR QUALITY. Restore and maintain coastal air quality to protect the health of citizens and visitors and to protect enjoyment of the natural beauty and maritime characteristics of the Maine coast.

* SHORELINE MANAGEMENT AND ACCESS. Support shoreline management that gives preference to water-dependent uses over other uses, that promotes public access to the shoreline and that considers the cumulative effects of development on coastal resources.

* HAZARD AREA DEVELOPMENT. Discourage growth and new development in coastal areas where, because of coastal storms, flooding, landslides or sea-level rise, it is hazardous to human health and safety.

5.2 Federal CZMA Legislative Objective

§ 309(a)(8) Adoption of procedures and enforceable policies to help facilitate the siting of energy facilities and Government facilities and energy-related activities and government activities which may be of greater than local significance.[1]

5.3 Federal CZMA Assessment Characterization

Assess existing planning and regulatory procedures and policies which affect the siting of subject facilities and activities.

* *Evaluate the adequacy of existing state and local planning processes to address facility siting needs of greater than local significance.*

* *Examine the roles played by interested and affected public and private parties during the planning process.*

* *Evaluate enforceable policies, authorities and techniques used in managing and regulating energy-related and Government facilities/activities and their impacts.*

* *Evaluate existing project review and permitting procedures to minimize duplication and enhance communication between permitting authorities and those requesting permits.*

5.31 Scope and Definitions

This assessment covers the siting of energy and energy-related facilities as well as the siting of federal government and government-related facilities. The assessment is limited to facilities and activities, sited along the coast of Maine, which are of greater than local significance, including the following: fossil fuel power plants, hydroelectric facilities and dams, nuclear power plants, radioactive waste disposal sites, waste to energy facilities and related ash disposal sites, pipelines, electric transmission lines, oil and gas extraction facilities, mineral, peat, or aggregate mining, siting or alteration of Coast Guard facilities or national defense installations, and maintenance dredging of harbor channels to accommodate fuel tankers.

5.32 Available Information and Studies

The most recent state energy plan was issued in October 1987, State of Maine Energy Resources Plan. It focused on energy conservation programs, the supply mix of power in the state, and historical and projected forecasts of energy consumption and prices. Hearings currently are underway by the legislative Commission on Comprehensive Energy Planning to develop a new

[1] Italicized text is excerpted from federal guidance for the Section 309 assessments.

energy plan for the state. The Commission is hoping to determine how the most power can be produced for the lowest cost, and with the least harm to the environment, balancing conservation to minimize the need for new power plants against pollution caused by older higher-polluting plants left on line.

The Coastal Program in 1980 prepared a favorability for development map series that included soils, slopes and areas suitable for different types of development, including large industrial facilities.

In the 1970s, oil companies explored the feasibility of offshore oil drilling and the location of shore-side refineries and facilities along the Maine coast. With the assistance of the State Planning Office, several coastal communities prepared site studies in 1977 and 1978 for onshore facilities related to proposed oil and gas development on the outer continental shelf.

Energy, Heavy Industry and the Maine Coast (1972) and Where Should Heavy Industry be Sited in Coastal Maine? (1977) were advisory committee reports with recommendations for location of heavy industry along the Maine coast.

5.33 Assessment of Problems and Issues

a. **Private energy-related facilities and activities --**

Waste to Energy Projects. When ground was broken for the waste to energy power plant in coastal Biddeford in July, 1985, the project was billed as a solution to the mounting problem of municipal trash disposal. Waste to energy plants were to solve the problem of groundwater contamination from land based waste dumps while producing marketable power. By 1991, two major waste to energy plants operated in Maine coastal communities, MERC in Biddeford, and PERC in Orrington.

Waste to energy plants are a concern because of the air pollutants associated with the burning of mixed trash and the toxic ash generated. The disposal of waste ash is now a major issue in coastal communities under consideration as sites for ash dumps. The ash residue concentrates heavy metals, and other toxic compounds, which potentially could eventually leak from a dump to contaminate groundwater resources.

Proposed AES Coal Plant on the Penobscot River. Applied Energy Systems (AES), a Virginia-based firm, has applied to the Town of Bucksport on the Penobscot River estuary, for a shoreland zoning permit as its first step in obtaining permission to build a highly controversial $309 million power plant. Opponents of the proposal contend that the air emissions from the coal burning facility will further impair an already degraded air quality in the region. Supporters anticipate that the plant will create jobs and revenues. Small-town planning boards such as Bucksport's are ill equipped to evaluate the technical issues surrounding proposals of this magnitude.

The Regional Impacts or Regional Benefits of Energy Projects. Public hearings provide the only forum for the participation of neighboring towns that are not directly affected by a proposed development. Adjacent towns may share in the risks, negative impacts and costs associated with large-scale industrial development, yet usually do not share in the property tax benefits.

For example, Maine Yankee Atomic Power Plant is perched at the edge of the Town of Wiscasset directly across from the island town of Westport. Westport and surrounding towns share in the dangers inherent in the location near Maine Yankee, however all tax revenues go to Wiscasset. Similarly, the Maine Radioactive Waste Siting Authority offers to compensate the individual town in which a low-level radioactive waste site is located, yet a potentially threatened resource, such as a groundwater aquifer, may affect the groundwater of several towns.

b. **Government activities and facilities --**

Hazardous Waste Sites on Military Bases. Recent base closures around the country and in Maine have raised concern about hazardous waste sites at military facilities. The Brunswick Naval Air Station has 12 dump sites, two of which are among the 100 sites on the Environmental Protection's Superfund list of the nation's most hazardous sites. Any military facility affecting adjacent coastal areas is subject to federal consistency procedures pursuant to the core laws contained in Maine's Coastal Program, but in general, state environmental regulations do not apply.

Storage of Low Level Radioactive Waste. The Maine Low-Level Radioactive Waste Authority is charged with locating a disposal site for low-level radioactive waste in Maine before a federally imposed deadline of December 31, 1992. The authority does not have the power of eminent domain, and towns must approve the siting by vote. At least three towns in Maine, in which sites were under consideration, passed ordinances prohibiting the disposal of nuclear waste within their boundaries. Maine Yankee Atomic Power Plant in the coastal community of Wiscasset, generates approximately 70% of the bulk and 99% of the radioactivity of the low level waste produced in Maine. The owners of Maine Yankee have volunteered a site adjacent to the Wiscasset plant, located on the Sheepscot River estuary.

Maintenance Dredging to Accommodate Fuel Tankers. The Corps of Engineers has submitted a request for State concurrence with its determination that maintenance dredging of the Piscataqua River channel is consistent with Maine's Coastal Program. Several environmental issues must be resolved or balanced against possible State-wide propane shortages if the channel is not dredged before winter. At issue are the suitability of the proposed in-river disposal area from the standpoint of sand movement, the need for a lobster survey, and concern by shoreline property owners that the dredging will cause serious erosion of

their properties. The State does not have a formal policy or mechanism for considering economic or social need in applying environmental regulations.

5.4 Federal CZMA Programmatic Objective I -- Enhance Procedures

Enhance existing procedures and long range planning processes for considering the needs of energy related and federal facilities and activities of greater than local significance.

* *Enhance existing administrative procedures and decision points where the need for activities and facilities of greater than local significance are considered during the planning and permitting processes.*

* *Develop strategies designed to address systemic gaps in the state's ability to identify and consider needs of greater than local significance.*

* *Enhance procedures for periodic coordination and communication with federal, state and local agencies with regard to energy-related and Government facilities siting issues.*

* *Enhance procedures for coordination and monitoring of energy-related and Government facilities during planning, construction, operation, and disposal and re-use phases.*

* *Coordinate and synchronize regulatory programs and procedures at all levels of government.*

5.41 Existing Regulations and Procedures

a. **Private Energy-Related Facilities and Activities** -- Energy planning in Maine is the responsibility of the Economic and Energy Policy Division of the State Planning Office. Legislative hearings currently are underway to develop a new energy plan to replace the State of Maine Energy Resources Plan issued in 1987. However, like the 1987 plan, the new plan is likely to focus on energy conservation programs, the supply mix of power in the state, and historical and projected forecasts of energy consumption and prices. The siting of new private energy-related facilities is likely to continue to be determined primarily by market forces, not by State or local plans. Site development, however, must comply with both state environmental laws and local land use ordinances.

Development of new hydropower facilities also must be approved under State and local environmental regulations. State recommendations regarding federal license renewals for hydropower facilities are formulated through a formal coordination process established by Executive Order. The process is under the auspices of the State Planning Office and the Maine Land and Water Resources Council.

Projects requiring environmental permits are reviewed by municipalities under local zoning, shoreland zoning and subdivision ordinances, and receive State review by the Department of Environmental Protection, and by the Land Use Regulation Commission (LURC), which reviews development proposals in unorganized territories and on coastal island.

The following are the primary statutes regulating energy-related activities and siting of energy-related facilities:

Natural Resource Protection Act (NRPA) (38 MRSA §480)-- Administered by the DEP's Bureau of Land Quality Control, NRPA regulates activities of State concern on, over, or adjacent to natural resource areas of state significance, including coastal and freshwater wetlands, great ponds, rivers and streams, significant wildlife habitat, fragile mountain areas and sand dunes.

Site Location of Development Act (38 MRSA 481-490)-- Buildings with a footprint in excess of 60,000 square feet or more than 100,000 sq. ft. of floor space, more than 3 acres of developed area not to be revegetated, more than 60,000 sq. ft. of area affected by drilling or excavation of natural resources, development with 10 or more units of housing, and subdivisions or developments exceeding 20 acres, are required to be reviewed by the Dept. of Environmental Protection under this act. Regulated projects must meet standards for development that minimize the environmental impact on water quality, scenic resources, air quality and adverse impact to existing uses. Secondary and cumulative impact must be considered.

Mandatory Shoreland Zoning Law (38 MRSA 435-446)--The Mandatory Shoreland Zoning Law regulates land development within 250 feet of lakes and ponds over 10 acres in size, tidal water, coastal and freshwater wetlands, rivers and within 75 feet of a stream, defines as free-flowing water from the outlet of a Great Pond or the confluence of two perennial streams. The law is implemented through municipal shoreland zoning ordinances, which must be approved by the DEP for compliance with minimum State guidelines.

Protection and Improvement of Air (38 MRSA 581-608)--Enforced by the DEP's Bureau of Air Quality Control, the purpose of this act is to control air pollution.

Protection and Improvement of Waters (38 MRSA 361a-452)--The purpose of the act is to control, abate and prevent pollution in all inland and tidal waters of the state. Water quality certification requirements of the law are administered by the DEP's Bureau of Land Quality Control. Other provisions are administered by the Bureau of Water Quality Control.

Oil Discharge Prevention and Pollution Control (38 MRSA 541-560) -- The purpose of the act is to prevent oil spills during transfer and storage between vessels and between vessels and onshore facilities in order to preserve coastal recreation and fisheries. The law is administered by the DEP's Bureau of Oil and Hazardous Waste.

Submerged Lands Act (12 MRSA §573)-- The Submerged Lands Act authorizes the Bureau of Public Lands to lease State-owned submerged lands (other than for aquaculture). The Bureau currently is receiving comments (until Nov. 2, 1991) on its September 3, 1991 draft of a new set of "Submerged Land Rules." Purposes of the rules include protecting public access and public trust rights, protecting fishing and other marine uses of submerged lands, protecting ingress and egress of riparian owners, balancing competing uses, and providing procedures for conveyance of submerged lands

Mining and Minerals Act (12 MRSA §549)--The Mining and Minerals Act established the authority of the Maine Geological Survey and other agencies having jurisdiction over state-owned lands to regulate exploration and development of mineral resources on state-owned lands.

Regulation of Public Utilities -- The Public Utilities Commission (PUC) is a major regulatory agency in the siting of energy facilities, though its jurisdiction does not include facilities such as liquid natural gas terminals and oil storage facilities, which are not public utilities. Public utilities must apply to the PUC for a Certificate of Public Convenience and Necessity to build power generating facilities of more than 1,000 kilowatts, transmission lines carrying 100 kilovolts or more, and gas pipelines (35 MRSA §13-A).

In general, the PUC will not grant a certificate until the proposed site is approved by the local planning board. Municipal governments thus have the opportunity to direct that energy-related facilities be located in accordance with their local comprehensive plans and zoning regulations. However, if a proposal is rejected by the local planning board the utility may seek a variance from the local board of appeals and, if the variance is denied, the PUC may grant an exemption from local zoning (30 MRSA §4962). The PUC also can exempt utilities from regulation by the Land Use Regulation Commission (LURC) in Maine's unorganized territories.

Once a site is approved by the municipality or LURC the developer must comply with the Site Location of Development Act, the Natural Resources Protection Act and other environmental laws administered by the Department of Environmental Protection. Public hearings may be held at any phase of the permit review process by the PUC, LURC, local planning boards, or the DEP.

b. **Government activities and facilities** -- Federal projects and activities must satisfy federal environmental regulations, receive water quality certification from the Dept. of Environmental Protection, and State concurrence that they are consistent with the core law authorities composing Maine's Coastal Program.

Coastal Program core laws include all of the laws described above which regulate private activities and facilities, except for the Submerged Lands Act, the Mining and Minerals Act, and the public utility laws. Federal agencies cannot be required to be consistent with State laws, or amendments to those laws, which have not received federal approval for inclusion in Maine's Coastal Program.

Consistency approval technically does not require federal agencies to obtain State permits, but the information needed for State review of proposed projects is basically the same as required for State permit applications.

The Maine Waste Management Agency (MWMA) is responsible for siting 'waste disposal facilities' and retains the power of eminent domain to obtain sites. The siting criteria are contained in Siting Criteria for Solid Waste Facilities issued by MWMA (38 MRSA §2101).

c. Effectiveness -- The laws and regulations that govern the siting of energy and government facilities in Maine area do not include additional procedures or conditions applicable to developments on the coast or in the Coastal Zone as defined by the Maine Coastal Program. The laws and regulations are effective in requiring a thorough environmental review of large industrial projects. The review could be expanded to require an alternatives analysis to shoreland siting.

5.42 Options for Improvement

- Develop improved procedures for evaluating large-scale development proposals of more than local significance on the regional or State level; develop mechanisms to equitably share the direct and indirect benefits and costs of projects throughout the region affected.
- To assure compliance of federal projects and activities in the coastal area with all State standards, request federal approval to include additional existing State laws and regulations in Maine's Coastal Program.
- Clarify federal consistency procedures and responsibilities set forth in Maine's Coastal Program.

5.5 CZMA Programmatic Objective II -- Improve Policies and Standards

Improve program policies and standards which affect the subject uses and activities so as to facilitate siting while maintaining current levels of coastal resource protection.

* *Enhance policies for assessing the acceptability of sites for energy and Government facilities, e.g., policies pertaining to the analysis of alternative sites or identification of the least damaging alternative site.*

* *Enhance policies for assessing the acceptability of alternative technologies and operational procedures used in meeting the needs of energy and government facilities.*

* *Enhance the methods by which the coastal management agency and local government provide policy input into energy-related or Government facilities/activities planning and development processes, including a process for anticipating, limiting, and mitigating the impacts which result from such facilities.*

5.51 Existing Policies and Standards

a. **Private energy-related facilities and activities**--State energy policy is formulated by the Economic and Energy Policy Division of the State Planning Office. Alternative technologies that are environmentally sound generally are encouraged. Hearings currently are underway to replace the 1987 energy plan with a new one, as indicated above.

Site location standards are provided by the relevant environmental laws as described above under "Existing Regulations and Procedures." Both NRPA and the Site Location of Development Act require alternatives analysis.

Comprehensive plans underway in coastal communities as mandated by Maine's Growth Management Act define local economic growth and development policies, including appropriate locations for commercial, industrial and other intensive land use. Local comprehensive plans can be implemented through site location standards provided in local zoning, shoreland zoning and subdivision ordinances.

b. **Government activities and facilities** -- Site location policies and standards for federal activities and facilities are provided under federal consistency procedures by those State environmental laws which have received federal approval for inclusion in Maine's Coastal Program. These include key DEP laws, and the Mandatory Shoreland Zoning Law that requires local shoreland zoning ordinances, as described above under "Existing Regulations and Procedures."

c. Effectiveness -- State energy policy is not effective in addressing siting of energy and energy-related facilities. Siting issues, including those specific to the coast, should be included in the state energy plan. The Maine Coastal Program effectively administers the consistency provisions of the Coastal Zone Management Act for federal activities in the Maine Coastal Zone.

5.52 Options for Improvement

- Develop formal procedures for assessing alternative sites and technologies, and for assigning costs and identifying measures to mitigate adverse environmental impacts.
- Develop formal procedures for weighing economic and social need along with environmental factors in reviewing permit applications and federal consistency determinations.
- Consider incorporating individual town comprehensive plans developed under the Growth Management Law as Coastal Program core laws authorities, thereby being enabled to require federal consistency.
- Develop formal procedures for weighing economic and social need along with environmental factors in reviewing permit applications and federal consistency determinations.

5.6 Available Information/ Studies

Colgan, Charles S. 1978. "Maine and the Search for OCS Oil and Gas", Maine State Planning Office, Augusta, ME.

Irland, L. "Use of Maine Islands for Industrial Siting," Proc. 1983, Island Institute Conference, Rockland, ME.

Maine Department of Conservation, 1977. "Where Should Heavy Industry be Sited in Coastal Maine?", a report to the Governor's Advisory Conservation and Development.

Maine Office of Energy Resources. 1983. "Comprehensive Energy Resources Plan," Office of Energy Resources, Augusta, ME.

Office of Energy Resources 1987. "State of Maine Energy Resources Plan," Office of Energy Resources, Augusta, ME.

State Planning Office 1978. "Maine's Coastal Program, Procedures for: Coastal Shorefront Access and Protection, Shoreline Erosion Assessment and Mitigation, Energy Facility Siting, August 1978.

Section 309 Assessment

6. COASTAL WETLANDS MANAGEMENT

Advisory Committee: Natural Areas & Natural Resources Committee

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Coastal Wetlands Management

CONTENTS

6.0 SUMMARY

The State of Maine is more than 25% wetland. Peatlands, freshwater marshes, lakes and rivers blanket the interior of the state while estuaries, salt marshes, tidal flats, submerged bottoms, and bays fringe the coastal margin. All wetlands in coastal watersheds are included within the scope of this assessment.

By state definition, coastal wetlands include: tidal and subtidal lands, upland areas below any identifiable debris line left by tidal action, areas with vegetation present that is tolerant of saltwater in a marine or estuarine habitat; portions of coastal sand dunes; and any swamp, marsh, bog, beach, flat or other adjacent lowland which is washed by the tide.

Shoreland zoning and wetland regulations are designed to protect certain types and sizes of wetlands from the direct impacts of development. Recent studies, however, indicate that alterations of small unprotected freshwater wetlands, and inappropriate activities adjacent or near coastal wetlands, may threaten the existence or functioning of significant coastal ecosystems.

Accomplishments

- State shoreland zoning guidelines direct towns to designate limited residential/ development or rural protection districts for shoreland areas within 250 feet of the normal high water mark of any great pond, river or saltwater body, within 250 feet of the upland edge of a coastal or freshwater wetland and within 75 feet of the high water line of a stream.

- The Wetland and San Dune Rules of the Natural Resource Protection Act (NRPA) protect sand dunes, coastal wetlands and other high value wetlands from alteration or adverse direct impacts. The Department of Environmental Protection (DEP), regulates the alteration of coastal wetlands, and freshwater wetlands 10 acres or greater in size, great ponds, and adjacent to rivers and streams that have watershed exceeding 25 square miles.

- Several state and federal inventories have mapped and inventoried coastal and freshwater wetlands in Maine.

- Thousands of acres of wetlands in coastal watersheds are protected by state and local conservation programs.

Problems

- Available wetland inventories are incomplete and out-of-date.
- In some coastal areas, construction of roadways and tide gates restricts tidal flow to wetland areas, causing replacement of salt marsh vegetation with less productive fresh marsh vegetation.
- Information on wetlands altered by tidal flow restrictions from road construction, dredging, filling, or other changes is incomplete and scattered among state agencies.
- Pollution from land and water activities threatens water quality and the contributions of wetlands including wildlife habitat, flood control, and productivity in the coastal region.
- Coastal and freshwater wetlands are threatened by fringing development on adjacent land which may increase discharges of pollutants and nutrients to the wetland.
- Shoreland development may prevent the natural long-term landward migration of fringing marshes and other coastal habitats as the sea level rises, resulting in a loss of coastal wetlands.
- Present Maine wetland rules do not protect freshwater wetlands smaller than 10 acres, and combinations of adjacent but separated wetlands. Forested wetlands and other wetlands rated as low value are only minimally protected. Wetland definitions in the state wetland rules are designed for convenient management rather than based on ecological functions of wetlands within the landscape.
- Changes in federal wetland definitions and rules require the state to re-examine the need to protect small wetlands and wetland types no longer federally protected.
- Municipal regulations and enforcement vary from town to town and protection of shared wetlands is often not coordinated.
- Wetland rules of the Natural Resource Protection Act lack specific language for assessing the cumulative and indirect impacts of development.

6.1 Maine's Key Coastal Management Policies Relating to Wetlands Management (38 MRSA 1801)

* SCENIC & NATURAL AREAS PROTECTION. Protect and manage critical habitat and natural areas of state and national significance and maintain the scenic beauty and character of the coast even in areas where development occurs.

* MARINE RESOURCE MANAGEMENT. Manage the marine environment and its related resources to preserve and improve the ecological integrity and diversity of marine communities and habitats, to expand our understanding of the Gulf of Maine and coastal waters and to enhance the economic value of the State's renewable marine resources.

* SHORELINE MANAGEMENT & ACCESS. Support shoreline management that gives preference to water-dependent uses over other uses, that promotes public access to the shoreline and that considers the cumulative effects of development.

6.2 Federal CZMA Legislative Objective

§309(a)(1) Protection, restoration or enhancement of existing coastal wetlands base or creation of new coastal wetlands.[1]

6.3 Federal CZMA Assessment Characterization

Characterize the status of coastal wetlands, their extent (by type, e.g. tidal and non-tidal), trends (rate of gain/loss), and threats (direct and indirect) to those wetlands.

6.31 Scope & Definitions

"Coastal wetlands" are defined narrowly under Maine law to mean saltwater wetlands. This assessment covers both saltwater wetlands and freshwater wetlands within Maine's coastal zone as coastal wetlands. The two types of wetlands are defined in the State's Natural Resources Protection Act (38 MRSA 480 A-S) as follows:

> Coastal wetlands. "Coastal wetlands" include all tidal and subtidal lands, including all areas below any identifiable debris line left by tidal action; all areas with vegetation present that is tolerant of saltwater and occurs primarily in a saltwater or estuarine habitat; and any swamp, marsh, bog, beach, flat or other contiguous lowland which is subject to tidal action during the maximum spring tidal level as identified in tide tables published by the National Ocean Service. Coastal wetlands may include portions of coastal sand dunes."
>
> Freshwater wetlands. "Freshwater wetlands" include freshwater swamps, marshes, bogs and similar areas which are:
>
> a. Of 10 or more contiguous acres, or of less than 10 contiguous acres and adjacent to a surface water body, excluding any river, stream or brook, such that in a natural state, the combined surface area is in excess of 10 acres;
>
> b. Inundated or saturated by surface or ground water at a frequency and for a duration sufficient to support, and which under normal circumstances do support, a prevalence of wetland vegetation typically adapted for life in saturated soils; and
>
> c. Not considered part of a great pond, coastal wetland, river, stream or brook.

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[1] Italicized text is excerpted from federal guidance for Section 309 assessments.

6.32 Available Information/Studies

The Maine Geological Survey in the Dept. of Conservation coordinates mapping efforts of aquifers, marine environments, groundwater recharge areas, sand dunes and wetlands. The Department also coordinates the new State Geographic Information System (GIS) for computerized data management and mapping. The Bureau of Public Lands has a Submerged Land Program which maps existing submerged land leases. The Department of Inland Fisheries and Wildlife inventories and evaluates wetlands as habitat value for waterfowl, and the Department of Marine Resources conducts shoreline surveys of shellfish growing areas under its Shellfish Program.

a. Acreage Estimates

The Maine Wetlands Conservation Priority Plan (Widoff, 1988) summarizes wetland inventory efforts in Maine. According to Widoff, Maine has more than 5 million acres of freshwater wetlands and approximately 160,000 acres of tidal wetlands. A number of wetland inventories have attempted to quantify and map wetlands in the state, but inconsistent definitions and methods has led to wide variations in results.

The U.S. Fish and Wildlife Service (USFWS) in 1954 initiated the first inventory of wetlands 40 acres or greater in size. This survey was amended in 1959 to include permanent wetlands greater than 10 acres in size. In 1972, the Maine Department of Inland Fisheries and Wildlife (IF&W) completed a 10-year mapping of all wetlands greater than 10 acres in size. This effort, called the Maine Wetland Inventory (MWI), as well as the previous USFWS inventories, were undertaken to assess the value of each wetland as habitat for waterfowl breeding. The Maine Wetlands Inventory uses the Martin et al.,(1953) system of wetland classification.

"An Ecological Characterization of Maine" (Fefer and Schettig eds., 1980) includes an inventory of coastal wetlands and deepwater habitats from Cape Elizabeth north to Calais. This work, part of the National Wetlands Inventory (NWI), includes wetlands with a minimum 3-5 acre size, and uses the Cowardin et al. system (1979) of wetland classification. In 1983 the Maine Geological Survey and the Department of Environmental Protection inventoried freshwater wetlands 10-acres in size and larger as part of the Maine Freshwater Wetlands Inventory.

Jacobson et al. (1987) inventoried Maine salt marshes over 150 square meters in area using planimetric measurements of Barry Timson's 1977 coastal geology maps. The total acreage calculated was 18,960 acres, an increase of almost 11 percent over the 16,917 acres of salt marshes inventoried in the Maine Wetland Inventory. Since many salt marshes are fringing in character and small in areal extent, the Jacobson study may underreport the extent of salt marsh vegetation along the Maine coast (Widoff 1988).

b. Wetland Loss & Gain Trends

The extent of historic and recent wetland loss in Maine is not well documented. The U.S. Army Corps has maintained records of harbor and navigation projects since the early 1800s, but few other records of historic coastal wetland alteration exist. Many ditches and dikes built across salt marshes in the early 1800's have filled or breached, resulting in habitat restoration. Wetland permits issued by the Army Corps under Section 404 note the nature of the proposed changes and the extent of areas affected, but this information is not readily retrievable at the state or regional level. Many wetlands have been altered by construction of road and railroad beds, but the extent of coastal wetland alteration is not documented.

According to a USF&WS report (Dahl, 1990), Maine had an estimated 6.46 million acres of wetland circa 1780's and an estimated 5.2 million acres of wetland in the 1980's, representing a 20 percent wetland loss (which is less than that of all other states except New Hampshire). It is not clear whether the USF&WS estimate accounts only for actual physical eradication, or considers loss of function due to a degree of alteration. Widoff (1989) estimated actual wetland loss in Maine to be closer to 4 percent of the original wetland base.

The North American Waterfowl Management Plan (USFWS, 1986) reports that Maine had 17,000 acres of coastal, tidal wetlands in 1953 and lost 100 acres (or 0.6 percent) between 1953 to 1972 because of filling or diking.

6.33 Assessment of Problems & Issues

a. Inadequate Inventory Information

Results of wetland mapping projects in Maine to date have varied depending upon the classification systems and definitions used, the purposes for which the inventory was undertaken, and the geographic region covered by the survey (Widoff 1988). Coastal wetlands have been inventoried more thoroughly than forested wetlands and other inland types. Although attention has focused on coastal wetlands because of their high habitat value and location, the data collected has limited usefulness in efforts to determine wetland gain or loss.

Many of the inventories do not include the calculation of acreage data by wetland unit; the information is often decades old and has not been updated to reflect natural or man-made changes in coastal wetland features, such as reversion of farmland to wetlands. The state lacks a single comprehensive wetland inventory.

b. Inadequate Information on Alterations and Direct Impacts

Direct impacts on coastal wetlands include any activities which alter the natural functions of the system, including

hydrologic modification, dredging, filling, or other changes. In Maine, these alterations have included the construction of dikes along salt marshes to allow the harvest of salt hay, draining of salt marshes to control mosquito populations, filling of coastal wetlands for roads and buildings, damming of coastal rivers and streams, dredging harbors and channels for navigation and anchorages, disposal of trash and waste on tidal flats and marshes, and construction of docks, piers, seawalls and breakwaters.

Nonpoint source pollution of coastal wetlands is an indirect effect of land use. Impacts resulting from activities on adjacent uplands are also indirect effects of development.

The U.S. Army Corps of Engineers has responsibility for implementing Section 404 of the Clean Water Act which regulates certain alterations to wetlands. Estimates of the total acreage altered are required as part of the general permit and the nation-wide permit. The Army Corps also regulates dredging activities under the Rivers and Harbors Act. The permit application does not explicitly require acreage estimates, though in recent years acreage estimates and descriptions of impact and disposal information have been recorded. According to the Corps, the information is entered into a computer data-base, but is not retrievable in useable form.

Permit information collected by the Maine Department of Environmental Protection remains on the permit and is not entered into a state database, although they currently are trying to establish a procedure to track future wetlands alterations. Information on the amount of wetlands altered under DEP permits is not available at this time.

c. Cumulative Effect of Indirect Impacts

Indirect impacts are results of activities on lands adjacent to a wetland, or the secondary results of a wetland activity such as placing fill on a marsh. Indirect impacts might include, for example, unavailability of the salt pannes to juvenile fish, because of the fill. The effects of non-point source pollution on wetlands is an indirect impact of land use which threatens fresh and coastal water quality and habitat in the coastal region.

Widoff (1988) concluded that activities on uplands adjacent to wetlands often impair wetland functions and values. Coastal wetlands are threatened most by fringing development which may increase the discharge of pollutants and nutrients to the wetland. While most coastal wetlands are protected by Maine's Natural Resources Protection Act and local shoreland zoning ordinances, the uplands adjacent to protected wetlands lack mandatory and consistent regulations.

d. Sea Level Rise

If present trends continue, sea level will continue to rise along the Maine coast and flood extant coastal habitats. Fringing marshes and other coastal wetlands may eventually disappear if shorelines cannot accommodate the inland migration of coastal habitats. Functions, biodiversity, and acreage of coastal wetlands all will change as a result of sea level rise.

e. Wetland Definitions

The Natural Resources Protection Act regulates all coastal wetlands and freshwater wetlands 10 acres or larger. Department of Environmental Protection criteria for determining when these wetlands meet the minimum acreage for NRPA jurisdiction illustrate the need for revised definitions of regulated wetlands. For example, the 10- acre size limit does not effectively protect freshwater wetland functions since several wetlands under 10 acres collectively may be equal in significance to one large wetland. Two wetlands under 10 acres in size that are 10 feet from each other and unconnected, are outside NRPA jurisdiction. Narrow sections of wetland less than 100-feet wide, yet greater than 100 feet in length often are not included in acreage estimates, even though inclusion of such 'fingers' in the acreage estimate would bring the main wetland under NRPA review.

6.4 Federal CZMA Programmatic Objective I -- Protection of Wetlands

Protect and preserve existing levels of wetlands, as measured by acreage and functions, from direct, indirect, and cumulative adverse impacts, by developing or improving regulatory programs.

a. Avoid or minimize any direct adverse impacts of activities that otherwise destroy or impair wetlands through:

- *o Sequenced mitigation decision making, which provides first for avoiding impacts, then minimizing impacts, and finally, appropriate compensatory mitigation. This process also includes practical alternatives analysis;*
- *o Cumulative impacts and secondary effects analysis;*
- *o Exemptions only for those activities with negligible impacts;*
- *o A comprehensive mitigation policy and program;*
- *o Adequate enforcement, surveillance and monitoring programs, that include measuring gains and losses of wetlands acreage and function;*
- *o Developing biological, water quality and hydrological*

criteria for maintenance of wetland functions.

b. Minimize significant adverse impacts on wetlands from upland activities or water uses by:

o Requiring the retention of natural systems or land use practices which reduce or prevent indirect adverse impacts (e.g. vegetated buffers & setbacks).

o Establishing performance standards for existing activities that are known to cause adverse impacts.

o Requiring siting of development away from wetlands or away from critical areas where development is likely to lead to significant indirect impacts to wetlands.

6.41 Existing Laws, Regulations, Programs

a. Wetland Protection -- State Laws & Programs

(1) Wetland Protection Rules -- The Department of Environmental Protection adopted Wetland Protection Rules of the Natural Resources Protection Act on June 13, 1990. The Wetland Rules support the goal of no net loss of wetlands but, in recognition that this goal may not always be possible, outline procedures for mitigation of wetland alteration.

For the purposes of regulation, wetlands are classified by the Department as Class I, Class II, or Class III. Class I wetlands have one or more of the following characteristics: is a coastal wetland or great pond; contains endangered or threatened plant species on the Official List of Endangered and Threatened Plants of the State of Maine; contains a palustrine natural community listed on the Maine Natural Community Classification and ranked S1 or S2 (20 or fewer documented occurrences in Maine); or contains significant wildlife areas as defined by NRPA whether or not they are mapped.

Class II wetlands do not contain any characteristics of Class I wetlands and contain one or more of the following attributes: are located within 250 feet of a coastal wetland; are located within 250 feet of the normal high water line and within the same watershed of any lake or pond classified as GPA (great pond); are located within 250 feet of the normal high water line, and contiguous to, a river, stream or brook, including impoundments not classified as GPA; contains at least 20,000 square feet of aquatic vegetation, emergent marsh or open water during most of the growing season in most years; are bogs consisting of peatland; or are floodplain wetlands.

Class III wetlands do not contain any characteristics of a Class I or Class II wetland and include areas such as wet meadows and wooded swamps.

Sequenced decision-making -- The Rules provide first for

avoiding, then minimizing, and finally for mitigating adverse impacts. If a practical alternative to alteration of the wetland does not exist, preference for compensation for degraded wetlands is as follows: restoration of the functions of degraded wetlands, enhancement of wetlands, preservation of existing wetland or upland, creation of wetland from upland or compensation.

Compensation Policy -- In circumstances where no practical alternative exist, compensation is allowed. Compensation is required to take place on or adjacent to the project site, or if not possible, within the same watershed, except as allowed for mitigation banking. The Wetland Evaluation Technique (WET) published by the U.S. Army Corps of Engineers and other comparable methodologies for assessing the functions of wetlands are acceptable to the DEP. Compensation for lost wetland functions must meet the following minimum ratios measured by area:

- 1:1 for restoration, enhancement or creation in Class II or Class III wetlands;
- 2:1 for restoration, enhancement or creation in Class I wetlands;
- 8:1 for preservation in all wetlands classes.

Compensation is not required for alterations of less than 20,000 square feet in Class III wetlands (including wet meadows, wooded swamps) unless the DEP identifies wetland functions that will be lost or degraded. Functional assessments or compensation are not required for minor alterations of Class I coastal wetlands with no marsh vegetation (mudflats, beaches) that do not fill more than 500 square feet of intertidal or subtidal area and with no adverse effect on marine resources or wildlife habitat.

Public and private entities may apply to the DEP for permission to undertake wetland compensation projects in advance to offset future projects. The above ratios are added together to determine the amount of credit required for a future project. To date, no entity has applied for permission to establish a mitigation bank, however the State Department of Transportation is expected to take advantage of the opportunity. No entity may use mitigation banking to compensate for more than 25 acres of wetland alteration within one year.

The quality of the mitigation allowed for banking purposes is assessed by updated functional assessments. At this time the State does not require long term monitoring of mitigation projects to assess the success of restoration of functions and values over time. For compensation projects involving restoration, enhancement or creation, a deed restriction or conservation easement will be imposed by the DEP requiring that the parcel remain undeveloped in perpetuity and that the wetland be maintained with the DEP as enforcing agent.

Exemptions under Permit by Rule -- Certain activities with "negligible" (as defined by the Department) impacts taking place

in or adjacent to wetlands do not require a detailed NRPA permit. These activities, if certain standards and practices are applied, are determined not to have a major impact on water environmental quality. Activities covered under the permit by rule include, but are not limited to, the placement of moorings, maintenance, repair and replacement of structures, disturbance of soil material adjacent to a waterbody or wetland, placement of outfall pipes and construction of stream crossings, placement of rip-rap, as well as restoration of natural areas. Under Permit by Rule, a photograph of the area to be altered, a notice and a location map are filed with the DEP; unless the applicant is notified within 14 days, work can begin.

Hydrologic & Habitat Functions -- The Department of Environmental Protection accepts the Wetland Evaluation Technique (WET), published by the U.S. Army Corps of Engineers and other comparable assessment techniques as methods for wetland functional assessments.

Permit Review Process -- Permit applications under the Natural Resource Protection Act are circulated by the DEP, as the lead agency, for review by relevant state agencies including the Department of Marine Resources, the Department of Inland Fisheries & Wildlife, the Bureau of Public Lands and the Maine Geological Survey. NEPA applications also generally are sent to the Army Corps of Engineers to accommodate their State Program General Permit, but coordination with federal agencies otherwise is on a case-by-case basis.

(2) Mandatory Shoreland Zoning Ordinances -- The Mandatory Shoreland Zoning Act (38 MRSA 435-447) requires towns to designate levels of protection for shoreland areas within 250 feet of the upland edge of a coastal wetlands, great ponds, and certain freshwater wetlands. Minimum standards must be met for vegetated buffers between proposed activities and the wetland edge. Local shoreland zoning ordinances based on state guidelines provide a measure of protection for adjacent wetlands.

(3) DEP Water Bureau Programs -- Best management practices for construction, agriculture, and forestry activities have been developed by the DEP's Non-point Source Pollution Program. These practices are recommendations without the force of law unless incorporated in local land use ordinances.

The Water Bureau administers criteria for water quality classification of fresh and tidal waters. The tidal water criteria are based on dissolved oxygen, aquatic community assemblage, and bacteria content. The tidal water quality classifications (SA, SB, and SC) specify allowable uses and levels of pollution.

(4) Enforcement, Surveillance and Monitoring Efforts -- Maine does not track information on losses of wetland acreage and function, although individual permit applications include maps, photos and dimensions of areas affected by proposed projects.

Information on acres of wetlands gained is not supplied by permit applications, but future projects requiring mitigation will include this type of information.

The ability to recognize wetlands and generally delineate their boundaries is necessary to ensure adequate enforcement of local shoreland zoning ordinances as well as laws enforced by the DEP. Local Code Enforcement Officers (CEOs) extend the ability of the State to monitor activities having possible impacts on wetlands and to enforce natural resource protection laws. The Department of Economic and Community Development (DECD) trains individuals to identify wetlands and detect possible violations of wetland and other natural resource regulations under its CEO Training Program. Recently the DECD published a detailed practical guide to aid CEOs in identifying and delineating wetlands: Maine Wetlands and Their Boundaries: A Guide for Code Enforcement Officers (Ralph W. Tiner, June 1991).

b. Effectiveness

(1) Wetland Protection Rules --
Freshwater wetlands smaller than 10 acres, and combinations of adjacent but separated small wetlands, remain unregulated under the State Wetland Rules. Class III wetlands are minimally protected, although the functions of these wetland types in a landscape may be locally significant.

State mitigation efforts are effective although restrictions requiring compensation in the same watershed have caused some applicants difficulty. No widely acceptable functional assessment methodology is tailored to environmental conditions found in Maine, therefore mitigation requirements tied to functional assessments are variable. At this time, there are no long-term monitoring projects at restored or mitigated wetland sites, thus the effectiveness of mitigation efforts and monitoring programs cannot be assessed.

Cumulative Impacts -- Concern for the cumulative impacts of development on wetlands are addressed generally in the statement of purpose of the Natural Resources Protection Act which regulates wetlands. Indirect impacts on wetlands are considered during review of large upland development projects within the scope of the Natural Resource Protection Act. The DEP, however, lacks specific guidance for consideration of cumulative impacts during permit decisions. Methods for assessing cumulative impact are not specified in the NRPA, and thresholds for state and local regulators to use in determining cumulative impacts have not been developed.

Under the state's Comprehensive Planning and Land Use Act, communities were directed to prepare local comprehensive plans in order to anticipate the impacts of future development. A complete discussion is included in the 'Cumulative Impact' assessment. Since the first towns to complete plans under the

program have not finalized ordinance programs to implement the plans, the effectiveness of the comprehensive planning effort to avoid the unwanted cumulative impacts of development are unknown.

Permit by Rule -- Permit by Rule Standards detail practices to minimize adverse impacts of minor activities. The cumulative impact of small projects falling under Permit by Rule has not been addressed.

(2) Mandatory Shoreland Zoning Ordinances -- The Mandatory Shoreland Zoning Act is an effective tool for protecting wetlands from the adverse effects of upland activities. Local municipal planning boards may regulate freshwater wetlands under 10 acres in size and coastal wetlands with shoreland zoning designations and local zoning.

Shoreland zoning may be used to direct development from sensitive shore areas with the resource protection designation, but these designations are a local prerogative, which allows towns to control most of the land use decisions impacting freshwater and coastal wetlands. Municipal regulations and enforcement vary from town to town and protection of shared wetlands is not necessarily consistent. Local governments may grant variances from shoreland zoning requirements if the applicant can demonstrate hardship.

(3) DEP Water Bureau Programs -- The best management practices developed by the Nonpoint Source Program minimize adverse impacts to wetlands during land development activities. The effectiveness of the BMP's is limited by the voluntary nature of the program. Maine's water classification scheme provides minimal criteria for water quality and habitat functions of wetlands adjacent to and included in the designated waters. The three designations are very broad, with Class SB waters, the most common designation, allowing discharges that do not cause detrimental changes to the aquatic community. Information on the biodiversity, habitat, and abundance of species on which the classification should rely is not uniformly available for estuarine and marine environments. Many wetlands not associated with river or tidal waters are not included in the water quality classification.

(4) Enforcement, Surveillance and Monitoring Efforts -- Lack of adequate staffing continues to be a problem affecting the ability of the Department of Environmental Protection to review, monitor and enforce its environmental protection laws. The Code Enforcement Training Program has been effective in training personnel at the local level, however enforcement at the local level is hampered by lack of political will and funding for enforcement staff.

6.42 Options for Improvement

- Develop nonpoint source plans for coastal watersheds which document the cumulative effects of wetland alterations in

coastal watersheds on coastal water quality and estuarine habitats.

- Evaluate the extent to which specific coastal and freshwater wetlands may be threatened by short and long-term sea level rise. Determine how such threats may be minimized or are likely to be increased by coastal construction.

- Develop guidelines for evaluating the ecological function of wetland types.

- Develop guidelines for dredging and dredged material disposal in coastal waters. Conduct studies to determine if potential harbor dredging is likely to result in serious erosion or filling of sensitive nearby wetlands.

- Compare enforcement and regulation of Maine's wetland laws with those of other state to identify deficiencies

- Change state regulation to increase protection of wetlands greater than 2-acres in size and forested wetlands.

- Provide technical assistance to towns to develop wetland protection ordinances that protect wetlands not under state regulation.

- Increase DEP staffing for wetland permit review, compliance checks and monitoring.

- Develop guidelines for assessing the cumulative impact of permit decisions and thresholds for state and local regulators to use in permit reviews.

6.5 Federal CZMA Programmatic Objective II-- Wetlands Restoration

Increase levels of wetland sustainable acreage and functions within formerly existing or degraded wetlands:

a. Develop and enhance public wetland restoration programs.

o Identify degraded wetland sites.

o Establish and implement the best available enhancement and restoration measures.

o Prohibit future degradation of the site.

o Identify sites where restoration projects have the greatest likelihood of success.

b. Encourage restoration and monitoring of wetlands in areas likely to achieve the greatest NPS benefits.

c. Encourage restoration which does not maximize one function at the expense of another.

d. Encourage acceptable wetlands restoration by private landowners only if technical assistance and monitoring can be provided.

6.51 Existing Laws, Regulations, Programs

a. Scope & Effectiveness

Wetland Restoration Efforts. The state does not have a program that specifically identifies and restores degraded wetlands. Wetland restoration activities require a permit under the Wetland Protection Rules of NRPA or a application to the Permit by Rule Program. Typical restoration efforts along the coast include revegetation of dune areas and marsh disturbed by construction.

The USF&WS Bangor office manages a Wetlands Restoration Program in Maine. This program pays for restoration projects on private lands at the sites of previously altered wetlands. The program has focused on restoring the hydrology to freshwater wetlands. On the average, approximately 15 acres are restored each year. Usually the restoration projects involve the removal of an old road bed, fill, or the plugging of a drainage ditch through a field.

The U.S. Army Corps of Engineers is undertaking a wetland restoration effort in an area in Wells that was originally filled with material from a Corps dredging project. The Department of Transportation also restores wetlands for mitigation required in connection with highway maintenance and construction.

Identification of Degraded Areas. The Department of Marine Resources Shellfish Program monitors shellfish growing areas along the coast for bacterial contamination. This indicator of water quality is the most wide-scale program in the state that identifies degraded wetlands. The Nonpoint Source Pollution Program administered by the Department of Environmental Protection has assessed non-point source pollution in coastal waters, identified some coastal estuaries and embayments threatened or impaired by non-point source pollution, and prioritized areas where non-point sources can be distinguished from large point sources.

Effectiveness -- In general, there are few wetland restoration projects in Maine. Restoration of coastal wetland sites is conducted under the Wetland Rules. DEP requirements that wetland restoration for mitigation credit be performed in the same watershed as the wetland compensated for, restricts restoration efforts (by the DEP and others) to areas of the state with road projects and development activity.

The state lacks a comprehensive inventory of degraded

wetlands and particularly, those with restricted tidal flow. At a number of locations along the Maine Coast old dikes and embankments block tidal flow to tidal salt marshes. The most notable is an approximately 1200-acre marsh behind a dike on the West Branch of the Pleasant River in Addison. Other common impairments to coastal tidal marsh function are caused by undersized culverts under roadways which restrict tidal flow. These situations should be evaluated for wetlands restoration opportunities.

6.52 Options for Improvement

- Identify degraded coastal wetlands including areas of tidal flow restriction and alteration.
- Convene an interagency group (including the Departments of Inland Fisheries & Wildlife, Marine Resources, Environmental Protection, Conservation, and Transportation) to prioritize wetlands for restoration efforts in anticipation of projects requiring mitigation and to identify state restoration priorities.

6.6 Federal CZMA Programmatic Objective III -- Wetlands Acquisition and Planning

Utilize nonregulatory and innovative techniques to provide for the protection and acquisition of coastal wetlands.

* *Promote or encourage fee simple or less than fee simple acquisition of coastal wetlands.*

* *Provide incentives to landowners to sell or donate wetlands to states or local governments.*

* *Provide disincentives to development in or near wetlands through restricted capital expenditures, taxes, etc.*

* *Provide public education and information programs to the public that describes the importance of coastal wetlands functions and values, as part of a larger effort to develop program changes in this area.*

* *Promote and encourage planning and coordination between federal, state and local governments which lead to plans to protect, restore and create wetlands in specific areas and basin wide (1.e., Special Area Management Plans, EPA, COE, advance identification programs, growth management, mitigation banks, state comprehensive wetland plans, etc.).*

6.61 Existing Programs & Effectiveness

Dept. of Environmental Protection -- Creation of

conservation easements to preserve wetlands is encouraged by the DEP in its permitting process under the NRPA and the Site Location of Development laws.

Dept. of Conservation -- The Bureau of Public Lands (BPL) acquires land for public recreation, wildlife habitat, timber management and access. The Bureau of Parks and Recreation (BPR) maintains the state's park system and acquires lands with funds from the Land & Water Conservation Fund. Some BPR and BPL holdings include coastal and inland wetlands.

Dept. of Inland Fisheries and Wildlife -- Funds from the federal Wallop-Breaux Amendment to the Dingell-Johnson Act, the Pittman-Robertson Act and state bond issues are used to acquire wildlife habitat including wetlands.

Land for Maine's Future Board -- The Land for Maine's Future Board administers funds from a state bond issue for the acquisition of lands of state significance, including wetlands. Lands acquired by LMFB are managed by the DOC and IFW.

State Planning Office -- "The Estuary Book" and "Estuary Profiles" were developed by the Maine Coastal Program to provide information on the functions and values of coastal wetlands. The SPO also hosts Maine's Critical Area Program (CAP), which is a volunteer non-regulatory owner-registry program for identifying unique natural areas. Owners agree to protect the feature and notify the CAP of changes in status.

The Natural Heritage Program -- The program ranks natural communities according to rate of occurrence with in the state. Wetland communities with an occurrence rate of less than 20 are classified as Class I wetlands under the Maine Wetland Protection Rules.

Maine Wetlands Coalition & North American Waterfowl Plan -- This is a coalition of state agencies and private conservation groups that works to identify priority wetlands for protection. The coalition uses the North American Waterfowl Management Plan/ State Wetlands Concept Plan, developed by the USFWS, which outlines specific wetland acquisition priorities for the Service. The North American Waterfowl Management Plan is a joint effort by federal and state agencies and conservation groups to target acquisition efforts in key focus areas with significant habitat for waterfowl.

The Waterfowl Management Plan (1989) identified five focus areas in Maine that are preservation priorities. These are: Cobscook Bay, Merrymeeting Bay and the Lower Kennebec River, East Coast, West Coast, and Inland wetlands. The Plan recommends purchasing or protecting with easements the wetlands and adjacent upland buffers.

Private Efforts -- Several major conservation organizations with coastal holdings which potentially could include wetlands

are: National Audubon, Maine Audubon, The Nature Conservancy, and Maine Coast Heritage Trust. Maine's 65 small land trusts have the ability to own and hold conservation easements on wetlands.

Effectiveness -- Wetland acquisition programs have been effective in protecting and managing wetlands in coastal areas. Several private conservation groups and state programs have coordinated protection efforts in Cobscook Bay, a protection priority for the state. Acquisition program are generally limited by the lack of a stable funding source.

6.62 Options for Improvement

- Protect tax exempt and municipal service fee exemptions for non-profit conservation organizations.
- Promote a public/private partnership or coastal conservancy to assist with acquisition of easements and development rights in critical wetlands.
- Develop strategies to protect wetlands in state ownership including allowing the Maine Department of Transportation to contribute wetlands owned by the department for mitigation.

6.7 Federal CZMA Programmatic Objective IV -- Creation of Wetlands

Develop and improve artificial wetlands creation programs as the lowest priority.

* *Develop procedures for evaluating and selecting candidates from an ecological systems as well as an economic perspective.*

* *Develop an appropriate monitoring program to evaluate the success of any efforts to create artificial wetlands.*

6.71 Existing Laws, Regulations and Programs

Since Maine retains most of its original wetland base, state policy seeks to protect existing wetlands rather than develop and improve artificial wetlands. Creation of wetland from upland, because of the high level of uncertainty of success, is regarded as a last resort, available only when other methods of compensation are not practicable and the applicant can demonstrate that the creation project will replace the functions of the wetland to be altered.

The Nonpoint Source Program creates small wetlands for the purpose of pollution prevention. These created ponds are monitored for water quality parameters.

6.8 Information/Studies

Adamus, P.,1986. "The Cumulative Impacts of Development in Southern Maine-- Wetlands: Their Locations, Functions, and Value," Eco-Analysts Inc. for Maine State Planning Office, Augusta, ME.

Blakesley, R. 1990. "Dredge Management Strategy--Draft," Maine State Planning Office, Augusta, ME.

Bureau of Public Lands, 1989. " Submerged Lands Study, A Study of Submerged Land and Leasing Policies," Bureau of Public Lands, Department of Conservation, Augusta, ME.

Dahl, T.E.. 1990. "Wetland Losses in the United States 1780's to 1980's," U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. 21 pp.

Doggett, L. and J. Sowles. "State of the Marine Environment"

Maine State Planning Office, 1982. "A Dredge Management Study for Maine", Maine State Planning Office, Augusta, ME. Reprint 1989.

Reid, W. V. and M.C. Trexler, 1991. "Drowning the National Hertitage: Climate Change and U.S. Coastal Biodiversity, World Resources Institute, Washington, D.C.

Ruffing, J. 1990. "Estuary Profile Series", Maine Coastal Program, State Planning Office, Augusta, ME.

Tiner, Ralph W., June 1991, "Maine Wetlands and Their Boundaries: A Guide for Code Enforcement Officers"

USFWS, 1990. "Regional Wetlands Concept Plan, Emergency Wetlands Resource Act," Northeast Region U.S. Fish and Wildlife Service, Newton Corner, MA.

USFWS, 1989. "North American Waterfowl management Plan, Atlantic Coast Venture," Northeast Region U.S. Fish and Wildlife Service, Newton Corner, MA.

Widoff, L. 1988. "Maine Wetlands Conservation Priority Plan", An Addendum to the State Comprehensive Outdoor Recreation Plan (SCORP), Maine Bureau of Parks and Recreation, Maine State Planning Office, Wetlands Subcommittee, Land and Water Resources Council, Augusta, ME.

Maps

Marine Geology Maps
Coastal Sand Dune Map
Maine Wetland Inventory Maps
National Wetland Inventory
Freshwater Wetland Inventory Maps

Section 309 Assessment

7. ADVERSE CUMULATIVE & SECONDARY IMPACTS OF DEVELOPMENT

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Adverse Cumulative & Secondary Impacts of Development

CONTENTS

7.0 SUMMARY

In the 1980s, coastal Maine experienced an unprecedented demand for coastal land, elevated land prices, urbanization or suburbanization of many small villages, and changes in the rural landscape. The development surge raised and intensified concerns that environmental quality--the basis for sustained quality of life on the Maine coast--was declining. **Cumulative impact of development** describes the effect of incremental changes to the landscape and environment over time which is greater than the sum of individual effects.

The impetus for the current comprehensive planning effort, currently underway in towns throughout Maine, came from previous studies of coastal towns experiencing rapid growth in population and changes in land use. These studies recognized that permit decisions were often made in isolation without consideration of other present, past or possible future effects. Local plans were needed to anticipate the cumulative impacts of growth in order to avoid negative effects (such as impaired air and water quality, destruction of coastal habitats and urban sprawl) and to direct appropriate growth and development in communities.

Extensive shellfish closures along the coast highlight the connections between land use, water quality, and economic opportunities. Water pollution in estuaries and other tidal embayments reflects the cumulative effect of land and water use in the surrounding watershed. A public survey distributed by the Maine Coastal Program to town officials and others in May 1991 revealed a strong concern for the cumulative effect of our use of coastal lands and waters on water quality and coastal habitats.

Accomplishments

- Regional planning efforts such as the Casco Bay Project, the Gulf of Maine Program and the International Waterway Commission on the St. Croix River, have begun to address the cumulative and secondary impacts of activities on estuarine and marine environments.

- The Growth Management Program provided technical assistance and funding to coastal communities for comprehensive planning efforts. Many communities along the coast have defined in their comprehensive plans, a vision for the future that could prevent the unwanted cumulative effects of growth and development.

- The Code Enforcement Officer Training Program in the Maine Department of Economic and Community Development trains and assists local code enforcement officials to improve enforcement of existing environmental regulations.

- Major state environmental laws, including the Natural Resource Protection Act (NRPA), the Site Location of Development Act and the Mandatory Shoreland Zoning Act, require consideration of cumulative impacts in permit decisions.

- The Critical Areas Program and the Natural Heritage Program have inventoried significant natural areas throughout the State. The Department of Inland Fisheries and Wildlife has identified important habitats in coastal communities and conducted marine wildlife inventories of many embayments and islands.

- The Nonpoint Source Pollution Program at the Maine Department of Environmental Protection has identified coastal waters threatened by nonpoint source pollution and has sponsored demonstration projects that reduce nonpoint source pollution from land-based activities.

- The Department of Marine Resources monitors shellfish flats over 3,600 miles of Maine coastline and has identified point sources of pollution and suspected nonpoint or diffuse sources in most productive shellfish areas.

Problems

- More local planning is needed for shared natural resources, such as estuaries or groundwater aquifers.

- Approximately 30 percent of Maine's shellfish flats are closed because of pollution from point and nonpoint sources.

- Communities that rely on surface waters for public water supplies face shortages as population increases, as well as potential pollution from nonpoint source sources as land and water used in coastal watersheds changes.

- Inadequate septic systems and straight pipes account for bacterial pollution of many productive shellfish flats. State law permits licensed overboard discharges to continue if no reasonable alternative exists.

- Many shellfish flats remain closed after water quality improves because of inadequate staffing and funding for water quality monitoring; municipalities need funds for septic system and sewer system upgrades; the estuarine monitoring program at the Department of Environmental Protection is unfunded.

- Existing information on coastal water quality and sources of pollution is scattered between several agencies.

- Monitoring of nearshore tidal waters for pollutants other than bacteria is inadequate or nonexistant.

- Enforcement of environmental regulations is inconsistent and often done after the fact on state and local levels because of inadequate funding and coordination.

- The cumulative effect of development on small freshwater wetlands that are not protected by state regulation threatens habitat diversity and coastal water quality.

- Permit decisions may be made at the local and state level in isolation, without consideration of other present, past or future projects.

- State agencies lack formal guidelines for including consideration of cumulative impacts in permitting decisions.

- Communities lack funding for technical assistance for planning and land use programs.

- Other than the minimum state water quality classification designations of coastal waters, there are no established thresholds for development or environmental impact beyond which further degradation is not acceptable.

- The Natural Resource Protection Act (NRPA) requires consideration of the scenic impacts of proposed development, yet the needed inventory information and guidelines to implement this criteria during permit review does not exist.

- The significant wildlife habitat criteria of NRPA do not include marine wildlife areas or other significant marine or estuarine habitats that may be susceptible to the cumulative impacts of development.

7.1 Maine's Key Coastal Management Policies Relating to Cumulative and Secondary Impacts of Development (38 MRSA 1801)

* SHORELINE MANAGEMENT & ACCESS. Support shoreline management that gives preference to water-dependent uses over other uses, that promotes public access to the shoreline and that considers the cumulative effects of development on coastal resources.

* SCENIC AND NATURAL AREAS PROTECTION. Protect and manage critical habitat and natural areas of state and national significance and maintain the scenic beauty and character of the coast even in areas where development occurs.

* WATER QUALITY. Restore and maintain the quality of our fresh, marine and estuarine waters to allow for the broadest possible diversity of public and private uses.

7.2 Federal CZMA Legislative Objective

§ 309 (a)(5) Development and adoption of procedures to assess, consider, and control cumulative and secondary impacts of coastal growth and development, including the collective effect on various individual uses or activities on coastal resources, such as coastal wetlands and fishery resources.[1]

7.3 Federal CZMA Assessment Characterization

Characterize the nature, type, and extent of secondary and cumulative impacts in the coastal zone.

* *Identify areas in the coastal zone where rapid growth requires improved management of potential cumulative and secondary impacts.*

* *Identify areas in the coastal zone which possess sensitive coastal resources (wetlands, water bodies, fish and wildlife habitats), and require a greater degree of protection and understanding of the cumulative and secondary impacts related to growth and development.*

* *Assess the adequacy of existing institutional, legal and policy mechanisms (e.g., coastal development permits, local land use plans and ordinances, water quality reviews, infrastructure funding policies) that address cumulative and secondary impacts on coastal resources.*

7.31 Scope & Definitions

Cumulative impact is used to describe the total change that results from many smaller changes over time. Small changes--a residential subdivision, a new dock, a parking lot expansion, a new strip-development mini-mall along Route 1--may seem minor when viewed individually. The overall effect of a number of relatively negligible actions over time, however, is usually significant.

Cumulative impacts can be direct, indirect, or secondary. They can have positive as well as adverse effects. Direct cumulative impacts are the actual effects of the action. Indirect impacts are the effects that are indirectly caused by the action. For example, a house built along the shore may have the direct effect of adding to the local tax base, and clearing of the shoreline forest for the house construction. Erosion and loss of habitat resulting from the clearing of the land are also direct effects. Indirect effects of the construction include the erosion of the building site, increased run-off to the bay, and loss of wildlife habitat at the construction site. The placement of one

[1] Italicized text is excerpted from federal guidance for the Section 309 assessments.

house may have a secondary effect of influencing the building of additional homes along the bay.

7.32 Available Information/Studies

For more than twenty years, the state has recognized the significance of the incremental effects of development. In 1977 the Governor's Committee on Coastal Development and Conservation and the Department of Environmental Protection (DEP) commissioned a study of the cumulative impact of development on the Maine coast. Among the recommendations in the consultant's report (LUC 1977) were suggestions that the state's environmental laws be amended to require consideration of cumulative effects and that municipalities include concerns for cumulative impact into their comprehensive plans and develop land use control ordinances linked to identified threshold capacities.

The 1977 study resulted in the addition of language to the Coastal Wetland Law regulations and the Site Law that mentioned consideration of cumulative impacts. By the early 1980s these minor changes to state statutes seemed ineffective in the face of the unprecedented development pressures on the Maine coast.

In 1985, the Coastal Advisory Committee of the Land and Water Resource Council directed the Maine State Planning Office to initiate a Cumulative Impact Project to address the problem of unplanned growth and development in coastal communities. The purpose of the multi-phase project was to document the effects of incremental development on natural resources in selected towns as well as to study the legal aspects of regulating incremental development. Advisory boards were formed at the state and local levels to make recommendations to the Legislature and Governor on statewide growth management measures and to assess how the state and towns could manage the cumulative effects of development.

The first phase of the Cumulative Impact Project documented the effects of incremental development on the natural resources of nine towns in York County. A series of maps were developed to inventory and document changes in scenic areas, lands in conservation-ownership, land cover, wetlands, groundwater resources, and important wildlife habitats.

Subsequent studies examined the legal aspects of regulating incremental development. The Southern Maine Regional Planning Commission (SMRPC 1986) assessed the adequacy of local land use regulations used to manage the cumulative effects of development in the York County towns. The Marine Law Institute (Rieser and Quintrell, 1987) prepared two studies for the Cumulative Impact Project, a review of the policy, regulatory, and statutory framework for addressing cumulative impacts in Maine and a review of land use planning strategies employed by other states. In a final report, Maine Audubon analyzed land use and impacts on wildlife in the coastal towns of Machias, Trenton, Rockport, Scarborough, and Damariscotta (Arbuckle & Lee, 1987).

The lack of policy or planning guidelines to provide a context for land use and environmental laws and regulations was cited by Rieser and Quintrell, (1986) as a major obstacle blocking effective consideration of the cumulative impact of proposed development. The report maintained that permitting decisions, made on a case-by-case basis, addressed only the direct impacts of a project. Although state environmental regulations sought to minimize the impacts of a project, sensitive resources were often not adequately protected and the collective effect of possible future projects on the resource was not addressed.

One problem identified in the Rieser and Quintrell report was the difficulty in determining the threshold at which point the resource could no longer withstand further degradation. For example, three homes along a sand beach may not sufficiently discourage a colony of least terns from returning to nest in the area, but how many more homes would the bird colony tolerate before abandoning the beach? The report concluded that the most effective management of incremental development was through planning that identified sensitive resources and design of appropriate regulations that would treat all landowners equitably while preserving the integrity of the resource.

The project summary (Dominie and Scudder, 1987) concluded that negative cumulative effects are caused by haphazard growth and can be minimized by planning to anticipate and direct growth to appropriate sites. The summary identified the following to be effective elements common to other states' growth management initiatives:

(1) instituting a clear, state land use policy;
(2) assuring local land use planning is tied to implementation programs;
(3) identifying sensitive resource areas, other areas of statewide significance and assuring their protection through acquisition and regulation;
(4) assuring predictability in local and state permitting processes through explicit review criteria and performance standards; and
(5) making a long-term commitment at the State and local levels to funding and supporting land use management.

The 1987 Cumulative Impact study led to passage of growth management legislation committing the state to supporting local comprehensive planning.

7.33 Assessment of Problems & Issues

a. Natural Resources Threatened by Cumulative Impacts

Natural resources are directly and indirectly changed by the cumulative impact of development and growth. Coastal and inland waters, habitat and populations of native plants and animals, air, scenery and open space are some of the natural resources diminished by the negative consequences of many environmental alterations over time.

(1) **Water Quality.** Growth and development along the coast have contributed to pollution of fresh, ground and tidal waters. As increasing numbers of users tap into groundwater aquifers and develop lots in coastal areas, problems with saltwater intrusion, and bacterial and other types of pollution are more common. Run-off from roads and development impair the water quality of fresh surface waters, making them unsuitable for drinking water. At least 30 percent of the productive clam flats along the Maine coast are closed to harvesting each year by bacterial pollution from septic tanks on shorelands, land run-off, boat traffic, and other sources. The pollution is from both point and nonpoint sources, and primarily the result of human activities.

Several islands have been designated by the federal Environmental Protection Agency, at the request of the State, as sole source aquifers, since most islands have a single lens of groundwater. Many coastal peninsulas also have single groundwater aquifers available for groundwater supply. These areas are very vulnerable to the cumulative impacts of human activities on groundwater quality.

According to the State Nonpoint Source Management Plan (1989), 0.7% of the surface area of Maine's lakes and ponds, is predicted to be extremely vulnerable (a 1 ppb increase in phosphorus level is predicted to occur in 10 years) to nonpoint source pollution. Approximately 11.2% of the surface are of Maine's lakes and ponds are classified as highly vulnerable (a 1 ppb increase in phosphorus is predicted to occur within the next 50 years) to nonpoint source pollution associated with development. Most of the fresh water lakes and ponds in the coastal zone fall into one of these two categories.

The vulnerability of tidal waters to loading of land-based pollutants depends on the "flushing rate" of the area, the composition of bottom sediments, the landcover in the coastal watershed, the amount and toxicity of the pollutants and other factors. The DEP has classified tidal waters according to dissolved oxygen content, bacterial levels, and benthic community diversity. Presumably, those waters with the higher standards, Classes SA and SB, are more vulnerable to the cumulative impacts of water pollution from development than Class SC waters which allow industrial discharges and set minimal standards to support aquatic life. River waters are classified according to a similar

system by the DEP. Priority coastal water bodies that are impaired or threatened by nonpoint source pollution are identified in the State Nonpoint Source Management Plan.

(2) **Water Quantity**. Growth on islands and in communities dependent on groundwater is affected by source limitations, including contamination by salt water intrusion caused by excessive draw down as well as sea level rise. Although not a current concern, diversion of freshwater from coastal rivers could alter estuarine environments along the coast.

(3) **Habitat**. Groupings of environmental factors (e.g. climate, salinity, soils, water) that support assemblages of plants and animals sharing similar requirements are called habitats. Habitat for terrestrial plants and animals as well as marine life may be threatened by the collective effect of activities on land and in tidal waters. Gradual alterations to the landscape may eventually destroy or alter the ability of the habitat to maintain a diversity of species. For example, although one house built on the edge of a deer wintering yard may have minimal effect on the resident deer population, the disturbance from additional houses may drive deer from the area.

Marine habitat is affected by changes in water quality as well as direct physical disturbances (such as the placement of moorings or dredging). Many harbors along the coast have relatively barren bottoms and few fish species. Historical accounts relate that flounder and groundfish were once plentiful in these areas; today, the cumulative impact of harvesting, boat traffic, water pollution, dredging and other activities may have resulted in degraded harbor habitats unable to support a diversity of marine life. These are only a few examples of the impact of human activities on habitat--virtually any change to coastal lands or waters will effect habitat.

(4) **Air Quality**. High levels of ozone pollution result from the automobile emissions of the millions of visitors to the coast each summer. This seasonal decline in air quality affects human health as well as health of the environment. In Acadia National Park, researchers have documented the devastating effect of high ozone levels combined with the coastal fog on the maritime black spruce forest.

(5) **Scenic Quality**. Visual resources are important because the landscape defines people's sense of place and perception of environmental quality. The effect of the cumulative impact of growth and development is often first noticeable visually, before other more subtle environmental impacts are apparent. Scenic quality is central to defining the character of a place ("Maine--The Way Life Should Be" is proclaimed by billboard at the state line in Kittery) and can attract tourism, new settlement, investment and other activities important to the state economy.

(6) **Open Space.** Undeveloped land or open space is a resource most treasured when it is gone. Maine people have traditionally relied on undeveloped land to provide opportunities for hunting, paths to coastal waters, and walking. Subdivision of shorelands, farms and forests reduces opportunities for free access across private lands. Development of open space also affects wildlife and many native species, such as amphibians, not specifically protected by law. Subdivision of agricultural and forest lands lowers the potential of the land to contribute to the traditional agricultural and forestry economic base of the community. Most (90%) of the coast's open space is in private ownership; public and nonprofit conservation holdings represent only about 6 percent of the coastal land acreage.

b. Activities Threatened by Cumulative Impacts

In addition to natural resources, public access and suitable sites for water-dependent use may be threatened by cumulative impacts.

(1) **Public Access to Coastal Waters.** Less than 7 percent of Maine coastal shorefront is publicly-owned. Transfers of land ownership along the coast have resulted in subdivision of waterfront parcels and loss of traditional accessways for shellfish harvesters, hunters, and recreational users of the coast. Loss of public access to the coast is a sociological effect of the cumulative impact of development. For instance, a property owner may tolerate a few visitors to a private beach. After adjacent private beaches are closed to public access, and the neighborhood converges on the remaining open beach, the permissive landowner may decide that too many people are using the beach and as a consequence, restrict access. Public access to the beach has been lost because of the cumulative effect of visitation pressure moved from several beaches to a single beach.

(2) **Coastal Sites Suitable for Water-Dependent Use.** Boatyards, marinas, fish docks, deepwater anchorages and businesses associated with commercial fishing are typical examples of activities dependent on waterfront locations. If harbor areas are developed with motels, condominiums, and other nonwater-dependent businesses, the eventual economic effect may be to crowd out traditional maritime related businesses from the area.

(3) **Shellfish Harvesting.** Approximately 30 percent of Maine's shellfish flats are closed because of pollution from point and nonpoint source pollutants. Many activities are incompatible with the maintenance of open shellfish areas because of pollutants associated with the activities or federally mandated closures. For example, shellfish closures are mandatory around mooring fields of a certain size. Inadequate septic systems and straight pipes account for bacterial pollution of many productive shellfish flats. Overboard discharges, which account for many closures, are allowed if no reasonable alternative exists.

c. Identification of Growth Areas

Many coastal islands, estuaries and harbors have experienced obvious effects from the cumulative impacts of development. Increased recreational use of Maine harbors has created competition for moorings, impaired water quality in some areas, and raised concerns about the future of traditional uses of the waterfront. A case study comparing development scenarios was commissioned for the Island Institute (Brown et al., 1987). The study examined Carvers Harbor on Vinalhaven Island and concluded that such communities must clearly state their fishing community identities in their comprehensive plans.

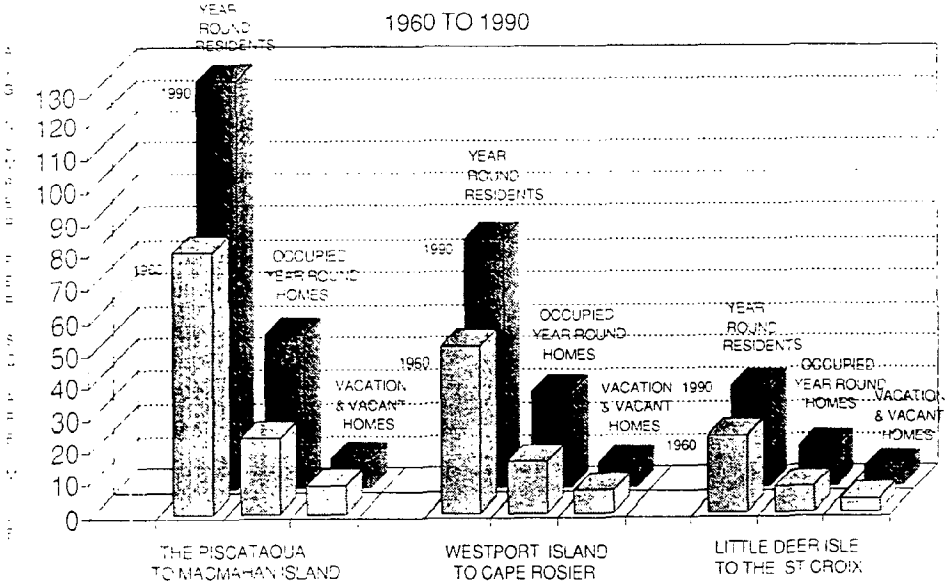
Tidal shores along estuaries and shorelands along inland freshwater ponds and lakes are focuses of building activity and changes in land and water use in Maine's Coastal Zone. The 1990 U.S. Census shows growth occurring all along the coast over the past ten years, a by-product of the real estate boom of the 1980s. Lincoln and Cumberland counties experienced the highest growth rates.

The number of occupied year-round homes in the coastal zone doubled between 1960 and 1990. Overall pressure on the land, indicated by average numbers of residents and housing units per square mile, is highest in the southern section of the coast. This can be seen by comparing cities and towns in the southern, central and downeast segments of the coast as shown on the chart below.

PRESSURE ON THE LAND

MAINE'S COASTAL ZONE CITIES AND TOWNS

1960 TO 1990



SOURCES 1960 AND 1990 U.S. CENSUSES OF POPULATION AND HOUSING

d. Adequacy of Institutional, Legal & Policy Mechanisms

(1) Scope

Rieser and Quintrell (1986) list three major obstacles to effective consideration of cumulative impact in Maine:

--lack of cumulative impact guidelines to direct state permitting decisions
--lack of consideration of cumulative impact by local municipalities in directing and permitting development.
--lack of baseline information on resources, and on other projects in the area under review or permitted by state and local agencies.

These obstacles still exist, although recent growth management efforts that promote local comprehensive planning have improved anticipation of the cumulative effects of development at the local level.

(2) Existing Programs & Effectiveness

A. **Mapping and Information Collection.** State collection of baseline information is improving. State natural resource data collection is now coordinated through a Geographic Information System (GIS) headquartered in the Department of Conservation. The Department of Inland Fisheries and Wildlife (IF&W) is responsible for mapping wildlife habitats. Maine Geological Survey maintains sand dune, wetland, aquifer, and marine habitat maps. The Department of Marine Resources is mapping marine resources sensitive to oil spills such as shellfish beds and spawning areas. Coastal wetland locations have been inventoried by the US Fish and Wildlife National Wetland Inventory (NWI); freshwater wetlands were mapped by the Maine Wetlands Inventory (IF&W) as well as the NWI.

Effectiveness-- The state Geographic Information System (GIS) will eventually improve accessibility and usability of state natural database for use in permitting and planning. Scarcity of funds hampers entry of information on the state GIS as well as other mapping and inventory efforts. Existing wetland and marine habitat maps are incomplete and need field verification. Existing information on pollutants and other indicators of environmental health of nearshore coastal waters is inadequate to constitute a baseline against which the environmental cumulative impacts of development can be assessed.

B. **Water Quality Monitoring.** Several Maine state agencies monitor waters impacted by pollution. The Department of Human Services and the Department of Environmental Protection (DEP) monitor groundwater wells. The Department of Marine Resources (DMR) Shellfish Program monitors the water quality in shellfish areas along the coast. The DEP identifies waters impaired and threatened by nonpoint source (NPS) pollution and regulates, through permits, direct discharges to rivers and coastal waters.

Effectiveness--In general, the effectiveness of the water quality monitoring efforts by state agencies is limited by the scarcity of state funds and the vast area, 3,600 miles of coastline, to be covered. Approximately 30 percent of Maine's shellfish flats are closed because of pollution from point and nonpoint sources, as well as, the lack of monitoring information. Existing information on coastal water quality and sources of pollution is scattered between several agencies. Monitoring of nearshore waters for pollutants other than bacteria is inadequate.

The Lakes Program. Inland lakes, including lakes in the coastal zone, have been evaluated by the DEP Division of Environmental Evaluation and Lake Studies (EELS) according to a lake vulnerability index. The index is a predictive model which evaluates the lake or pond hydrologic characteristics and the rate of watershed development during the period of 1984-1986, and estimates how long it will take for phosphorus concentrations to increase in the pond or lake by 1 part per billion (ppb).

Effectiveness-- The criteria developed by EELS have been well received by towns and have enabled planning boards to anticipate the cumulative effects of lake watershed development on lake water quality. Extension of this predictive approach to estuarine areas and estimation of the effect of nutrient-loading activities on coastal water bodies is being considered.

Partners in Monitoring. Several state agencies including the DEP, DMR, State Planning Office and the University of Maine Cooperative Extension service have pooled efforts to coordinate coastal water quality data collection and volunteer water quality monitoring efforts.

Effectiveness-- The effort is a recent one and it is too early to judge effectiveness, however, coordination has improved among the agencies and volunteer water quality monitoring is expected to provide information on nonpoint sources of pollution and other cumulative effects of development.

NonPoint Source Pollution Program. The Department of Environmental Protection administers the nonpoint source program and develops Best Management Practices to cover a range of land-based activities.

Effectiveness-- The existing Nonpoint Management Plan lists few coastal waters as priorities for improvement. Several demonstration projects, notably in Casco Bay and in Passamaquoddy Bay have addressed nonpoint source pollution in tidal waters. The state Nonpoint Management Plan is currently being revised to include a more complete listing of coastal waters that are threatened or impaired by NPS pollution and to include best management practices that address marine-related activities.

D. **Habitat Protection.** The Department of Inland Fisheries and Wildlife is responsible for managing habitat for game and nongame wildlife species as well as marine mammals, migratory birds and freshwater fish. Marine and estuarine habitats such as shellfish flats, eelgrass beds, subtidal areas used as spawning grounds, or tidal creeks important for alewife and smelt runs are protected generally under marine resource (DMR), wetland (DEP), and submerged land (DOC) regulations.

Effectiveness-- The habitat management efforts of IF&W and DMR are implemented through a network of field wardens and biologists. Scarcity of funding jeopardizes these efforts. Reluctance of the IF&W to promulgate maps and guidance in order to implement habitat provisions of the Natural Resource Protection Act has delayed local protection of important habitat areas.

Critical Areas Program. The Critical Areas Program of the State Planning Office identifies and maps occurrences of significant features throughout the state and works with private landowners to ensure protection of the site.

Effectiveness-- The program has been very effective over the last ten years, however, recently, the state legislature has temporarily suspended the program because of lack of funds.

Natural Heritage Program. The Natural Heritage Program of the Department of Economic and Community Development inventories important natural communities around the state. During the development of comprehensive plans, Maine towns are encouraged to map all Critical Areas and Heritage Sites as well as consult with IF&W and DMR to identify habitats of significance.

Effectiveness-- The program effectively distributes habitat information to towns to assist with planning efforts.

D. **Open Space Protection.** Tree Growth and Farm and Open Space tax designations are the major incentive programs at the state level to encourage open space land use. The state Land for Maine's Future Program and private land trusts throughout the state are actively protecting land through conservation easements and acquisition.

Effectiveness-- The Land for Maine's Future Board has effectively committed its initial $35 million to specific acquisitions. A referendum last November failed to provide additional funding. Concerns that conservation ownership will reduce town tax base have caused several coastal towns and private groups to oppose conservation acquisitions.

(3) Existing Regulations & Effectiveness

Comprehensive Planning and Land Use Regulation Act (30-A MRSA §4311-4344) and the Growth Management Program. Enacted in 1988, this statute mandated towns to develop comprehensive plans

and implementation programs that were consistent with the state growth management goals and coastal policies. By outlining a program of local comprehensive planning and implementation of local land use controls, the Act intended to avoid the adverse effects of unplanned growth.

In December, 1991, the Legislature removed provisions which required preparation of local comprehensive plans and implementation programs according to state deadlines. Funding for the Office of Comprehensive Planning, charged with providing planning grants and technical assistance to towns, and with reviewing local plans was withdrawn. The Maine Coastal Program continues to provide the OCP with funds for technical assistance for plan and ordinance development by coastal communities, however, and for local technical assistance by the Regional Planning Councils.

Effectiveness-- Until the withdrawal of funding implementing this act, the Growth Management Program was very effective in assisting towns preparing comprehensive plans. The "Guidelines for Maine's Growth Management Program (1988)" issued by the Office of Comprehensive Planning direct communities to inventory natural and cultural resources, examine trends and issues, and project future development patterns in an effort to create a context for local planning efforts and the implementation of ordinances, regulations and other programs.

As of January 1992, 86 of the 144 coastal towns have received funding to develop comprehensive plans; 33 towns have submitted their plans and 9 have received state approval. Eight towns have received funding to pursue implementation of their plans through local ordinance development. Comprehensive planning is no longer a mandate for local municipalities, but many towns are committed to continuing the comprehensive planning process in order to direct future growth.

The Growth Management Program encouraged the inclusion of regional policies in local comprehensive plans. These regional policies were to promote coordinated protection and use of shared regional resources such as aquifers, lakes or estuaries. A project is underway in Casco Bay to implement these regional policies with consistent local shoreland ordinances in the towns surrounding the Bay. Other efforts to coordinate ordinance development have been less successful due to local politics.

Most permitting decisions affecting land use are made at the local level according to criteria established by the particular town. Guidelines to assist local planning boards with inclusion of cumulative effect considerations in their permitting decisions are not available, but a major emphasis of the state growth management program was to encourage and assist towns with identification of sensitive resources and design of programs, ordinances, or performance standards that protect these resources. Since the first towns to complete comprehensive plans

are just now embarking on implementation programs, the effectiveness of these efforts is yet to be determined.

Land Use Regulatory Act (12 MRSA §681-689). Areas of the state in unorganized territories, including 5% of the land within the Maine Coastal Zone and over 200 coastal islands, are under the jurisdiction of the Land Use Regulatory Commission (LURC). LURC has the authority to plan and regulate land use and has prepared a comprehensive plan. The plan, currently undergoing a major update, creates protection and management zones and Wetland Protection Subdistricts. LURC requires a 75 to 125 foot shoreline setback from water bodies.

Effectiveness-- LURC planning efforts are generally effective, however, LURC staff have recognized the need to develop state policies for coastal islands, which are more vulnerable than other coastal areas to the cumulative impacts of development.

Natural Resources Protection Act (NRPA) (38 MRSA §480). NRPA regulates certain activities in resource areas of state significance including wetlands, Great Ponds, rivers and streams, significant wildlife habitat, fragile mountain areas and sand dunes. Concerns for cumulative impacts are stated in the findings statement which concludes:

> "The Legislature further finds and declares that the cumulative effect of frequent minor alterations and occasional major alterations poses a substantial threat to the environment and economy of the State and its quality of life."

Effectiveness -- The Department of Environmental Protection issues rules to implement the Natural Resource Protection Act. Rules clarifying the application of the Natural Resource Protection Act to sand dunes state that "special attention will be paid to the cumulative impacts of activities on dune systems" (Coastal Sand Dune Rules, Chapter 355, revised 1/4/88). Project reviews are to include consideration of expected changes in shoreline and storm hazards within 100 years as well as percent coverage of the lot by existing and proposed development. Rules pertaining to development on Great Ponds specifically mention cumulative impact, especially with regard to the placement of docks. There are no criteria or guidelines to enable the DEP to implement the scenic protection criteria of NRPA.

The habitats identified by the Natural Resources Protection Act (NRPA) as having state significance do not include all habitat areas sensitive to cumulative and secondary impacts of growth and development. The statute requires mapping of certain habitats before they can be protected by NRPA and this provision is proving to be administratively burdensome. The Department of Inland Fisheries and Wildlife is mapping "significant wildlife habitats". These habitats as narrowly defined by the Natural Resource Protection Act (NRPA, 38 MRSA §480-B) include:

"habitat for species appearing on the official state or federal lists of endangered or threatened species; high and moderate value deer wintering areas and travel corridors as defined by the Department of Inland Fisheries and Wildlife; high and moderate value waterfowl and wading bird habitats, including nesting and feeding areas defined by the Department of Inland Fisheries and Wildlife; critical spawning and nursery areas for Atlantic sea run salmon as defined by the Atlantic Sea Run Salmon Commission; and shoreland nesting, feeding and staging areas and seabird nesting islands as defined by the Department of Inland Fisheries and Wildlife."

The Wetland Protection Rules (Chapter 310, 6/13/90), include a "No Unreasonable Impact" standard that provides for consideration of the effects of a proposed project on wetlands beyond the project's physical boundaries, and the cumulative effects of frequent minor alterations of the wetlands resources. Small wetlands under 10 acres in size and certain classifications of wetlands are unprotected by the Wetland Rules.

Permit-by-Rule Program. Permit by Rule procedures allow an applicant to bypass the standard NRPA permit process providing that the proposed project meets special criteria and incorporates performance standards or best management practices designed to mitigate disturbance. Before beginning work, the applicant must file a notice of the project with the DEP. Unless notified to the contrary within 14 days by the DEP, the project can proceed. These 'permits' are valid for two years.

The DEP has adopted Permit by Rule Standards for the following activities: disturbance of soil material adjacent to a wetland or water body; intake pipes and water monitoring devices; maintenance repair and replacement; moorings; movement of rocks and vegetation by hand; outfall pipes; riprap; crossings (utility lines, pipes and cables); stream crossings (bridges, culverts and fords); maintenance, repair & minor modification of state transportation facilities; and restoration of natural areas (3/23/91).

Effectiveness-- The Land Bureau of the DEP records Permit by Rule applications on a computer data base in an effort to track the frequency of projects in an area. Despite this effort, the cumulative impacts of many small projects in an area, which individually may have minimal impact on environmental quality, can easily be overlooked in the review of Permit by Rule activities. Some activities which may be covered by the program may have significant impacts on water quality or other values. Compliance with permit by rule standards is rarely checked and the program depends on the verity of the applicant's information.

Site Location of Development Act (38 MRSA, §481-490). The act requires review of projects with a building footprint in excess of 60,000 square feet, 10 or more units of housing, or

subdivisions in excess of 20 acres. The intent of the act is to regulate the siting of certain types of development in order to protect the natural environment, groundwater resources in particular. Secondary and cumulative impacts are to be considered. Before issuing a permit, DEP obtains project review by other state agencies (including the Dept. of Human Services, Division of Health Engineering; Dept. of Transportation; Soil & Water Conservation Commission; DOC, Maine Geological Survey; Dept. of Inland Fisheries and Wildlife).

Project approval is contingent upon the developer demonstrating that the proposal meets specified criteria. Department of Environmental Protection rules (Chapter 375, 9/90) require that proposed projects fit harmoniously into the existing natural environment, without adverse impact on existing uses, scenic character, or natural resources.

Effectiveness-- Although cumulative and secondary impacts are to be considered, guidelines for applicants or regulators to address cumulative and secondary effects of development, do not exist. Without clear guidelines and definitions, permitting agencies generally make decisions based on direct impacts of development and remain reluctant to hinge permitting decisions on cumulative impact considerations.

Submerged Lands Act (12 MRSA §558-573). The act authorizes the Bureau of Public Lands to lease state-owned submerged (including marine lands) lands for the purposes of filling, dredging or erecting structures.

Effectiveness-- The Submerged Lands Program of the BPL considers the cumulative impact of a proposed activity on the existing fisheries during the review process. Recently, the Bureau of Public Lands (BPL) rejected an application for a marina in Bass Harbor on the grounds that further recreational marina development would adversely impact the health of the traditional fisheries in the harbor. According to the BPL, the harbor had reached a threshold of appropriate development.

Local Ordinances. The Mandatory Shoreland Zoning Act (38 MRSA §435-448) and the Subdivision Law (30 MRSA §4401-4407) are implemented with local ordinances that comply with state minimum regulations. An intent of shoreland zoning is to avoid the effects of cumulative impact by providing protection to sensitive resources with the setbacks and the resource protection designation.

Effectiveness-- State minimum regulations do not include specific provisions or guidelines for the assessment of cumulative impacts. Municipalities are required to develop ordinances consistent with state coastal policies which encourage consideration of cumulative and secondary impacts of development; however, most local land use decisions are made on a case by case basis and do not consider future impacts or impacts beyond municipal boundaries.

The Maine Coastal Program has funded Coastal Coordinators in Regional Planning Councils along the coast and a Shoreland Zoning Coordinator at the Department of Environmental Protection to provide technical assistance with shoreland zoning ordinance development. The Shoreland Zoning Coordinator at DEP reviews towns ordinances for compliance with the state minimum guidelines.

7.4 Federal CZMA Programmatic Objectives -- Control Cumulative Impacts

Develop, revise or enhance procedures or policies to provide cumulative and secondary impact controls.

** Establish or improve coastal planning processes which address the cumulative and secondary impacts of future growth by identifying areas of rapid growth and which contain sensitive coastal resources, assessing anticipated cumulative and secondary impacts, and establishing appropriate land use controls and mitigation measures to protect valuable coastal resources.*

** Establish or improve procedures for the consideration of cumulative and secondary effects in project/permit review decisions and infrastructure and land acquisition programs.*

7.41 Options for Enhancing Coastal Planning Processes

- Establish a program of comprehensive watershed planning and protection with coastal watershed districts, including non-point source reduction, public education efforts, water conservation, and volunteer water quality monitoring.
- Develop special area management plans that provide for natural resource protection and sustainable economic growth in areas of significant concern.
- Consider adoption of a uniform permit renewal date for point source dischargers (NPDES permits) within each major coastal watershed to facilitate estimates of total pollutant loading in coastal waters and enhance planning for the assimilative capacity of estuaries and embayments.
- Develop funding sources to sustain and implement comprehensive planning and technical assistance efforts to communities.
- Conduct threshold indicator studies to assess the tolerance of defined ecological units to incremental development.
- Develop sustainability/carrying capacity criteria for individual coastal areas, land and water.

- Develop review criteria for towns to assess cumulative impacts of proposed developments on natural resources. The Department of Environmental Protection developed a technical assistance guide for evaluating phosphorus loading to inland lakes. Similar guidance is needed for assessing nonpoint source pollution impacts of shoreline and coastal watershed development on water quality.

7.42 Options for Improving Project & Permit Review Decisions

- Establish local waste management districts to take responsibility for ensuring that septic systems as well as public sewage treatment plants are functioning properly.

- Establish a schedule of fees to be paid by point and nonpoint dischargers which discharge directly into bays, estuaries and the ocean, for use for water quality monitoring, toxic cleanup, and remediation and prevention projects.

- Activate the DEP's estuarine monitoring project and find stable sources of funding for water quality monitoring by DEP and DMR.

- Formalize a cooperative agreement to share information regarding sources of pollution and pollutants of concern between DMR, DHS, DEP and municipalities.

- Improve enforcement of environmental regulations by increasing funding and staffing. Increase penalties for violations of statutes. Formalize coordination between state agencies responsible for enforcement in coastal areas and local officials.

- Improve procedures by which state agencies notify local governments of permit applications and decisions (especially permit by rule decisions).

- Change Permit-by-Rule regulations to require before and after photographs of the proposed alteration and sworn statements of compliance with permit conditions.

- Revise Maine's wetland regulations to include protection of significant small wetlands.

- Improve review of state and local coastal permit applications by region or for the coast as a whole (e.g. by a regional review board or coastal commission).

- Investigate sources of funding to accelerate natural resource and permit data entry on the state GIS.

- Add specific language and definitions of cumulative and secondary impacts to state environmental laws and regulations (NRPA, Permit by Rule, Shoreland Zoning, Site Location, LURC).

- Develop guidelines/criteria for assessment of cumulative impacts for municipal planning boards and state agencies.

- Develop a strategy and policies to protect natural areas that are sensitive to impacts of growth and development. Identify areas (such as coastal islands) in the marine and estuarine environment that are priorities for protection.

- Refine the state water quality classification guidelines to include more specific water quality designations than the current broad categories.

- Conduct a coast-wide scenic inventory and develop guidelines for the implementation of the scenic resource criteria of the Natural Resource Protection Act.

- Expand the significant habitat criteria of the Natural Resource Protection Act to include sensitive natural resource areas in the estuarine and marine environment.

7.43 Baseline for Measuring Progress

* Build-out studies

* Carrying capacity assessments and threshold indicators

* Changes in baseline environmental databases (e.g. wetland inventories)

* Using marine and estuarine species as water quality indicators

7.5 Available Studies/Information

Arbuckle, J. and M. Lee, 1987. "The Cumulative Impacts of Development in Maine: A Study of Habitat Changes in Five Coastal Towns, The Maine Audubon Society for the Maine State Planning Office, Augusta, ME.

Brown, K., K. Kirkland, D. Perkins, 1987. "Protecting Maine's Working Waterfronts: Lessons from California Applied to Maine with a Case Study of Vinalhaven, Maine," Island Institute, Rockland, ME.

Department of Environmental Protection, 1989. "State of Maine, Nonpoint Pollution Assessment Report," Bureau of Water Quality Control, Department of Environmental Protection, Augusta, ME.

Dominie, H. and J. Scudder, 1987. "Land Use and Cumulative Impacts of Development, A Study Summary," Maine State Planning Office, Augusta, ME.

Droege, M., 1987. "The Cumulative Impacts of Development in Maine: A Study of Habitat Changes in Five Coastal Towns," Maine Audubon Society for Maine State Planning Office, Augusta, ME.

Land Use Consultants (LUC), 1977. "Cumulative Impact of Incremental Development on the Maine Coast," prepared for Maine Department of Environmental Protection and Committee on Coastal Development and Conservation, Augusta, ME.

Office of Comprehensive Planning, 1988. "Guidelines for Maine's Growth Management Program," Office of Comprehensive Planning, Maine Department of Economic and Environmental Protection, Augusta, ME.

Rieser, Alison, 1987. "Managing the Cumulative Effects of Coastal Land Development: Can Maine Law Meet the Challenge"? Maine Law Review Vol.39:321.

Rieser, A. and J. Quintrell, 1986. "The Cumulative Impacts of Development in Southern Maine: Management of Cumulative Impacts: An Analysis of Legal and Policy Issues," Marine Law Institute, Center for Research and Advanced Study, University of Southern Maine, for the Maine State Planning Office, Augusta, ME.

Southern Maine Regional Planning Commission, 1987. "The Cumulative Impacts of Development in Southern Maine: Assessment of Municipal Capability to Manage Growth," Maine State Planning Office, Augusta, ME.

State Planning Office, 1986. "Coastal Management Policy Guidelines," Maine Coastal Program, State Planning Office, Augusta, ME.

Section 309 Assessment

8. SPECIAL AREA MANAGEMENT PLANNING

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Special Area Management Planning

CONTENTS

8.0 SUMMARY

The 3,600-mile coast of Maine is marked by fertile estuaries and bays, dramatic headlands and craggy islands, expansive tidal flats and scenic vistas. A myriad of state agencies manage the water and land resources along the coast in cooperation with 144 individual town governments and numerous federal agencies. As population continues to migrate to coastal areas and uses of coastal waters and lands intensifies, coastal water pollution, declines in fisheries, conflicts among users of coastal waters indicate an urgent need for tools to coordinate land and water use decisions.

Special area management plans (SAMPS) are used to coordinate and improve protection and management of important coastal resources while sustaining appropriate economic activity. Estuaries and embayments, islands, fishing grounds, and significant aquatic and upland habitats, are areas along the Maine coast that could benefit from special area management planning and other regional planning initiatives.

Accomplishments

- Current special area management planning efforts in Maine include the Casco Bay Estuary project, the Saco River Corridor, and the St. Croix Joint International Commission.

Problems

- Coastal areas of special concern which have local or state significance have not been systematically identified and mapped.
- Regional resources often span several towns and local land use decisions and designations are rarely coordinated among towns. Consideration of future cumulative and secondary effects of present day decisions on areas of special natural resource value are not guided by a coherent management framework.
- Growth management guidelines, issued by the state to assist municipalities with comprehensive planning, encourage the inclusion of regional policies in local comprehensive plans, but funding is not available to provide technical assistance to implement regional policies.
- Towns have no strong regional entity to assist them with planning on a watershed basis.
- State agencies need to coordinate management of coastal and marine resources.

8.1 Maine's Key Coastal Management Policies Relating to Special Area Management Planning (38 MRSA 1801)

* MARINE RESOURCES MANAGEMENT. Manage the marine environment and its related resources to preserve and improve its ecological integrity and diversity of marine communities and habitats, to expand our understanding of the productivity of the Gulf of Maine, and to enhance the economic value of the State's renewable marine resources.

* SCENIC AND NATURAL AREAS PROTECTION. Protect and manage critical habitat and natural areas of state and national significance and maintain the scenic beauty and character of the coast even in areas where development occurs.

* STATE AND LOCAL COOPERATIVE MANAGEMENT. Encourage and support state and municipal management of coastal resources.

8.2 Federal CZMA Legislative Objective

§ 309(a)(6) Preparing and implementing special area management plans for important coastal areas.[1]

8.3 Federal CZMA Assessment Characterization

Identify areas of the coastal zone subject to use conflicts that can be addressed through special area management planning. Criteria for selecting these areas should include:

The area includes significant coastal resources that are being severely affected by cumulative or secondary impacts from coastal growth.

There is a multiplicity of local, state and federal authorities which prevents effective coordination and cooperation in addressing coastal development on an ecosystem basis.

There is a history of long-standing disputes between local, state, or federal agencies over certain coastal resources which have resulted in protracted negotiations over the acceptability of proposed uses.

There is a strong commitment at all levels of government to enter into a collaborative planning process to produce a definitive regulatory products.

A strong state or regional entity exists which is willing and able to sponsor the planning program.

8.31 Definitions and Criteria

Special Area Management Plans are defined by the federal Coastal Zone Management Act as follows: "comprehensive plans providing for natural resource protection and reasonable coastal-dependent economic growth containing a detailed and comprehensive statement of policies; standards and criteria to guide public and private uses of lands and waters; and mechanisms for timely implementation in specific geographic areas within the coastal zone."

Estuaries, embayments, and islands are types of areas along the Maine coast which could benefit particularly from special area management planning. They are areas of significant natural resource value as well as important areas for residential, commercial and recreational development. Islands, because of their isolated and contained nature, are particularly vulnerable to the impacts of human use. Estuaries and embayments often span several political jurisdictions and are subject to use conflicts

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[1] Italicized text is excerpted from federal CZMA guidance for Section 309 Assessments.

between recreational and commercial water users, and degradation of natural resources because of habitat loss and pollution.

The need for coordinated management and conservation is greatest in those areas of the coast under the most development pressure and intensive use of the natural resources by commercial and recreational fishermen, boaters, visitors and residents. The other criterion -- occurrence of significant natural resources and features -- is addressed in several studies.

"A Preliminary Listing of the Noteworthy Natural Features in Maine" (The Center for Natural Areas, 1976) inventoried distinct features of significance, such as soils, plants, geologic formations and invertebrates. "The Protection Priorities Plan" (Reed & D'Andrea, 1973) identified geographic regions in the coastal zone worthy of protection because of the quality, diversity and integrity of the natural communities. Among the areas identified by Reed and D'Andrea were: Cobscook Bay, Down East Coast, Little Kennebec Bay, Indian River, Pleasant Bay, Petit Manan, Tunk Lake, Long & Bartlett Islands, St. George River, Upper Sheepscot River, Back River, Little River, Machias Bay, and Merrymeeting Bay.

In the early 1980s the Maine Department of Marine Resources nominated a site in mid-coast Maine to the National Marine Sanctuary Program. The proposed site extended seaward from the mouths of the Kennebec, Sheepscot, and Damariscotta Rivers; and Johns and Muscongus Bays, including the waters around and westerly of Monhegan Island. The nomination was based on the outstanding natural resources in the area and proximity to research facilities.

The North American Waterfowl Management Plan (USF&WS, 1989) identified Cobscook Bay and Merrymeeting Bay and the Lower Kennebec as focus areas for conservation efforts. The Maine Rivers Study (DOC 1982) identified tidal segments of several coastal rivers as Class "A", that is, having natural and recreational resources with greater than state value: Dennys River, East Machias River, Kennebec River, Merrymeeting Bay rivers, Machias River,Narraguagus River, Penobscot River, Pleasant River, and the Sheepscot River.

8.32 Use of Special Area Management Planning in Maine

The Penobscot Bay Resource Plan (SPO, 1972) was an early effort to develop a regional plan for a coastal area. The plan contained maps illustrating the natural features and sites sensitive to development in the area. Information detailing the local history, population and economic trends was included. The plan recommended broad changes in state land use policy, but was ineffective in actually achieving coordinated regional management of Penobscot Bay resources. At the time, local communities and state government lacked the comprehensive plans, local ordinances and state environmental regulations necessary to influence land use.

More recently,"The Penobscot Bay Conservation Plan" (IF&W, 1987) inventoried marine wildlife sites in Penobscot Bay and included management guidelines for specific wildlife habitats. The report also made recommendations for integrating marine wildlife values into coastal resources planning.

Other areas with a multitude of owners have improved management with interlocal agreements and commonly expressed goals. The Saco River Corridor Commission, initiated in the 1970s, to manage land use along the Saco River with agreements between local governments. The Cobbossee Watershed District, formed in 1971, is a more complex arrangement between 9 towns within a watershed that includes 28 lakes. The district sets regional water quality goals and works with town and individual landowners to promote practices which protect water quality.

The St. Croix International Waterway Commission, an international commission established by the State of Maine and the Province of New Brunswick, works with the state and provincial governments and towns bordering the waterway to encourage appropriate economic growth and to maintain the region's common heritage. The commission is preparing a management plan in cooperation with the jurisdictions to establish management goals and define a common vision. Implementation of the plan will include coordinated management of water and land resources along the St. Croix from East Grand Lake to Passamaquoddy Bay.

The Casco Bay Estuary Project is a National Estuary Program initiated by the federal Environmental Protection Agency in 1990 to address management issue in Casco Bay. The Project will develop a management plan for the bay that addresses sources of water pollution as well as land use practices and regulation.

8.33 Maine Coastal Areas Potentially Benefitting from Special Area Management Planning

The following areas should be given special consideration for Special Area Management Planning:

- Merrymeeting Bay and the Kennebec River Estuary (largest freshwater tidal ecosystem north of the Chesapeake Bay)
- Penobscot Bay and Islands
- Cobscook Bay (protection priority for the state)
- Frenchman Bay (tourism development and Acadia National Park)
- Maquoit Bay (valuable shellfish resource in mid-coast Maine)
- Mid-Coast Estuaries (Sheepscot, Damariscotta, Medomak, St. George-- relatively intact ecosystems with valuable natural resources and strong local fisheries threatened by major increases in population and changes in land use.)

8.4 Federal CZMA Programmatic Objective -- Implement Special Area Management Planning

Develop and implement special area management planning in coastal areas selected by above criteria.

8.41 Next Steps

- Evaluate marine resource areas identified by the DMR and coastal wildlife areas identified by IF&W for ecological sensitivity and productivity; determine the need for coastal biological reserves to protect significant areas.
- Evaluate special area management planning candidate areas for suitability as demonstrations projects. Criteria should include: vulnerability, management need, resource value, local interest and support, and regional significance.
- Evaluate the possible role of Heritage Coastal Area designation in special area management planning.
- Determine the most suitable organizational mechanism for a coastal watershed management partnership. A mechanism needs to be sought which involves all affected and interested parties yet addresses town concerns about loss of local control.
- Identify the roles of participating towns, regional planning commissions, State and federal agencies, and the Maine Land and Water Resources Council in the development and implementation of special area management plans.
- Develop a public participation strategy.

8.42 Available Mechanisms & Effectiveness

Environmental Laws -- The Natural Resource Protection Act and the Site Location of Development Act are the chief State environmental statutes regulating major development activities and protecting coastal wetlands, sand dunes, wildlife habitat and other areas of special significance. Most land use decisions, including shoreland zoning designations, are made by municipalities. In the absence of a management framework (such as may be provided by local comprehensive plans) that allows consideration of future cumulative and secondary effects of present day decisions on special areas, it is generally necessary to make permit decisions case-by-case. Management of special coastal ecosystems such as estuaries and embayments is fragmented and unfocused as a result.

Heritage Coastal Areas -- Heritage Coastal areas are areas "containing an assemblage of geological, botanical, zoological, historical or scenic features of exceptional state or national significance (MRSA Title 5 §312 Section 3316)." Established as

part of the Critical Areas Program in the State Planning Office, Heritage Coastal Area designation is a potential tool for identifying coastal areas with state significance. Several Heritage Coastal Areas have been nominated to the Critical Areas Advisory Board. The expense of the requirement that the State Planning Office notify each landowner in the proposed area 60 days before designation has prevented any designations.

Coastal Watershed Districts -- In 1990, the state legislature passed an act allowing the formation of coastal watershed districts. The purpose of coastal watershed districts is "to protect, restore and maintain water quality and aquatic resources of coastal harbors, bays, estuaries and other coastal waters and to manage and conserve the land and water resources of coastal watersheds within the jurisdiction of these districts."

Responsibilities of coastal watershed districts include initiating and coordinating research on aquatic resources and coastal environments, planning restoration projects to improve water quality within the district; working to coordinate ordinances and regulation within the watershed district; and adoption and implementation of coastal protection, management and restoration plans. No coastal watershed districts have been formed to date.

Comprehensive Land Use Planning and Land Use Regulation Law -- This law requires municipalities to develop comprehensive plans for State approval. Growth management guidelines, issued by the Office of Comprehensive Planning (OCP) to assist municipalities with meeting the provisions of the act, encourage the inclusion of regional policies in local comprehensive plans. Coordination of land use ordinances and resource protection measures around estuaries and embayments thus are potential plan features.

Regional Planning Commissions (RPCs) -- Regional planning commissions and councils of government are quasi-governmental agencies funded by federal, state and local governments. They are accountable to the Department of Economic and Community Development/Office of Comprehensive Planning for State-funded activities. The RPCs were created under state statute to advise local governments and promote regional planning and intergovernmental cooperation. RPC boundaries may not necessarily correspond with the boundaries of special areas such as estuaries or aquifers.

8.43 Possible Options for Improvement

- Develop protocols for coordinated review of all environmental permits within designated special management areas.

- Develop model regional zoning regulations for special management areas.

- Develop and add a coastal natural resource database to the State Geographic Information System (GIS).

8.5 Available Information/Studies

Fraser River Estuary Management Program. "A Guide to the Coordinated Review Process".

Jacobson, B. 1987. " US/UK Exchange Quoddy Area Consultation, Roosevelt-Campobello International Park External Threats Report," Maine Coast Heritage Trust, National Park Service, U.S. Department of the Interior, Washington, D.C.

McPhee, M.W., 1989. "Implementing Area Designations in the Fraser River Estuary," Coastal Zone'89, Vol. 1, pp 245-257.

Olsen, S. and V. Lee, 1984. "Rhode Island's Salt Pond Region: A Special Area Management Plan," The Coastal Resources Center, University of Rhode Island, prepared for the Coastal Resources Management Council, Providence, RI.

Reed & D'Andrea, 1973. "Protection Priorities Plan," Prepared for The Nature Conservancy, Reed & D'Andrea, Land and Space Planning, South Gardiner, ME.

Southern Maine Regional Planning Commission, 1984. "Wells National Estuarine Sanctuary, draft Management Plan," prepared for the Maine State Planning Office, Augusta, ME.

St. Croix International Waterway Commission, 1990. "St. Croix International Waterway", SCIWC, St. Stephen, New Brunswick.

Wells National Estuarine Reserve Management Plan, 1990 update.

Woodward, S., A. Hutchinson, and M. McCollough, 1987. "The Penobscot Bay Conservation Plan", Endangered and Nongame Wildlife Project of the Maine Department of Inland Fisheries and Wildlife prepared for Maine State Planning Office, Augusta, ME.

Inventories of Coastal Resources requiring protection:

Fefer, S.I. and P.A. Schettig eds., 1980."Characterization of Coastal Maine," Office of Biological Services, U.S. Fish and Wildlife Service, Newton Corner, MA.FWS/OBS-80/29.

MIFW, 1989. "Significant Fish and Wildlife Resources of Mid-Coastal Maine", Significant Fish and Wildlife Resources of York County," Maine Department of Inland Fish and Wildlife, Augusta, ME.

The Nature Conservancy, 1988. "An Atlas of Coastal Maine's Endangered and Rare Features, Historic and Archeological Sites, Significant Wildlife Habitats," Maine Coastal Program, Maine State Planning Office, Augusta, ME.