Assessing U.S. and Canadian Laws and Programs Affecting the Marine and Coastal Environment of the Gulf of Maine

for the

Gulf of Maine Council on the Marine Environment

prepared by

The Marine Law Institute

in conjunction with

The Oceans Institute of Canada

January 13, 1992
This report was prepared by the Marine Law Institute and the Oceans Institute of Canada under a contract with the Maine State Planning Office (Contract No. 07B GT SS910461), funded in part through NOAA’s Office of Ocean and Coastal Resource Management. The views expressed are those of the authors and do not necessarily reflect the views of NOAA or any of its sub-agencies. The contract was supervised by John Catena and Melissa Waterman, Senior Planners, Maine State Planning Office; Alison Rieser, Director and Barbara Vestal, Associate Director of the Marine Law Institute, University of Maine School of Law; David VanderZwaag and Moira McConnell of the Oceans Institute of Canada and Dalhousie Law School; and Peter Mushkat, Oceans Institute of Canada.

This report was written by Timothy Eichenberg, Staff Attorney, Marine Law Institute. Janet Dickie, Research Assistant with the Oceans Institute of Canada wrote the sections on Canadian Federal and Provincial Laws. Research assistance was provided by Gail Peabody, Mary Kellett, and Nancy Drapeau of the University of Maine School of Law and Brenda McLuhan of the Oceans Institute of Canada.

Administrative support and assistance was provided by Beverly Bayley-Smith, Administrative Manager, Marine Law Institute. Special assistance was provided by David Keeley, Director, Maine Coastal Program; Pat Hughes, Massachusetts Coastal Zone Management Office; David Hartman, Coastal Program Manager, New Hampshire Office of State Planning; Peter Underwood, Nova Scotia Department of the Environment; and Laura Johnson, New Brunswick Department of the Environment.
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EXECUTIVE SUMMARY

This Report assesses existing U.S. and Canadian laws and programs affecting the coastal and marine environment of the Gulf of Maine pursuant to objective 2.3 of the Gulf of Maine Action Plan.\(^1\) It was prepared by the Marine Law Institute (MLI) of Portland, Maine, and the Oceans Institute of Canada (OIC), of Halifax, Nova Scotia, under a contract with the Maine State Planning Office. Detailed descriptions were prepared of federal, state and provincial laws in the U.S. and Canada, summaries of which are contained in the Appendices to this Report. The following assessment of U.S. and Canadian laws and programs summarizes these descriptions and indicates where further in-depth examinations of specific programs are warranted by the Council and its members to more precisely define the nature of needed legislative and regulatory changes.

This Report was prepared to assist the Council in identifying gaps and inconsistencies among government regulatory approaches and programs bordering the Gulf of Maine. It reviews state, provincial and federal laws and programs in the U.S. and Canada regulating and managing the Gulf’s marine and coastal environment. It identifies common and divergent federal regulatory approaches and policies, contrasts state and provincial policies, and describes new approaches and gaps in management regimes. It makes general recommendations on how regulatory and management regimes in the U.S. and Canada may be better coordinated and strengthened, and indicates where additional research and analysis is needed to more precisely define critical resource management issues.\(^2\)

\(^1\) The Gulf of Maine Action Plan was released by the Gulf of Maine Council on the Marine Environment in July, 1991. Objective 2.3 of the Action Plan calls for the Council to:

encourage evaluation of existing laws and regulations relating to Gulf natural resources to reduce disparity and improve performance among states and provinces. . . . [T]he Gulf Council should support a study evaluating the federal, state and provincial laws and regulations applicable to the Gulf of Maine with the intention of identifying gaps among the laws and reviewing enforcement practices and policies. . . . [T]he Gulf Council should encourage state and provincial agencies to issue a report in each state or province, which pinpoints future, high-priority improvements to Gulf-related laws and enforcement programs within that state or province.

\(^2\) The Council has already sponsored such research on wetlands regulation; see Kurland, Habitat Mitigation Efforts in the Gulf of Maine (1991).
U.S. Federal Laws and Programs

In the United States, federal law confers to the states title to and ownership of the lands lying beneath navigable waters and the natural resources therein, to three miles offshore (state waters). The waters beyond three miles to the limits of the Exclusive Economic Zone (3-200 miles) belong to and are governed by the federal government. The federal government also retains primary authority over certain activities within state waters for the constitutional purposes of commerce, navigation, national defense, international affairs, and environmental protection. Appendix A contains a description of U.S. federal laws affecting the coastal and marine environment of the Gulf of Maine and how these laws interact with state regulatory authority.

Key federal laws described in Appendix A include the Coastal Zone Management Act, which provides funding for the creation of state coastal management programs; the National Environmental Policy Act, which requires environmental impact statements for major federal actions; the Ocean Dumping Act, which prohibits the disposal of toxic and industrial wastes within both state and federal waters; the Clean Water Act, which regulates point sources of pollution and discharges within wetlands, and requires states to prepare and enforce water quality classification standards and nonpoint source management plans; the Oil Spill Pollution Act of 1990, which establishes a national oil spill response system, an oil spill liability trust fund, and requires the preparation of oil spill contingency plans; federal marine sanctuary and estuarine reserve programs, which create federally protected areas within the Gulf of Maine; and federal protections for wildlife established under the Endangered Species Act, the Marine Mammal Protection Act, and other federal programs.

Canadian Federal Laws and Programs

In Canada offshore exploitation rights and legislative jurisdiction of the federal and provincial governments regarding marine resources are still somewhat unsettled. The Canadian Constitution delegates to the federal government control over navigation, shipping, fisheries, and matters related to peace, order and good government. The provinces generally manage local and private matters, civil rights, property and the regulation of natural resources and hydro-electricity. Since the Canadian Constitution does not explicitly delegate environmental protection to either level of government, both the federal government and the provinces exert some control over coastal resources. In some cases jurisdictional agreements have been executed to regulate specific resources, such as the Canada-Nova Scotia Offshore Petroleum Resources Accord, under which resource management and revenues are shared for offshore hydrocarbon exploitation.
Key Canadian federal laws affecting the coastal and marine environment are described in Appendix B. They include the Fisheries Act, which prohibits the deposition of deleterious substances into water frequented by fish and provides for the protection of fish habitat; the Canadian Environmental Protection Act, which provides a framework for controlling toxic chemicals and ocean dumping; the Canada Shipping Act, which establishes a Ship-source Oil Pollution Fund for compensating oil pollution damages; the Oil and Gas Production and Conservation Act, which regulates offshore oil and gas activities; the 1984 Environmental Assessment and Review Process Guidelines Order, which requires environmental assessment of federal proposals significantly impacting the environment; and the National Parks Act, which allows for the designation of both terrestrial and marine parks.

U.S. State Laws and Programs

Appendix C describes and compares the laws and programs of the States of Maine, Massachusetts and New Hampshire, highlighting similarities and differences among state approaches. Key state programs include Maine’s unique shoreland zoning and land use planning requirements; land use commissions with regulatory and planning authority within coastal areas of Maine and Massachusetts; Maine and New Hampshire regulatory authority over large-scale development; Massachusetts’ special environmental impact reporting requirements; Massachusetts’ program for providing extensive public benefits (such as public access) for the private use of tidelands and submerged lands; and Massachusetts’ ocean sanctuaries program.

Appendix C also compares state marine and estuarine water classification systems; licensing standards for sewage treatment plants and point source discharges; oil spill and hazardous waste laws; nonpoint source management plans; wetland standards; development restrictions within coastal dunes and bluffs; regulation of underwater archeological resources; critical area programs; endangered species laws; and open space acquisition programs.

Canadian Provincial Laws and Programs

Appendix D describes and compares the laws and programs of New Brunswick and Nova Scotia relating to the marine and coastal environment. Neither province has enacted comprehensive coastal zone management legislation, although both provinces address coastal development and planning through general planning legislation and environmental impact assessment requirements. Point sources of pollution are controlled through environmental and water protection legislation, and sewage disposal is regulated through public health legislation. Both provinces provide financial assistance to municipalities wishing to construct sewage treatment works. Although neither province has legislation specifically
addressing nonpoint source pollution, both provinces regulate pest control products that may enter into water courses.

Appendix D also compares provincial laws related to hazardous waste management, offshore oil and gas development, transportation of dangerous goods, conservation of coastal areas, aquaculture, beach mining, protecting critical areas and leasing and permitting requirements exerted through crown lands legislation.

Common Approaches

Chapter I of this Report discusses common approaches to regulating and managing the coastal and marine resources of the Gulf of Maine (see Figure 1). Common approaches utilized in both the U.S. and Canada include:

- federal environmental impact assessment laws;
- federal water pollution control laws regulating point source discharges;
- federal ocean dumping regulations;
- federal oil spill and hazardous waste programs;
- federal regulation of the development of offshore oil and gas resources;
- parks and open space programs;
- federal laws protecting endangered species;
- programs regulating finfish aquaculture; and
- voluntary marine debris programs.

Divergent Approaches

Chapter II identifies divergent U.S. and Canadian approaches for regulating and managing coastal and marine resources in the Gulf of Maine. These include:

- state coastal management programs adopted under the U.S. Coastal Zone Management Act (CZMA);
- federal and state standards for sewage treatment and the classification of coastal and inland waters under the U.S. Clean Water Act (CWA);
- state nonpoint source pollution programs adopted under the CWA and CZMA;
- U.S. state and federal regulation of development within wetlands and sand dunes;
U.S. federal programs establishing marine and estuarine protected areas; and
- Canadian environmental database systems.

Contrasting Policies

Chapter III identifies and contrasts variations among state and provincial regulatory and management standards and policies (see Figure 2). These contrasting policies include:

- shoreland zoning and comprehensive planning policies (ME);
- site review of large-scale projects (ME and NH);
- regional land use commissions (ME and MA);
- statutory coastal policies (ME);
- environmental impact reporting requirements (MA, NS, and NB);
- marine monitoring programs (ME);
- vessel discharge and pump-out facility requirements (ME, NH, and MA);
- overboard discharge prohibitions (NH and MA);
- special nonpoint source pollution strategies (ME, NH, and MA);
- toxic use reduction laws (ME and MA);
- offshore mining standards (MA);
- wetland setback, buffer zone, mitigation, and no net loss standards (ME, NH, and MA);
- coastal hazard and sea level rise policies (ME and MA);
- public benefit policies for the private use of public tidelands and submerged lands (ME and MA);
- ocean sanctuary programs (MA);
- endangered species habitat protection standards (ME, MA, and NB);
- performance standards for development within critical areas (MA); and
- the protection of underwater archeological resources (NH and MA).
New Approaches

Chapter IV describes new regulatory and management approaches not currently utilized within the Gulf of Maine. These include centralized coastal management programs, ocean resource planning, marine zoning and the designation of outstanding resource waters. An oil spill task force formed between U.S. states and British Columbia in 1989 is also discussed.

Recommendations

Chapter V discusses the following joint recommendations for eliminating regulatory gaps and inconsistencies, conducting additional research and strengthening U.S. and Canadian laws and programs that affect the marine and coastal environment of the Gulf of Maine:

1. Direct sewage discharges into the Gulf of Maine should be prohibited.
2. Priorities and strategies for reducing nonpoint source pollution should be coordinated throughout the Gulf of Maine.
3. Sewage discharges from vessels and marine sanitation devices should be controlled and vessel pump stations should be provided.
4. Cooperative and uniform approaches should be established to manage and protect endangered or threatened species and their habitats.
5. Consistent wetland protection standards and mitigation policies should be implemented throughout the Gulf of Maine.
6. Cooperative measures for oil spill prevention and clean-up, and vessel traffic safety, should be developed.
7. A uniform marine monitoring program for the Gulf of Maine should be established.
8. Enforcement and compliance with environmental laws should be examined and consistent policies encouraged.
9. Ocean sanctuaries, estuarine reserves, and other mechanisms to protect sensitive ocean and coastal areas and resources should be established.
10. Regulatory, land use planning and zoning controls should reflect state-wide and province-wide coastal policies.

11. Large-scale development should receive special site review at state and provincial levels.

12. Public benefits should be provided where private uses within public tidelands and submerged lands are permitted, and water dependent uses should be protected.

13. Development should be restricted within and adjacent to sand dunes and coastal bluffs, the construction of sea walls should be restricted, and cooperative planning for anticipating the effects of sea level rise should be undertaken.

14. Underwater archeological resources should be preserved and protected.

15. Cooperative approaches for coastal acquisition programs should be explored.

16. A uniform marine and coastal resource GIS mapping system should be coordinated throughout the Gulf of Maine.

17. An environmental assessment process for projects, programs and policies with potential significant transboundary environmental impacts should be developed.

18. Water quality monitoring and disease prevention policies for finfish aquaculture should be coordinated.

19. Ocean resource planning efforts should be supported and coordinated.

20. Ocean mining standards should be harmonized.
INTRODUCTION

This Report inventories and assesses major U.S. and Canadian laws and programs affecting the coastal and marine environment of the Gulf of Maine. It compares common and divergent approaches utilized in the U.S. and Canada, contrasts standards and policies within programs, describes new approaches used in other jurisdictions, and makes recommendations for improving the regulation and management of the marine and coastal environment of the Gulf of Maine. It is intended as a background document for the Gulf of Maine Council on the Marine Environment to facilitate implementation of the Gulf of Maine Initiative and Action Plan (see objective 2.3). By evaluating existing regulatory controls and management programs, and identifying similarities and differences in regional approaches, a comprehensive, coordinated, transboundary approach for the sustained use and protection of marine and coastal resources may be identified by the Council.

Summaries and citations to major U.S. and Canadian federal laws that affect the coastal and marine resources of the Gulf of Maine are provided in Appendix A and B. The major laws and programs of the States of Massachusetts, Maine and New Hampshire, and of the Provinces of Nova Scotia and New Brunswick, are cited, compared, and assessed in Appendix C and D. The assessments include state, provincial and federal laws and programs addressing "regulated activities" and "protected areas."

Laws affecting regulated activities include:

- development controls (planning, zoning and subdivision laws; coastal management programs; coastal site review procedures; and environmental impact review requirements);

- water quality controls (ocean dumping; vessel discharge laws; point source and nonpoint source pollution programs);

- hazardous waste laws;

- oil spill prevention laws; and

- offshore oil and mineral development laws.
Laws affecting **protected areas** include:

- coastal wetland and sand dune protection;
- tidelands and submerged lands management;
- marine sanctuaries;
- critical areas;
- coastal wildlife protection; and
- coastal acquisition and recreation.

The Appendices are intended to serve as references for the assessments conducted in Chapters I-V. Chapter I identifies common regulatory and management approaches utilized within the U.S. and Canada. Chapter II identifies divergent approaches and programs. Chapter III contrasts variations among program policies, and Chapter IV describes new and currently untried approaches. Chapter V presents joint recommendations for strengthening regulatory approaches, eliminating specific gaps and inconsistencies, and conducting additional research.

The information for this Report was gathered from reviewing state and federal statutes and regulations and interviewing government officials through November 1991. A number of these laws are undergoing revision. The Council should verify that the most current versions of these laws are reviewed before making final recommendations.
I. COMMON APPROACHES TO MANAGING THE MARINE AND COASTAL ENVIRONMENT

Chapter I identifies common approaches utilized in U.S. and Canadian jurisdictions to regulate and manage the marine and coastal environment of the Gulf of Maine. Chapter II identifies and discusses divergent approaches and programs utilized in the U.S. and Canada. These common and divergent approaches are depicted in Figure 1 below. Where specific state and provincial policies within such programs differ, they are described in more detail in Chapter III as contrasting policies.

![Figure 1](image)

Figure 1
Common and Divergent Approaches for Managing the Marine and Coastal Environment

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<tr>
<th>Approaches</th>
<th>U.S.</th>
<th>Canada</th>
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<td>Environmental Impact Assessment</td>
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<td>Ocean Dumping Regulation</td>
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<td>Offshore Oil and Gas</td>
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<td>Endangered Species Protection</td>
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<td>Aquaculture Regulation</td>
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<td>Point Source Pollution Control</td>
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<td>Marine Debris Programs</td>
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<td>Coastal Management Programs</td>
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<td>Water Quality Standards</td>
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<td>Primary/Secondary Sewage Treatment</td>
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<td>Environmental Data Coordination</td>
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1.1 Environmental Impact Assessment

The U.S. and Canada have federal laws that require the assessment of the environmental impacts of federal and federally permitted projects, including projects within the Gulf of Maine. Contrasting state and provincial environmental impact assessment programs are described in Chapter 11. The U.S. National Environmental Policy Act (NEPA) requires the preparation of environmental impact statements (EISs) for legislative proposals and major federal actions that significantly affect the environment. EISs must undergo full public review and describe adverse environmental impacts, including cumulative impacts, less environmentally damaging alternatives, feasible mitigation measures, and irreversible commitments of resources.

The Canadian Environmental Assessment and Review Process Guidelines Order (EARP) provides a similar program for assessing the environmental impacts of federal and federally permitted projects. Proposals with significant effects located on federal lands, within areas of federal responsibility, or undertaken by federal agencies, must be reviewed by the Minister of the Environment. Full public review depends on whether the initiating agency determines that impacts can be sufficiently mitigated. Legislation is being considered that would establish a Canadian Environmental Assessment Agency to administer the EIA process, broaden public review and prohibit some activities until completion of the EIA process.

Both the U.S. and Canada signed in February 1991 a Convention on Environmental Impact Assessment in a Transboundary Context. Although the Convention applies only to federal actions, it provides a national procedure for evaluating the likely impacts of proposed activities on the environment, and ensuring affected Parties of proper notification of and meaningful participation in projects with significant adverse transboundary impacts. The EPA is currently encouraging states to voluntarily implement the convention to strengthen cooperation and ensure that all jurisdictions are able to examine projects that may have significant transboundary impacts.

1.2 Ocean Dumping

The dumping of all radiological, chemical and biological warfare agents, high-level radioactive wastes, and medical wastes is prohibited in U.S. waters under the federal Ocean Dumping Act. The dumping of industrial wastes and sewage sludge must be phased out by 1992, although interim permits will be allowed until alternative options are developed. The EPA is authorized to designate ocean sites for the dumping of other material, including dredged material permitted and regulated by the Army Corps of Engineers. Such dumping must not unreasonably degrade or endanger human health, welfare, the marine
environment, ecological systems or economic potentialities. Need, effects on alternatives, and land-based disposal alternatives must also be considered. Dredging projects within state waters are also regulated by the affected states.

The U.S. enforces the MARPOL Protocol throughout state and federal waters under the Marine Plastics Pollution Research and Control Act. The Act prohibits the discharge of plastic material anywhere within the U.S. EEZ. Dunnage, lining and packing material must be discharged beyond 25 miles from shore, garbage ground to less than one inch must be discharged beyond three miles, and other unground garbage must be discharged beyond 12 miles. Vessels larger than 26 feet in length must display placards describing these prohibitions. The Act also requires all U.S. ports and boating facilities for 10 vessels or more to have adequate garbage reception facilities, and vessels 40 feet or larger must have waste management plans.

In Canada, ocean dumping is regulated under the Canadian Environmental Protection Act (CEPA). Only harmless substances and substances that do not adversely affect sea food may be discharged into marine waters. The dumping of mercury, cadmium, plastics, crude oil and petroleum products, high-level radioactive wastes, and biological and chemical warfare agents are prohibited.

1.3 Oil Spills and Hazardous Wastes

The 1990 U.S. Oil Pollution Act provides uniform approaches to oil spill containment, vessel and facility oil spill response planning, and local and regional contingency planning. It substantially strengthens the federal role in compensating and responding to oil spills, increases the maximum federal liability of vessels and offshore facilities for damages and removal costs, creates a $1 billion federal oil spill liability trust fund where damages exceed liability limits, and requires that new tankers have double-hulls. It also establishes a National Planning and Response System to coordinate private and public responses to oil spills, requires Area Contingency Plans in each of the ten Coast Guard Districts, and requires owners and operators of vessels and facilities to prepare Tank Vessel and Facility Response Plans.

Maine, New Hampshire, and Massachusetts have also adopted comprehensive state oil pollution prevention laws that provide for licensing oil terminal facilities and vessels used to transport oil. These state laws also:

- prohibit the discharge of oil into state waters;
- assign principal responsibility to the state for cleaning up spills;
- administer an oil spill clean up fund for clean-up costs, uncompensated damages, and third party damages (except Massachusetts); and

- provide unlimited liability for clean up costs, damages to natural resources and damages incurred by third parties; and

- require strict liability for petroleum facilities and handlers and stiff civil and criminal penalties.

A federal response to the accidental spill and release of hazardous substances is also established under the Comprehensive Environmental Response, Compensation, and Liability Act (Superfund). Superfund directs the EPA to respond to releases of hazardous material, impose liability on responsible parties, and finance the cleanup of high priority sites. In addition, Maine, Massachusetts and New Hampshire have adopted hazardous waste management programs that:

- license hazardous waste operators and the transportation of hazardous wastes within the state;

- license the siting of facilities to dispose of hazardous wastes and require setbacks from water bodies;

- identify and clean up hazardous waste sites; and

- administer a hazardous waste cleanup fund.

Canada controls ship source pollution and oil spills under the Canada Shipping Act. The Act prohibits the discharge of ballast water that produce a visible sheen, prescribes measures for reducing oil pollution during loading, unloading and bunkering operations, and establishes navigational safety standards. Canada participates in the International Convention on Civil Liability for Oil Pollution giving it access to the International Fund for Compensation for Oil Pollution Damage. Unlike U.S. state liability laws, shipowner liability is limited to a maximum of $21 million in Canada. Although oil spill response and contingency plans are not required under Canadian law, Canada and the U.S. have prepared a Joint Marine Contingency Plan to cooperate in responding to pollution incidents that pose threats to coastal areas in the Gulf of Maine. The U.S. and Canadian Coast Guard conducted a joint clean up drill under the Plan in 1990.

Canada controls the release of toxic substances through Part II of the Canadian Environmental Protection Act. CEPA requires that releases of toxic substances be reported to Environment Canada. Person or persons may be held liable for remedial actions necessary to reduce or mitigate such releases. In 1989
the federal and provincial government agreed to establish a $250 million 5-year program to cleanup abandoned hazardous waste sites in Canada. Agreements with individual provinces are in the process of implementation.

I.4 Offshore Oil and Gas

Offshore mining and oil and gas development in federal waters is regulated by the U.S. Department of the Interior under the Outer Continental Shelf Lands Act (OCSLA). The OCSLA establishes a 5-year offshore leasing program, environmental protection standards, an environmental studies program, and procedures for the leasing, exploration, development and production of offshore oil and gas resources. Areas in the Gulf of Maine have been deferred from federal oil and gas leasing until the year 2000. The OCSLA and the CZMA also establish procedures for state participation in the OCS leasing and permitting process in federal waters (3-200 miles offshore). Within state waters (0-3 miles offshore), each state has established its own submerged lands leasing and mining laws.

Similarly, the Canadian Oil and Gas Production and Conservation Act regulates offshore oil and gas drilling, provides for the conservation of such resources, and contains measures to reduce marine pollution offshore Canada. Nova Scotia and the Canadian federal government have entered into an agreement to jointly administer offshore oil and gas development and agreed upon a moratorium on oil exploration and development in the Georges Bank area until the year 2000. The status of the joint management agreement between New Brunswick and the federal government, and jurisdictional control over offshore resources and regulatory authority, is uncertain at this time.

I.5 Open Space Programs

Maine, New Hampshire and Massachusetts have established a number of programs that provide for the preservation and public use of coastal property through acquisition and local government assistance programs for natural resource protection, public access and open space. In addition, the states have enacted laws that encourage the public use of private property by limiting the liability of landowners who allow their property to be used for recreational purposes.

Nova Scotia and New Brunswick have programs to acquire coastal lands and establish provincial parks for public use and environmental protection. Nova Scotia has established the Five Islands Provincial Park on the Bay of Fundy and New Brunswick has set aside $1 million to establish Le Parc de L’Aboiteau, along the southeast coast. In addition, the Nova Scotia Beaches Act authorizes the province to purchase lands above the high water mark for public recreational use and access to the water. The New Brunswick Ecological Reserves Act may be used
to acquire land along the coastal zone but does not specifically authorize coastal acquisition for public or conservation purposes.

1.6 Endangered Species Laws

The U.S. Endangered Species Act (ESA) provides a federal mechanism for prohibiting the "taking" of endangered and threatened species, both marine and terrestrial, within the U.S. In addition, the U.S. Marine Mammal Protection Act imposes a moratorium on the taking and importation of marine mammals and marine mammal products. Critical habitats for endangered species are also protected from federal activities under the ESA and certain states have adopted their own endangered species laws listing additional species for protection and supplementing ESA habitat provisions (described further in Chapter III).

A similar approach to endangered species is utilized under the Canada Wildlife Act. Under the Act, endangered species may be designated and "wildlife areas" may be set aside for their protection. However, Canada does not prohibit the taking of marine mammals, (except for cetaeans), nor protect endangered species habitats from private actions.

1.7 Aquaculture Laws

The federal, state and provincial agencies bordering the Gulf of Maine have adopted laws regulating the use of marine waters, and leasing intertidal and submerged lands, for aquaculture. Although shellfish aquaculture is unlikely to have significant effects on water quality or marine resources, there is scientific uncertainty regarding the environmental impacts of finfish aquaculture. Maine, New Brunswick and Nova Scotia have substantial salmon net-pen aquaculture industries that utilize marine waters for grow-out sites, and have developed extensive aquaculture programs for the leasing of marine waters for net-pen operations. These programs establish joint procedures with appropriate federal agencies for resolving use conflicts, protecting navigation and riparian rights, monitoring the water quality effects of the net-pen operations, and ensuring that eggs and smolts are free of disease and parasites. Massachusetts and New Hampshire do not have a significant sea farming industry and have not yet developed an extensive regulatory program.

U.S. joint state/federal aquaculture procedures are not as well developed as those in Nova Scotia and New Brunswick, where MOUs with the Canadian Department of Fisheries and Oceans jointly regulate finfish aquaculture. However, in July 1991, the U.S. Army Corps of Engineers, EPA, NMFS, and the Maine Departments of Marine Resources, Environmental Protection and Inland Fisheries and Wildlife released draft procedures that provide for a fully integrated state/federal permitting and monitoring program for finfish aquaculture.
1.8 Marine Debris Programs

Coastal management programs within Maine, New Hampshire and Massachusetts operate yearly volunteer coastal cleanup programs to collect, sort and analyze marine debris. In 1990, Maine gathered nearly 30,000 pounds of debris from 190 miles of beach, 60% of which was plastic and styrofoam. These programs are valuable not only for removing the debris but also for heightening public awareness and educating the public on the impacts of debris on the marine environment. The Clean Nova Scotia Foundation has also sponsored a yearly beach clean-up campaign, volunteer programs have been implemented by fishermen to dispose of marine debris at shoreside facilities, and volunteer coastal clean-up programs are being coordinated through the New Brunswick Museum.
II. DIVERGENT U.S. AND CANADIAN APPROACHES FOR MANAGING THE MARINE AND COASTAL ENVIRONMENT

Chapter II describes divergent approaches utilized in the U.S. and Canada for protecting the managing the marine and coastal environment.

II.1 Coastal Management Programs

Massachusetts, Maine and New Hampshire each have adopted federally approved coastal management programs under the Coastal Zone Management Act (CZMA). Each state receives federal funding to implement their program and is entitled to review federal and federally permitted activities for consistency with state program policies. State coastal management programs are "networked" to coordinate existing state laws with coastal management policies to protect marine resources, critical habitats, shoreline processes, water quality, water dependent uses, and public access. Canada does not currently implement federal or provincial coastal management programs. However, a federal Green Plan initiative released in 1990 establishes a $10 million Atlantic Coastal Action Plan Program (ACAP) that designates 12 areas for the development of community-based comprehensive environmental management plans. Areas have been designated in New Brunswick (Miramichi, Madawaska, St. John, St. Croix, Passamaquoddy, and Letang) and Nova Scotia (Annapolis River, Pictou and Sydney).

II.2 Sewage Treatment and Water Quality

The U.S. Federal Water Pollution Control Act, more commonly known as the Clean Water Act, establishes a complex federal regulatory program implemented by the EPA. The CWA prohibits all unlicensed point source discharges into waterbodies, establishes effluent limitations and pretreatment standards for specific industrial dischargers, licenses and funds the construction of publicly owned sewage treatment works (POTWs), requires primary and secondary treatment of sewage, requires water quality standards for certain waterbodies, and contains stringent enforcement provisions. After 1992, the Clean Water Act also requires federal permits for municipal and industrial storm water discharges into storm sewers and the reduction of pollution from combined sewer outfalls (CSOs) to the maximum extent practicable.
To comply with federal Clean Water Act standards, Massachusetts, Maine and New Hampshire have each adopted comprehensive water pollution control laws that generally:

- prohibit unlicensed discharges of pollutants from pipes, outfalls and other discrete conveyances and establish a waste discharge license system with effluent limitations for discharges into surface waters;
- license, regulate and fund the construction, operation and maintenance of sewage treatment facilities and water pollution abatement projects;
- establish a water classification system for all inland and marine waters with minimum water quality standards; and
- monitor water quality and conduct scientific research.

In addition, Maine, Massachusetts and New Hampshire are members of the New England Interstate Water Pollution Control Commission which coordinates interstate water pollution control efforts; reviews state water classification systems; maintains a water quality sampling and testing network; contracts with states to perform specific regulatory and planning functions; and establishes standards and programs for training, educating and certifying operators of waste water treatment plants.

In Canada, the federal government controls industrial and point source discharges through effluent limitations under the Fisheries Act and the Environmental Protection Act. The provinces also provide funding for municipal sewage treatment works. However, Canada does not require primary or secondary treatment of sewage, the establishment of water quality standards within water bodies, nor specifically prohibit the direct discharge of untreated sewage into the marine environment except through public health legislation.

II.3 Nonpoint Source Pollution

Massachusetts, Maine and New Hampshire have adopted Nonpoint Source (NPS) Management Plans pursuant to section 319 of the federal Clean Water Act. NPS Management Plans coordinate existing state laws and regulations and:

- describe existing NPS pollution control strategies;
- list priority waters impaired or threatened by NPS water pollution;
identify the most important categories of NPS pollution within the state;

- define best management practices (BMPs) for each NPS category; and

- establish schedules to implement NPS pollution control strategies.

In addition, states must establish Coastal Nonpoint Source Pollution Control Programs as part of their coastal management programs under the 1990 amendments to the CZMA. Coastal NPS programs must identify land uses that contribute to coastal water pollution, identify critical coastal areas, and implement management measures to maintain applicable water quality standards. Forty-two million dollars is authorized for the preparation CZMA Coastal NPS Programs between 1992-1995. States that fail to adopt such programs within 30 months of the publication of final EPA guidelines may lose federal funding under the CZMA and Clean Water Act (draft EPA guidelines were issued in June, 1991).

Maine, New Hampshire and Massachusetts have also established soil and water conservation districts to conserve soil, water, wildlife and related natural resources, and to prevent soil erosion, flooding and sediment damage. These conservation districts conduct research, prepare technical guides and comprehensive plans, demonstration projects, property acquisition programs, and implement watershed-wide erosion control measures. They rely chiefly on voluntary compliance by landowners and do not generally have regulatory powers. Local soil and water conservation districts work with the U.S. Department of Agriculture Soil Conservation Service to reduce soil erosion and pollution from agricultural operations.3

Canadian law does not expressly address nonpoint source pollution although the federal government limits phosphorous in laundry detergents and prohibits some active ingredients in pest control products that harm the environment. Nova Scotia and New Brunswick also regulate the application, use, disposal, handling and sale of pest control products within their jurisdiction.

II.4 Wetlands and Sand Dunes Programs

Maine, New Hampshire and Massachusetts have adopted state wetlands protection and sand dune protection laws that regulate uses within coastal and freshwater wetlands and prohibit construction within sand dune systems. Laws

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differ on implementation at the state or local level, mitigation measures, habitat protection provisions, setback requirements and buffer zones (described further in section III.12). However, state laws generally protect wetlands from unreasonable adverse impacts and supplement federal wetlands regulation under section 404 of the Clean Water Act. The Clean Water Act generally prohibits discharges within wetlands if there are less environmentally damaging alternatives and requires mitigation if alternatives are unavailable. The Army Corps of Engineers and EPA have also agreed to an overall goal of "no net loss" of wetlands functions and values, although a current proposal to change the definition of wetlands may reduce the number of acres classified as wetlands by half (see Appendix A). An analysis of these state and provincial laws has been prepared for the Council by Jonathan Kurland entitled, "Habitat Mitigation Efforts in the Gulf of Maine: Stemming the Tide of Environmental Degradation." (January 1991)

Canada has no specific federal or provincial wetlands laws. However, development threatening wetlands may be reviewed under provincial environmental impact assessment requirements and both maritime provinces have laws encouraging the reclamation of wetlands for agricultural purposes.

II.5 Marine and Estuarine Protected Areas

Three U.S. federal programs authorize the creation of marine and estuarine protected areas in the Gulf of Maine: (1) the National Marine Sanctuaries Program; (2) the National Estuary Program; and (3) the National Estuarine Research Reserve System.

Offshore areas of national significance may be designated as national marine sanctuaries by the Secretary of Commerce with state concurrence. National marine sanctuaries are subject to special regulatory controls and management plans established through a joint state-federal process, and Massachusetts Bay within the Gulf of Maine is currently under active consideration for designation. The EPA has designated Massachusetts Bay and Casco Bay within the Gulf of Maine as National Estuaries committing federal funds for research and the preparation of a comprehensive conservation and management plan. In addition, Wells and Great Bay National Estuarine Research Reserves have been established by the National Oceanic and Atmospheric Administration (NOAA) and provides federal funds for research, management and acquisition programs.

National marine sanctuary and estuary programs, similar to those in the U.S., have not been established in Canada. However, the National Park Act authorizes the creation of national marine parks and the federal government has set a goal of designating three marine parks by the year 1996, although none are earmarked for the the Bay of Fundy.
II.6 Environmental Database Coordination

The Canadian Council of Maritime Premiers has undertaken a cooperative effort to establish an environmental data base for the land and marine resources of the Gulf of Maine area. The Land Registration and Information System (LRIS) is a coastal database to input hydrographic, topographic and thematic data for Geographic Information System (GIS) analysis, to develop a directory of coastal zone data and information, to facilitate access to coastal data and information, and to assist in making sound land use and coastal management decisions. The FMG Resource and Environmental Database for the Bay of Fundy and Georges' Bank region is a digital database of maps depicting bathymetry, bedrock and surficial geology, bottom sediments, physical and chemical oceanography, fish species distribution, political, demographic and land use characteristics, and critical resource and environmental data (such as ocean dumping sites and areas of marine and coastal pollution). Although similar information is being generated for certain state programs in U.S., it is not being coordinated among the states.
III. CONTRASTING STATE AND PROVINCIAL POLICIES FOR MANAGING THE MARINE AND COASTAL ENVIRONMENT

Standards vary substantially within state and provincial programs and individual states and provinces have unique policies and programs to protect and preserve coastal and marine resources (see Figure 2 below). The following discussion describes contrasting policies utilized in the States of Maine, New Hampshire, and Massachusetts, and the Provinces of Nova Scotia and New Brunswick.

Figure 2
Contrasting Policies for Regulating Gulf of Maine Resources

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III.1 Shoreland Zoning and Comprehensive Planning

Maine’s shoreland zoning and comprehensive planning requirements apply state-wide coastal policies at the local government level, provide minimum state standards for protecting important coastal resources, and provide a mechanism for addressing the cumulative impacts of development. Maine’s Mandatory Shoreland Zoning Act requires municipalities to adopt shoreland zoning ordinances within 250 feet of the shore and great ponds, and freshwater wetlands that exceed 10 acres. Within such areas, local governments must provide 75–100 foot construction setbacks from waterbodies, impose minimum lot size and shoreline frontage requirements, implement measures to prevent soil erosion, and establish resource protection districts that prohibit development. Maine also requires local governments to prepare comprehensive plans and zoning ordinances throughout their jurisdiction to inventory natural and recreational resources, manage growth, protect water quality and critical natural resources, and address nine state coastal policies (see section III.3 below).

The New Brunswick Community Planning Act also requires that community plans be prepared within seven provincial regions and each municipality. Comprehensive plans must contain policies for orderly economic development, pollution control and abatement, sewage treatment, and the management of water resources, but need not specifically address coastal issues.

III.2 Land Use Commissions

Massachusetts has established regional planning and regulatory commissions for Cape Cod and Martha’s Vineyard to control growth, protect sensitive coastal resources, and preserve water quality. Maine has created a State Land Use Regulatory Commission (LURC) to plan for and regulate development within unincorporated areas, including about 200 islands and 5% of the State’s coastal zone. Establishing direct regulatory and land use controls over development within specially designated areas of the coastal zone is a useful and effective mechanism for implementing state-wide policies to protect the marine and coastal environment.4

III.3 Statutory Coastal Policies

Maine has enacted nine coastal policies that must be considered in all state and local government regulatory and planning decisions. These policies among other things promote public access, water dependent uses and the consideration of cumulative impacts; protect critical resources; maintain and restore water

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4 It should be noted that the Cape and Vineyard Commissions work with local governments while LURC was created because unincorporated areas in Maine lack local governments.
quality; protect marine resources; and discourage development in hazardous areas. Massachusetts and New Hampshire have adopted non-statutory coastal policy guidelines and regulations. Province-wide coastal policies have not been adopted in Nova Scotia or New Brunswick, although Nova Scotia has been working on a coastal zone management strategy for fifteen years.

Maine’s statutory coastal policies provide legal requirements for implementing state-wide coastal policies at the state and local level. These policies must be considered by state and local governmental bodies when reviewing development proposals, comprehensive plans, zoning ordinances, subdivisions, and major state projects such as highways, sewage treatment facilities, harbor improvements, submerged lands and timber leases. However, Maine has no regulations or guidelines implementing these statutory policies and lacks effective enforcement mechanisms, such as those implemented in Massachusetts, where non-statutory coastal policies are enforced by incorporation into state wetlands and tidelands leasing regulations.

III.4 Large-Scale Site Reviews

Large-scale coastal development may have significant environmental and water quality impacts from grading, runoff, sedimentation, increased traffic, and growth inducing effects. Maine and New Hampshire provide for direct state regulation of large-scale development and subdivisions while Massachusetts and the Provinces of Nova Scotia and New Brunswick provide for the environmental review of some large-scale development under state and provincial environmental assessment laws.

Maine’s Site Location of Development Act requires that projects over 60,000 square feet, 10 units or more, and subdivisions within the shoreland zone, provide erosion and sedimentation control measures and storm water management systems. It also prohibits unreasonable adverse impacts on open space, natural resources, and wildlife habitats, and requires the consideration of the cumulative effects of development. New Hampshire’s review is generally limited to water quality impacts. Maine’s Site Law ensures the proper evaluation and mitigation of the environmental impacts of large-scale development and provides direct state regulatory control over potentially significant coastal development.

III.5 Environmental Impact Reviews

Although the environmental impacts of federal and federally permitted projects in the U.S. and Canada are assessed under federal laws (NEPA and EARP Guidelines, see section I.1), non-federal projects must rely on state and provincial laws. The Massachusetts Environmental Protection Act (MEPA) resembles NEPA by ensuring that reasonable alternatives, cumulative effects and feasible mitigation
measures are evaluated in projects undertaken, funded or approved by the State. MEPA also serves as a state site review mechanism because EIRs must certify that all feasible mitigation measures have been taken to minimize the environmental impacts of state projects.

Maine and New Hampshire have no EIR requirements. Critical environmental information, mitigation measures, and alternatives normally are elicited through other state and local reviews. For example, environmental analyses are required through Maine's Natural Resources Protection Act (wetlands and sand dune development), Site Location of Development Act (large-scale development and subdivisions), Land Use Regulation Act (development within unincorporated areas), and Comprehensive Planning and Land Use Regulation Law (local comprehensive plans). Nevertheless, an environmental impact assessment requirement ensures effective interagency and public review and the proper consideration of vital environmental issues in state and local government decision-making.

The New Brunswick Clean Environment Act requires environmental assessments for certain projects (mineral developments, offshore oil drilling, bridges and causeways, sewage treatment and disposal facilities, ports and harbors, and any undertaking affecting unique, rare and endangered features of the environment). EIAs must undergo public review and the Minister of the Environment may impose conditions or deny projects if there are unacceptable environmental impacts. The Nova Scotia Environmental Assessment Act establishes a similar review requirement for any undertaking within the province that, in the opinion of the Minister of the Environment, may have a significant environmental impact. Certain undertakings have been designated as subject to the Act and regulations, including projects disrupting 2 hectares or more of wetlands.

III.6 Marine Monitoring Programs

Maine has established a marine environmental monitoring program to determine the extent of marine pollution, diagnose sources of pollution, and direct remedial actions. The State is preparing a Marine Monitoring Methods Manual, establishing monitoring stations in 26 strategic estuarine and marine sites, and assessing stormwater quality at a combined sewer outfall to identify nonpoint sources of bacteria and toxic pollutants. Massachusetts and New Hampshire monitor marine water quality only in conjunction with public health monitoring of shellfish beds. Environment Canada has issued a report on the Environmental Quality of the Atlantic Region (1985) which examines coastal water quality issues but has no specific marine water quality monitoring program.
In 1988, Maine, New Hampshire and Massachusetts received a federal grant to design a Marine Environmental Quality Monitoring Program for the Gulf of Maine to produce data on the health of the ecosystem and human health risks, and to make such data accessible to environmental managers. This Program could play a key role in assessing the marine water quality of the Gulf of Maine which has heretofore been lacking (see objective 2 of the Gulf of Maine Action Plan).

III.7 Vessel Discharges and Pump-Out Facilities

Massachusetts and Maine require that marinas of certain sizes (50 slips and 18 slips respectively) provide pump-out facilities for cleaning holding tanks and disposing of sewage and sanitary wastes from vessels. New Hampshire prohibits discharges of treated sewage from vessel holding tanks into both fresh and marine waters, although enforcement is left to the U.S. Coast Guard. Pump-out facilities are not required in Nova Scotia or New Brunswick and small vessel sewage discharges are unregulated.

III.8 Domestic Sewage Discharges

Massachusetts and New Hampshire expressly prohibit discharges from existing domestic septic systems into any watercourse (overboard discharges), and prohibit septic systems in areas with accessible sewers, although variances may be issued by local boards of health in cases of "manifest injustice." Maine prohibits the construction of new residential "overboard" discharges, but allows some 3000 existing overboard discharges to continue to pollute coastal and inland waters until the state can fund up to 90% of the costs of their removal. Both Maine and Massachusetts prohibit the location of subsurface sewage disposal systems within 100 feet of most waterbodies, while New Hampshire and the maritime provinces have smaller septic system setback requirements.

Nova Scotia and New Brunswick do not specifically prohibit the discharge of untreated household waste and sewage into the marine environment except through public health legislation.

III.9 Nonpoint Source Pollution Strategies

Nova Scotia and New Brunswick have not adopted an overall strategy for addressing nonpoint sources of pollution. Although Maine, New Hampshire and Massachusetts have adopted Nonpoint Source Management Plans pursuant to Section 319 of the federal Clean Water Act (see section II.3), NPS strategies and priorities within each plan differ substantially. For example, sedimentation and erosion from large-scale development and subdivisions are controlled in Maine and New Hampshire. Massachusetts, on the other hand, has a waste oil recycling program, and has adopted a state-wide goal of eliminating combined sewer
overflows (CSOs) by sewer separation, if feasible, or by effluent limitations designed for three month storm events, to limit average untreated overflows to four times per year.

Because state NPS programs are evolving, evaluating the extent to which each state adequately controls NPS pollution is beyond the scope of this Report. However, NPS pollution is an important area for future Council study with regard to priorities and control strategies within Gulf jurisdictions, particularly in view of the new CZMA mandated coastal NPS pollution control programs.

III.10 Toxic Use Reduction

Maine’s Toxic Use Reduction Law requires facilities using hazardous or toxic wastes to reduce such wastes by 30% by the year 1997. Massachusetts requires the preparation of toxic use reduction plans which are reviewed and approved by the State. Canada regulates the use of toxic substances but the provinces have not adopted toxic use reduction laws.

III.11 Offshore Mining

Massachusetts prohibits offshore mining and drilling for oil within designated ocean sanctuaries and, in other areas, mining activities are prohibited from unreasonably impacting navigation, fishing and natural resources. Massachusetts also has special provisions for controlling the adverse impacts of sand and gravel mining on shellfish and beach erosion. The Massachusetts approach provides a useful model for controlling the adverse impacts of ocean mining within especially sensitive Gulf areas.

III.12 Wetland Protection Standards

In the U.S. wetland protection laws have been adopted in each state and by the federal government (see section II.4). Federal and provincial Canadian law does not specifically protect wetlands from the effects of development, but may require environmental assessments where development threatens wetlands or rare or endangered features of the environment. There are significant variations among state wetland programs in the U.S. with respect to the size of the wetlands regulated, activities that may occur within wetland buffer zones, and standards imposed on projects affecting wetlands. These differences are listed below. (A more detailed analysis of state and provincial wetland policies has been prepared for the Council by Kurland, 1991.)
Size

Massachusetts and New Hampshire regulate activities affecting small-scale freshwater wetlands (exceeding 5,000 square feet), while Maine regulates development only within and adjacent to freshwater wetlands that exceed 10 acres. Smaller wetlands are regulated by local governments, with some state oversight provided under Maine’s Comprehensive Planning Act.

Buffer Zones

Although the Clean Water Act regulates discharges within wetlands, protection of wetlands from adjacent development and harmful activities vary substantially from state to state. Massachusetts prohibits development within 100 feet of all wetlands and authorizes the protection of wetlands if activities outside 100 feet "alter" wetlands. New Hampshire does not prohibit development within buffer zones but can assert jurisdiction over construction on steep slopes adjacent to wetlands if there are water quality impacts. Maine regulates soil disturbance "adjacent to" wetlands exceeding 10 acres on a case-by-case basis and requires adequate buffer zones to protect wildlife habitat and shoreland nesting and breeding. Although Maine’s wetland law does not specify the size of buffer zones, under the State’s Mandatory Shoreland Zoning Act local governments are prohibited from approving development within 75 feet of all coastal wetlands and freshwater wetlands exceeding 10 acres.

Wetland Policies

New Hampshire’s no "significant" net loss standards apply only to "prime wetlands" mapped by local governments. Maine’s no loss provisions apply to all coastal wetlands but only those freshwater wetlands that exceed 10 acres. Massachusetts essentially prohibits the destruction of all vegetated wetlands and wetlands habitat.

III.13 Coastal Hazards and Sea Level Rise

Maine sand dune regulations expressly require the State to consider future sea level rise in regulating the size and location of development within sand dunes and wetlands. Projects are not permitted if they may be expected to be damaged as a result of changes in the shoreline over a 100 year period and large buildings are only permitted on sites stable after a projected 3-foot rise in sea level. Massachusetts has mapped low lying areas vulnerable to rising sea levels and adopted stringent controls along coastal banks to prevent construction from starving beaches of sand supplies. Both Maine and Massachusetts essentially prohibit the construction of sea walls and development in v-zones and frontal dunes. These controls are necessary to protect development from coastal hazards and address
the cumulative impacts of development that cut-off or impede the natural flow of
sediment into the coastal environment. The effects of unregulated sea wall
construction and sand dune development can result in the significant loss of
beaches throughout the Gulf of Maine.

III.14 Tidal and Submerged Lands Leasing

Under Massachusetts Chapter 91 regulations, significant public benefits are
provided for permitting the private use of, or changes of use within, tidelands and
submerged lands, even on filled tidelands. All uses within such areas must be for
a "proper public purpose." Uses within private tidelands must provide for continu-
ous lateral public access for public trust purposes; uses within public tidelands and
submerged lands must allow public recreational activities; private marina must
allow the public to have access; and water dependent uses are preferred and
protected. Maine is in the process of revising its submerged lands leasing
regulations which currently call for public benefits but do not specify how those
benefits should be measured or provided.

In Nova Scotia and New Brunswick, the management of tidelands and
submerged lands is complicated by a jurisdictional dispute between the federal and
provincial governments; as a result tidal and submerged lands are sometimes
jointly managed depending on the resource affected (as in aquaculture). Both
Nova Scotia and New Brunswick have laws regulating the construction of wharves
and other structures within the intertidal zone, and seek to limit the effect of such
structures on shoreline circulation and erosion. However, the laws do not provide
public benefits for allowing the private use of public tidelands and submerged
lands.

III.15 Ocean Sanctuaries

Although federal programs provide for marine sanctuaries in federal waters,
only Massachusetts has adopted a state ocean sanctuary program. Massachusetts
has designated its entire offshore waters as a sanctuary (with the exception of area
between Lynn and Marshfield) within which the drilling for oil and gas, seabed
mining, and the incineration of wastes is prohibited. Although Maine and New
Hampshire control some of these activities through ocean dumping, clean water
and submerged lands leasing laws, the designation of sanctuaries within state
waters is an effective approach for protecting special offshore areas within the
Gulf of Maine and has significant symbolic and public educational benefits.

III.16 Endangered Species Habitat Protection

Although Maine, Massachusetts and New Hampshire have each adopted
endangered species laws supplementing the U.S. Endangered Species Act, there
are variations among species protected and habitat protection provisions. Maine, Massachusetts and New Brunswick laws protect essential habitats of endangered and threatened species from significant alteration. New Hampshire's endangered species laws does not specifically address habitat protection. Nova Scotia has not enacted an endangered species law but is authorized to establish wildlife sanctuaries and designate ecological sites that contain rare or endangered plants or animals on crown lands or private lands with the approval of the land owner. Ideally endangered and threatened species listed by each state and province, and habitats essential to the continued viability of such species, should be uniformly protected.

III.17 Critical Area Performance Standards

Maine, New Hampshire and Massachusetts have established critical area programs for protecting species and habitats within designated areas of particular concern. These programs are non-regulatory and inventory sites containing significant plant and animal life. However, Massachusetts imposes additional performance standards on development projects to protect sensitive habitats and species on development within such areas, while Maine and New Hampshire use acquisition and research strategies.

Although Nova Scotia and New Brunswick do not have critical area programs, they have laws authorizing the creation of ecological reserves. Such areas must be located within crown lands; private lands may be designated only with the approval of the landowner.

III.18 Underwater Archeology Programs

Massachusetts and New Hampshire have enacted laws to protect underwater archeological resources. Under Massachusetts law, the State Board of Underwater Archeological Resources issues permits for and oversees the exploration, removal and salvage of underwater archeological resources that have "historic value," including artifacts and sunken ships in state waters. The Board prepares an inventory of items discovered, and establishes standards for excavation to assure that the "maximum amount" of historical, scientific, archeological, and educational information may be recovered and preserved. New Hampshire also requires permits for the removal of historic resources and designates the state as the custodian of any resources discovered.
IV. NEW APPROACHES TO MANAGING THE MARINE AND COASTAL ENVIRONMENT

Chapter IV identifies gaps and new management approaches not currently utilized within the Gulf of Maine. These approaches bear further consideration by the Council and the Gulf states and provinces.

IV.1 Centralized Coastal Zone Management

Maine, Massachusetts and New Hampshire have "networked" coastal management programs; that is each state relies on a program of networked laws and regulations for implementing their coastal management policies on a state-wide basis. These laws are implemented by a number of different state and local government agencies and are "coordinated" through a non-regulatory coastal management program office in the Executive department (the State Planning Office in Maine and New Hampshire, and the Executive Office of Environmental Affairs in Massachusetts).

In contrast to the "networked" coastal management approach, some states have "centralized" coastal management programs (North Carolina and California are two outstanding examples). These programs have established state-wide "coastal commissions," with special regulatory and land use planning authority throughout a specifically-defined coastal zone. These coastal commissions are similar to the Cape Cod and Martha's Vineyard Commissions in Massachusetts and the Land Use Regulation Commission in Maine, except that "coastal commissions" have state-wide coastal authority.

Coastal commissions provide a distinct advantage over the networked coastal management program approach by implementing coastal policies state-wide, rather than scattering such policies among different agencies and levels of government. Coastal commissions implement planning and zoning controls throughout the coastal zone, conduct site reviews, issue coastal development permits, and provide a mechanism for assuring that local government permit and land use decisions in the coastal zone reflect broader state-wide interests. Finally, centralized coastal programs concentrate state marine and coastal resource expertise and resources within one agency, providing administrative efficiencies and creating a special constituency within state government for the coastal and marine environment.
IV.2 Ocean Resource Planning

The U.S. Congress recently noted that, "coastal states have substantial and significant interests in the protection, management and development of the resources of the exclusive economic zone." For this reason, Congress authorized funds to encourage the development of state ocean resource plans as part of federally approved coastal management programs. This gives federal recognition to state planning efforts beyond the 3-mile state boundaries established under the Submerged Lands Act.

A number of states are adopting or already have adopted ocean resource plans to address various ocean resource management issues affecting state coastal waters. Although each plan is unique, they do have some common features. Ocean plans generally summarize and describe the policies and laws applicable to their ocean and coastal waters; describe state management responsibilities with respect to federal resource management agencies; describe key ocean uses, activities and resources that affect state environmental, recreational, and economic interests; and list objectives and recommendations for state action to preserve and develop vital marine resources.

While states may have addressed many of these issues within their 3-mile coastal jurisdiction, until recently most states have not considered in a comprehensive fashion strategies and policies to protect their interests within federal waters and the exclusive economic zone. Among the most important of these interests, are offshore mineral mining and oil and gas development, oil spills, kelp harvesting, new ocean energy technologies, marine transportation, ocean waste disposal, commercial and recreational fisheries, ocean recreation, marine research, and interjurisdictional cooperation. Gulf states and provinces can benefit from the experience of jurisdictions which have already prepared ocean plans and the Council can play a vital role in assisting in the preparation of such plans within the Gulf of Maine.

5 1990 Amendments to the CZMA. 16 USC 1451(m).

6 Ocean resource plans have been prepared in Hawaii (the Hawaii Ocean Resources Management Plan, Act 235, SLH 1988); Oregon (the Oregon Ocean Resources Management Act, ORS 196.405-196.515); North Carolina (the North Carolina Marine Science Council, "North Carolina and the Sea: An Ocean Policy Analysis," 1985 and NCGS 143B-389); Florida ("Florida's Ocean Future: Toward a State Ocean Policy," 1989); Washington (the Ocean Resources Management Act of 1989, RCW 43.143 and 90.58.195); and California (the California Ocean Resources Management Act of 1990, AB 2000). See COASTAL MANAGEMENT, Volume 18, No. 3 (1990), for articles about the experience of each of these states in developing policies and institutions to manage ocean resources.
IV.3 Marine Zoning and Outstanding Resource Waters

Maine, Massachusetts, and New Hampshire have adopted classification systems for marine waters pursuant to the anti-degradation standards of the Clean Water Act. This classification system places restrictions upon the discharge of pollutants depending upon impacts on water quality, flora and fauna, fishing, swimming and other uses. However, the states have not implemented a full marine zoning program or designated "outstanding resource waters."

Marine zoning programs have been implemented in Rhode Island, Prince Edward Island, Norway and elsewhere. Rhode Island has divided its marine waters into six zones: conservation; low-intensity use; high-intensity boating; multipurpose waters; commercial and recreational harbors; industrial waterfronts and commercial navigation channels. The State Coastal Resources Council restricts uses and development within each area according to its designation. Thus, for example, point source discharges, the mooring of houseboats, dredging and dredged materials disposal, and grading and excavation on abutting shoreline are prohibited within conservation areas. Prince Edward Island, Norway and British Columbia have enacted marine zoning programs to resolve use conflicts and establish appropriate areas for aquaculture. Such programs may also be appropriate within the Gulf of Maine.

Unique and special state waters have been designated as "outstanding resource waters" (ORWs) in North Carolina to protect waters of high water quality and exceptional recreational or ecological values. Such waters have outstanding fish habitats or fisheries, high recreational uses or potential, scientific significance or contain wildlife refuges or national parks. ORWs may be given special protection through statutory or regulatory standards, management plans and expanded permitting requirements such as no-discharge zones, special storm-water controls for adjacent development, fill and discharge restrictions, and special marina operation controls. These mechanisms can also be utilized to provide

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9 15 NCAC 2B.0216(a).

10 Carter, Outstanding Resource Waters Classification Provides Protection for N.C. Coastal Waters, 4 Legal Tides No. 3, at 2-4 (1990). North Carolina recently designated the Roosevelt Natural Area on Bogue Banks in Carteret County as an outstanding coastal resource water.
additional protection for waters within the Gulf of Maine determined to possess exceptional values, and state and provinces may be assisted in such determinations by the Council.

IV.4 Oil Spill Task Force

The British Columbia/State Oil Spill Task Force was formed in 1989 in response to the EXXON Valdez oil spill. Alaska, Washington, Oregon, California and British Columbia formed the Task Force to jointly study, share information and develop recommendations on reducing the threat of oil spills to the West coast. An "Oil Spill Memorandum of Co-operation" was signed under which the Task force was charged with creating a joint emergency response plan; evaluating the capabilities and technologies for spill prevention, response and containment; reviewing tanker safety, routing and operating requirements; preparing inventories of equipment, material and personnel available for oil spill control and clean-up operations; and conducting joint spill response drills and training. Although the Task Force has no regulatory authority, member jurisdictions have introduced oil spill legislation in response to Task Force recommendations. Legislation is also proposed to create an interstate compact to establish uniform safety standards for routes, crews and equipment for vessels transporting oil and hazardous substances. A similar task force approach could provide substantial benefits for the Gulf of Maine.

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V. RECOMMENDATIONS

The following recommendations are proposed to strengthen laws and programs protecting the natural resources and water quality of the Gulf of Maine. They generally reflect the priorities indicated in the Gulf of Maine Action Plan, the sensitivity of the resources affected and the status of current regulatory programs in the Gulf of Maine. The Action Plan lists four high priority objectives for the Council's 1991/92 workplan:

- generating appropriate and timely environmental monitoring information (objective 1.1);
- reducing point source pollution (objective 2.1);
- protecting fish and wildlife habitat (objective 3.1); and
- developing and implementing a regional citizens' education and participation program (objective 4.1).

Three high priority objectives are listed for inclusion in the Council's 1992/93 workplan:

- the proper disposal of marine debris and vessel wastes (objective 2.2);
- the evaluation of existing laws and regulations to reduce disparities and improve performance (objective 2.3); and
- the reduction of the impacts of nonpoint source pollution (objective 2.4).

The Action Plan suggests that the remaining objectives be undertaken in three-year increments. These include: the identification, classification and protection of coastal and marine habitats of regional concern (objective 3.2); coordinating oil spill contingency plans (objective 2.6.1); assessing the risks from the marine transport of hazardous wastes (objective 2.6.3); coordinating vessel traffic safety (objective 2.6.4); and minimizing the impacts from ocean disposal (objective 2.7).
It should be noted that the recommendations listed in this Report do not reflect Action Plan priorities in all cases. An assessment of Gulf laws and programs indicates that the most urgent action appears to be needed in the areas of: primary and secondary sewage treatment; the prevention of combined sewer overflows; the prohibition of discharges from marine sanitation devices; the provision of marine pump-out facilities; the prohibition of direct domestic wastewater discharges; NPS pollution prevention practices; the protection of endangered species habitats; and the preservation of wetlands.

It should be noted that some of the recommendations will require additional studies and investigations to resolve key policy questions and regulatory issues that go beyond the scope of this Report such as: the determination of best management practices for point and nonpoint source pollution controls; optimal wetland protection strategies; the coordination of endangered and threatened species laws and programs; the location of outstanding resource areas; and the compatibility and adequacy of environmental enforcement programs, particularly for individual sewage disposal systems. In other cases, the recommendations call for the Council to monitor and respond to changes proposed in key state, provincial and federal programs that significantly affect Gulf resources such as: the offshore oil and gas leasing program; the marine sanctuaries program; new oil spill pollution procedures; ongoing aquaculture regulations; and revisions to CWA wetland standards. The specific recommendations below attempt to take these exigencies into account:

1. Untreated sewage and direct domestic septic system discharges into the Gulf should be prohibited; uniform septic system setback policies should be promoted.

Pollution from sewage and septic systems throughout the Gulf is evident (see Action Plan objective 2.2.1). While the Canadian Fisheries Act prohibits the deposit of deleterious substances into waters frequented by fish, Canada has no law requiring sewage treatment. Primary and secondary sewage treatment should be required and the Council should endorse initiatives such as the Minister’s Task Force on Clean Water in Nova Scotia to address this serious problem. Additional studies are also necessary to identify, and propose uniform standards to harmonize different approaches utilized throughout the Gulf with respect to setbacks from waterbodies, minimum lot sizes, shoreline frontage requirements, municipal sewer hook-up requirements, and individual septic system discharges. Direct discharges from domestic septic systems (overboard discharges) should be prohibited and minimum standards should be promoted for dealing with pollution from septic systems (see Action Plan objective 2.4.6).
2. Specific nonpoint source pollution management strategies should be implemented through statutory and regulatory controls in the U.S.; Canadian provinces should be encouraged to prepare and implement NPS management plans.

The maritime provinces lack coherent NPS management strategies. Although NPS Management Plans have been adopted by states under the Clean Water Act in the U.S., there are substantial variations among priorities, strategies, and enforcement mechanisms within these plans. The Council should provide direction on NPS pollution throughout the Gulf (see Action Plan objective 2.4). Studies should be undertaken to assess the chief causes of NPS pollution in the Gulf and identify optimal NPS pollution controls strategies such as: best management practices; erosion and sedimentation controls; CSO policies and stormwater management programs; enforcement of septic system regulations; restrictions on fertilizer use; waste oil recycling; road salt and sand controls; construction setbacks from waterbodies; and agriculture and silviculture controls. The Council should work with states updating NPS Management Plans and preparing new NPS Pollution Control Programs under the 1990 amendments to the CZMA.

3. Sewage from marine sanitation devices should be prohibited in sensitive areas, no discharge zones should be designated, and pump-out facilities at marinas should be provided.

Treated and untreated sewage is routinely discharged into the Gulf of Maine from vessels. The states and provinces adjoining the Gulf should determine where such discharges are a threat to marine resources and water quality and whether existing laws can be better enforced. States and provinces should ensure that pump out facilities are available at marinas (see Action Plan objective 2.2.1). The Council can help Gulf jurisdictions identify sensitive areas for designation as no discharge zones.

4. The identification and protection of common endangered and threatened marine animal and plant species, and their habitats, should be coordinated to assure that standards for their protection are consistently applied throughout the Gulf of Maine.

There appear to be some variations among the endangered species laws of Gulf jurisdictions, particularly with respect to habitat protection. These variations
may undermine species and habitat protection efforts in adjacent jurisdictions. Further study and action is necessary to determine how more consistent approaches to species and habitat protection may be implemented, including the protection of marine mammals (see Action Plan objective 3.2.6).

5. Consistent wetland protection standards and mitigation policies should be implemented throughout the Gulf of Maine.

The protection of wetlands is essential in preserving the Gulf’s ecosystem. Recent estimates indicate, however, that Maine, New Hampshire and Massachusetts together have lost over 1.6 million acres of valuable wetlands since colonial times despite federal wetland policies implemented under section 404 of the Clean Water Act. In the Canadian maritime provinces about 65% of the tidal marshes and flats have been lost or altered. Although each state has its own wetland laws and standards, the maritime provinces lack a coherent wetlands policy. Substantial benefits would accrue from a uniform approach to preserving wetlands and wetlands habitats including the establishment of uniform wetland definitions, minimum wetland construction setbacks, and effective wetland habitat protection and mitigation policies (see Action Plan objective 3.1). The Council should respond to ongoing revisions to U.S. and Canadian wetland laws, such as current proposals to change the definition of wetlands under EPA guidelines.

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12 Dahl, T.E. 1990. "Wetlands Losses in the United States, 1780's To 1980's," U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Dahl estimates that Maine has lost 20% of its original 6.5 million acres of wetlands; Massachusetts has lost 28% of its 800,000 acres of wetlands; and New Hampshire has lost 9% of its 220,000 acres of wetlands. The U.S has lost over 30% of its wetlands since the 1780's; over 50% if Alaska and Hawaii are not included.

13 Waterman, The Gulf of Maine Initiative, 12 NATIONAL WETLANDS NEWSLETTER 4:3 (July-August, 1990)

14 For more specific recommendations see Kurland, "Habitat Mitigation Efforts in the Gulf of Maine" (January 1991) at 49-55. The Report notes that there is a special need for interjurisdictional coordination and cooperation regarding wetland habitat and management efforts within the Gulf of Maine (at 46). It recommends that specific definitions be adopted for mitigation and habitat value assessment, and that guidelines for local implementation be prepared (at 49-52).
6. The Council should participate in the formulation of oil spill prevention and response plans, vessel traffic safety standards and routes, and planning for oil and gas development within the Gulf of Maine.

The transboundary effects from oil pollution are readily apparent. To minimize risks from accidents and to facilitate clean-up operations, consistent policies should be endorsed regarding oil spill response plans; vessel and facility oil spill contingency plans; unannounced oil spill drills and inspections; the use of dispersants; financial responsibility requirements; vessel safety procedures (such as the use of tugboats, pilots, and booms within port areas); sensitive habitat mapping and planning; bioremediation; and the rehabilitation of wildlife (see Action Plan objective 2.6.1). The Council should participate in the preparation of new Area Contingency Plans and Vessel and Facility Response Plans required under the U.S. Oil Pollution Act of 1990, and the U.S./Canada Joint Marine Pollution Contingency Plan.\(^1\) The Council should also consider cooperative measures to establish uniform safety standards for routes, crews and equipment for vessels transporting oil and hazardous substances, such as those taken by the British Columbia/States Oil Spill Task Force on the West coast (see Action Plan objective 2.6.4 and section IV.4 of this Report). The Council should advise federal U.S. and Canadian agencies conducting oil and gas lease sales and preparing long-range OCS leasing policies on potential impacts on Gulf resources.

7. A uniform marine monitoring program in the Gulf should be implemented to identify transboundary impacts of ocean and coastal activities on marine resources and water quality.

There has been a lack of adequate and reliable information and data on marine water quality within the Gulf of Maine. A uniform marine monitoring program, coordinated through the Council or an interjurisdictional body like the New England Interstate Pollution Control Commission, should be implemented to assess the transboundary impacts of point and nonpoint source discharges and other activities on the Gulf's water quality and marine resources. This recommen-

\(^1\) See objective 2.6.1 of the Gulf of Maine Action Plan, calling for the review of individual oil spill contingency plans to devise methods for improved cooperation. In this regard, the Council should consult the findings and recommendations of the November 1990 Report of the Commission to Study Maine's Oil Spill Cleanup Preparedness. Among its recommendations is the execution of an interstate/interprovince compact to improve oil spill prevention and response throughout the Gulf of Maine.
dation is currently being addressed through the Gulf Marine Environmental Quality Monitoring Program.

8. Enforcement and compliance with environmental laws within the Gulf of Maine should be examined and consistent policies applied.

There is no lack of regulation and programs designed to protect the coastal and marine resources of the Gulf of Maine. However, further study is necessary to determine if adequate resources are being devoted to the enforcement of environmental laws and if consistent enforcement provisions are being applied. The Council should encourage the monitoring and enforcement of environmental laws, including citizen enforcement provisions, such as those utilized under the Clean Water Act (see Action Plan objective 2.3.1).

9. Ocean sanctuaries and outstanding resource designations should be established to protect sensitive areas in the Gulf of Maine.

The federal government has nominated Stellwagen Bank as a National Marine Sanctuary and has designated several national estuaries and estuarine reserves within the Gulf of Maine. The Council should support the nomination of Stellwagen Bank, consider possible locations for additional marine sanctuaries, estuaries or estuarine reserves, and become involved in the preparation of sanctuary regulations and management plans. The Council should encourage states and provinces to adopt their own ocean sanctuary programs and study the feasibility of establishing a Canadian National Marine Park within the Gulf of Maine. The Council should also identify critical coastal areas, significant habitats and outstanding resource waters, and encourage the protection of such areas within states and provinces through such mechanisms as performance standards, regulatory controls, and management plans (see Action Plan objective 3.2.5).

10. Regulatory, land use planning and zoning controls should be established within the coastal zone and should reflect state-wide and province-wide coastal management policies.

Provincial-wide coastal policies should be adopted in Nova Scotia and New Brunswick. Although Maine, New Hampshire and Massachusetts have adopted coastal management policies, implementation at the state and local level is
hindered by inadequate implementing mechanisms. State coastal policies should be statutorily mandated and effectively implemented through such measures as state regulatory commissions, and state review of local comprehensive plans and zoning ordinances.

11. **Large-scale coastal development should undergo special site review for impacts on water quality, stormwater runoff, erosion, and impacts on natural resources.**

Large development projects pose special environmental problems; they also present unique opportunities for implementing innovative mitigation measures. A process for subjecting large-scale development to special site review and permitting requirements, beyond those normally implemented at the local level, can effectively implement region-wide water quality and natural resource policies. The site review programs for large-scale development in Maine and New Hampshire provide good structural models (see Action Plan objective 2.4.5).

12. **Public benefits should be provided, and water dependent uses should be protected, when private uses are permitted within public tidelands and submerged lands, including filled tidelands.**

The private use of public tidelands and submerged lands are permitted to varying degrees under submerged lands leasing laws in the U.S. Public access to the Gulf of Maine should be protected, encouraged and provided through tideland and submersed land leasing laws and the public trust doctrine. Such laws should ensure public access to Gulf waters for fishing, fowling, navigation and recreation, public access to marinas, and the protection of commercial fishing and marine facilities from displacement from non-water dependent uses. Massachusetts Chapter 91 regulations provide an outstanding example for controlling non-water dependent uses within and adjacent to tidelands and submerged lands, protecting public recreational rights, and providing public access to coastal areas. The Council should encourage the incorporation of strong public benefit and water dependent use policies into state and provincial tidelands and submerged lands leasing laws and regulations, such as those currently being developed in Maine.
13. Regulatory and planning strategies for dealing with sea level rise should be examined; development within sand dunes and along coastal bluffs should be restricted; and the construction of sea walls should be prohibited except for public safety.

Sea wall construction and development on sand dunes exacerbate the effects of sea level rise, deprive the marine environment of sediment, and can cumulatively lead to the significant loss of beaches and the creation of hazardous conditions throughout the Gulf of Maine. The construction of sea walls and the armoring of coastal bluffs should be controlled by states and provinces to alleviate the individual and cumulative effects of such development on Gulf sand supplies. Mapping and planning for the effects of anticipated sea level rise should be undertaken (see Action Plan objective 1.3.1).

14. Underwater archeological resources should be protected.

Massachusetts and New Hampshire regulate the exploration, removal, salvage and inventory of underwater archeological resources. Massachusetts has established a Board of Underwater Archeological Resources to issue permits, inventory items discovered and establish special standards for excavation. Similar programs should be adopted in other jurisdictions to assure that the historical and archeological resources of the Gulf of Maine are adequately protected.

15. Cooperative mechanisms for state coastal land acquisition programs should be explored to protect significant Gulf habitats, species, and recreational resources.

There are a number of land acquisition and assistance programs to provide open space and recreational opportunities within coastal areas bordering the Gulf of Maine. However, fiscal restraints and development pressures require additional measures. The Council should consider joint programs and innovative approaches for securing funds, increasing public awareness, and designating areas of the Gulf that are appropriate for open space programs (see Action Plan objective 3.2). The Council should also assist in identifying additional areas to be set aside to protect significant recreational and environmental resources within the Gulf of Maine.
16. The Council should support ongoing efforts for marine and coastal resource mapping under the GIS system and ensure that these efforts within existing jurisdictions are properly coordinated.

In particular, the Council should coordinate the ongoing LRIS and FMG Resource and Environmental Database systems in the maritime provinces with emerging database systems currently being developed in the Gulf states under the Gulf of Maine Environmental Quality Monitoring Program (Action Plan objective 1.1).

17. An environmental assessment process for projects, programs and policies with potential significant transboundary environmental impacts should be encouraged.

Substantial environmental impact assessment procedures are available at the federal, state and provincial level for projects within the U.S. and Canada. However, it is less clear how the transboundary impacts of projects in the Gulf of Maine are reviewed. The Council should explore mechanisms to ensure that Gulf of Maine jurisdictions are properly apprised of projects with transboundary impacts and that adequate avenues of consultation are available. State and provincial participation in the Convention on Environmental Impact Assessment in a Transboundary Context should be encouraged (see section I.1).

18. The Council should monitor the development and implementation of finfish aquaculture programs within the Gulf of Maine to encourage uniform water quality monitoring and disease prevention programs.

Although Nova Scotia, New Brunswick and Maine have well-developed finfish aquaculture programs, coordination between jurisdictions can be improved. The Council should monitor and encourage joint procedures to adequately address the potential transboundary effects of finfish aquaculture on water quality, disease and genetic interactions between wild and farmed species (see Action Plan objective 3.3.1). The Council should review the July 1991 draft procedures in Maine to integrate state and federal permitting and monitoring programs and work with the New England Atlantic Salmon Committee's regional salmonid health guidelines (1989).
19. The Council should support ocean resource planning efforts implemented by states pursuant to the 1990 amendments to the CZMA.

Ocean management planning presents substantial benefits for establishing an ecosystem approach to managing ocean resources. The 1990 amendments to the CZMA authorize coastal zone enhancement grants (up to $10 million annually) for, among other things, planning for the use of ocean resources.16 The Council should assist states and provinces wishing to develop their own ocean resource plans and develop a detailed ocean resource plan for the Gulf of Maine.

20. Ocean mining policies require further review to determine whether uniform approaches could address and mitigate potential regional and transboundary impacts.

Ocean mining policies vary significantly. While ocean mining is prohibited throughout Massachusetts’ ocean sanctuaries, they are permitted in other areas throughout the Gulf of Maine. A more detailed evaluation of federal, state and provincial mining provisions is necessary to determine how to address and mitigate potential transboundary impacts on marine resources.

16 16 USC 1456b(a)(7).
Assessing U.S. and Canadian Laws and Programs Affecting the Marine and Coastal Environment of the Gulf of Maine

APPENDICES

Appendix A: The U.S. Federal Framework
Appendix B: The Canadian Federal Framework
Appendix C: Comparative Assessment of State Laws
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Marine Law Institute and Oceans Institute of Canada
# APPENDIX A: THE U.S. FEDERAL FRAMEWORK

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THE U.S. FEDERAL FRAMEWORK

U.S. federal laws have a substantial impact on the coastal and marine resources of the Gulf of Maine. The Submerged Lands Act of 1953 confers to states title to and ownership of the lands lying beneath navigable waters, and the natural resources therein, out to three miles offshore (state waters).\(^1\) The waters beyond, out to the limits of the Exclusive Economic Zone (3-200 miles), are generally subject to federal jurisdiction (federal waters).\(^2\) Furthermore, the federal government retains a "navigable servitude" within state waters for the constitutional purposes of commerce, navigation, national defense, international affairs, and for environmental protection.\(^3\) Thus the U.S. federal legal framework is significant not only within federal waters, but also within state waters and the coastal zone.

Federal law may affect state programs within state waters and the coastal zone in a number of ways: it may preempt state regulation; it may mandate or provide incentives for state action; it may provide minimum standards for state regulation; or it may provide independent or overlapping standards. Appendix A reviews U.S. federal laws and programs, the way they affect the coastal and marine resources of the Gulf of Maine, and the way in which federal and state laws and programs interact. For analytical purposes, federal laws and programs are separated into: (1) regulated activities, and (2) protected areas.

\(^1\) 33 USC 1301-1315.

\(^2\) The U.S. territorial sea was recently extended from 3 to 12 miles offshore. Nevertheless, except for state criminal laws, the area beyond 3 miles to the limits of the Exclusive Economic Zone (200 miles) is subject to federal jurisdiction and is therefore referred to as "federal waters." Presidential Proclamation No. 5928, 45 Fed. Reg. 777 (1989).

\(^3\) 43 USC 1314(a).
I. REGULATED ACTIVITIES

A. COASTAL DEVELOPMENT AND LAND USES

There are two significant federal laws that affect coastal development and land uses: the Coastal Zone Management Act (CZMA), and the National Environmental Policy Act (NEPA).

1. The Coastal Zone Management Act

The Coastal Zone Management Act\(^4\) establishes national land use policies for the nation's coastal zone through a voluntary partnership program with the states. States are eligible for federal funds to prepare coastal management programs (CMPs) that must identify permissible land uses, establish priorities of uses, designate areas of particular concern, protect and provide access to public beaches and other important coastal areas, control coastal erosion, and control nonpoint source pollution.\(^5\) Twenty-nine states have CMPs that have been approved by the National Oceanic and Atmospheric Administration (NOAA) within the Department of Commerce. These states receive an average of $1-2 million annually for the administration and implementation of their programs.\(^6\)

States with federally-approved CMPs are also entitled to review federal, federally-funded, and federally-permitted activities that affect their coastal zone for consistency with state program policies. This "federal consistency authority" provides states with a significant mechanism to influence federal and federally-permitted projects that affect the Gulf of Maine, both within and outside state coastal boundaries.\(^7\) Examples include dredge and fill permits and harbor construction projects conducted and permitted by the Army Corps of Engineers; offshore oil and gas leasing, exploration and development conducted and permitted by the Department of the Interior; federal highway grants and construction

\(^4\) 16 USC 1451-1464.

\(^5\) 16 USC 1455b and 1456(d).


\(^7\) 16 USC 1456(c) and (d). See Eichenberg and Archer, The Federal Consistency Doctrine: Coastal Zone Management and "New Federalism," 14 ECOLOGY LAW Q. 9 (1987).
projects; EPA discharge permits and offshore dump site designations; military operations and construction projects; and NOAA fishery management plans.\(^8\)

2. The National Environmental Policy Act

National Environmental Policy Act\(^9\) requires the preparation of environmental impact statements (EISs) for all legislative proposals and major federal actions that significantly affect the quality of the human environment. To encourage federal agencies to consider the environmental consequences of their actions, NEPA requires that EISs describe the environmental impacts of a proposed action, any adverse environmental impacts that cannot be avoided, alternatives to the proposed action, the relationship between local short-term uses and the maintenance and enhancement of long-term productivity, and any irreversible and irretrievable commitments of resource.\(^10\) EISs must be prepared for major federal actions affecting Gulf of Maine resources even if such actions significantly affect the environment of other nations or the global commons outside the jurisdiction of any nation.\(^11\)

Copies of EISs must be distributed to appropriate federal, state and local agencies, and members of the public and comments must be reviewed and addressed prior to final agency action. The adequacy of individual EISs, and EIS requirements for specific federal activities, has been the subject of considerable litigation and is further addressed in regulations adopted and implemented by the Council on Environmental Quality.\(^12\) A complete analysis of these regulations and court decisions goes well beyond the scope of this report. However, it is important to note that federal agencies must meaningfully consider mitigation measures and consider less environmentally damaging alternatives to reduce adverse impacts identified in EISs. The cumulative effects of individual projects must also be taken into account when preparing an EIS.\(^13\) Thus, NEPA provides a potentially significant federal procedure for evaluating the environmental

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\(^8\) U.S. DEPT. OF COMMERCE, NAT’L OCEANIC AND ATMOSPHERIC ADMIN., FEDERAL CONSISTENCY STUDY-DRAFT (Volumes 1-3, April 1985).

\(^9\) 42 USC 4321-4370.

\(^10\) 42 USC 4332(C).


\(^12\) 40 CFR 1500.1 et seq.

impacts of federal actions that may affect the Gulf of Maine in both U.S. and Canadian waters and within the EEZ.¹⁴

B. OCEAN DUMPING

The disposal of material within ocean waters is regulated by the EPA and the Army Corps of Engineers under the Ocean Dumping Act. In addition, federal laws implementing the MARPOL convention have been enacted prohibiting the dumping of plastic and non-plastic garbage into the ocean from vessels.

1. The Ocean Dumping Act

Title I of the Marine Protection Research and Sanctuaries Act of 1972,¹⁵ also called the Ocean Dumping Act, provides for the licensing and designation of sites for the dumping of all material into ocean waters.

The EPA

The Ocean Dumping Act regulates the "dumping" or disposal of material into the ocean, seaward of the baseline by which the territorial sea is measured.¹⁶ The Act regulates the dumping of "matter of any kind or description," except sewage from vessels,¹⁷ which is covered under section 312 of the Clean Water Act (CWA).¹⁸ The CWA allows states to prohibit discharges from all vessels of any sewage, treated or untreated, if the EPA determines that the state has adequate pumpout and treatment facilities.¹⁹

¹⁴ For example, EISs have been prepared for OCS oil and gas development and leasing activities; federal highway construction; timber harvesting plans; the designation of ocean disposal sites; the construction of nuclear power plants and high-level radioactive waste storage facilities; the designation of national marine sanctuaries; the licensing of dams and hydroelectric projects; and many others.


¹⁶ 33 USC 1402(b).

¹⁷ 33 USC 1402(c).

¹⁸ 33 USC 1322; 33 CFR 159; 40 CFR 140. Federal standards prevent the discharge of untreated or inadequately treated waste into navigable waters from new and existing vessels, except those without installed toilet facilities.

¹⁹ 33 USC 1322(f)(3).
The Ocean Dumping Act prohibits all dumping of radiological, chemical and biological warfare agents and high-level radioactive wastes, and medical waste. The disposal of low-level radioactive waste for research purposes is permitted only with the approval of Congress. The dumping of all industrial wastes and sewage sludge must be phased out by 1992, except that industrial wastes may be disposed of in "emergency" situations to protect human health where there are no other feasible solutions. The ban on industrial wastes has been construed to preclude EPA approval of the ocean incineration of hazardous wastes.

No permit is required for the dumping of fish wastes outside harbors and enclosed coastal areas. Dumping dredged or fill material from normal farming, silviculture and ranching activities, maintenance and emergency reconstruction projects, or from Congressionally approved federal projects for which an EIS is prepared, is also permitted.

EPA standards require that where dumping is permitted it must "not unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems or economic potentialities." This evaluation must consider the need for the proposed dumping; the effect on human health and welfare including economic, esthetic and recreational values; the effect on fisheries resources, wildlife, shorelines and beaches; the effect on the marine ecosystem; land-based alternatives including recycling; the effect on alternative uses of the ocean such as scientific study, fishing and other resource exploitation; and appropriate locations beyond the Continental Shelf. Permit conditions may specify the type and amount of material to be disposed, the location, the length of time such dumping may occur, and monitoring and other requirements deemed necessary.

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20 33 USC 1412(a).
21 33 USC 1414(b).
22 33 USC 1414b(a)(1).
23 33 USC 1412a.
25 33 USC 1412(d).
26 33 USC 1344(f).
27 33 USC 1344(r).
28 33 USC 1412.
29 33 USC 1414(a).
The Army Corps of Engineers

Section 103 of the Ocean Dumping Act gives special authority to the Army Corps of Engineers to issue permits for transporting dredged material by vessel or other vehicle for the purpose of dumping into ocean waters. The Corps must apply EPA standards and guidelines with respect to environmental impacts, need for ocean dumping, impacts on esthetic, recreational and economic values, and other uses of the ocean. The EPA may override a Corps permit for the disposal of dredged material if the Administrator of the EPA finds that dumping will result in "unacceptable adverse impacts" on municipal water supplies, shellfish beds, spawning and breeding areas, wildlife, fisheries, or recreational areas.

The Corps' regulation of the transportation of dredged material under the Ocean Dumping Act applies within "ocean waters," or those waters lying seaward of the baseline from which the territorial sea is measured. The Clean Water Act gives the Corps additional authority to regulate the discharge of dredged or fill material within the baseline and within navigable waters and their tributaries, including wetlands.

In addition to the EPA and the Corps, NOAA is responsible for research and monitoring on the effects of ocean dumping and the possible long-range effects of pollution, overfishing, and man induced changes to the marine ecosystem. The Department of State is authorized to seek international action and cooperation to ensure the protection of the marine environment from the dumping of ship-generated wastes.

2. MARPOL

The U.S. has enacted laws implementing Annexes I, II, and V of the MARPOL Protocol of 1978, the International Convention for the Prevention of

30 33 USC 1413(a); 33 CFR 324.4(b).
31 33 USC 1412(A)-(I); 40 CFR 227.
32 33 USC 1413(d).
33 33 USC 1402(b).
35 33 USC 1441-1442.
36 33 USC 1419. DAVIDSON AND DELOGU, supra note 13, at § 11.02.
Pollution from Ships. The laws, entitled the Marine Plastics Pollution Research and Control Act of 1987,\textsuperscript{37} create civil and criminal penalties for dumping plastics and non-plastic garbage generated from vessels anywhere within the 200-mile EEZ, and from U.S. vessels anywhere in the world. The laws apply to vessels of any type, commercial, recreational, and fishing vessels, as well as fixed and floating platforms, except U.S. warships and naval vessels.\textsuperscript{38}

All manned vessels 26 feet or more, and manned fixed or floating platforms, must display placards to notify the crew and passengers that it is unlawful to discharge any plastics or garbage. Dunnage, lining and packing material may be discharged within 25 miles of shore, other unground garbage may be discharged beyond 12 miles, and garbage ground to less than one inch may be discharged beyond 3 miles.\textsuperscript{39} The Act does not prevent the disposal of fresh fish, the accidental loss of synthetic fishing gear, garbage picked up at sea, or discharges necessary for safety purposes or resulting from damage.\textsuperscript{40}

Waste management plans are required for all manned oceangoing ships 40 feet or longer and all manned fixed or floating platforms. All U.S. ports and terminals, private commercial fishing facilities, and recreational boating facilities for 10 or more vessels, are required to provide adequate garbage reception facilities for vessels using that port. Coast Guard certificates are required for ports or terminals to ensure adequate reception facilities and the Coast Guard may deny ships entry into ports or terminals without certificates or adequate facilities.\textsuperscript{41}

The Coast Guard is authorized to investigate violations and inspect vessels.\textsuperscript{42} Violations are subject to civil penalties up to $25,000 per day and criminal fines up to $50,000 per day and/or up to 5 years imprisonment. Courts

\textsuperscript{37} 33 USC 1901-1912.

\textsuperscript{38} 33 1901(8).

\textsuperscript{39} 33 USC 1903(b); Federal Register, May 2, 1990, 18578.

\textsuperscript{40} See Marine Law Institute and Sea Grant Marine Advisory Program, Citizens' Guides to Ocean and Coastal Law, Dumping of Plastics Prohibited: Requirements of MARPOL Annex V (October 1990) at 3-4.

\textsuperscript{41} 33 USC 1905.

\textsuperscript{42} 33 USC 1907.
may award up to half of all fines and penalties to persons giving information leading to a conviction.\textsuperscript{43}

C. POINT SOURCE POLLUTION UNDER THE CLEAN WATER ACT

It was the ambitious goal of the Federal Water Pollution Control Act, more commonly known as the Clean Water Act, to eliminate the discharge of pollutants into navigable waters of the United States by 1985.\textsuperscript{44} The Act also establishes interim goals that call for the protection and propagation of fish, shellfish, and wildlife, and recreation, and the prohibition of the discharge of toxic pollutants.\textsuperscript{45} The Act establishes a complex system of standards, permits and enforcement of Congressional clean water goals, provides federal assistance for research and development on pollution control technologies, and provides funding for state pollution control programs and the construction of publicly owned sewage treatment works (POTWs).

1. NPDES Permits

The Clean Water Act makes unlawful the discharge of any pollutant, or combination of pollutants, without a permit from the EPA.\textsuperscript{46} Section 402 of the Act establishes the EPA's National Pollutant Discharge Elimination System (NPDES) permit program to license any discharge from point sources into navigable waters.\textsuperscript{47} The term "navigable waters" is construed broadly to include all "waters of the U.S." including those subject to the ebb and flow of the tide, coastal wetlands, and all freshwater lakes, rivers, streams and wetlands.\textsuperscript{48}

The NPDES permit system applies only to "point source" discharges from pipes, ditches, tunnels, or other discrete conveyances from which pollutants may be discharged. It does not include irrigation flows, and runoff from agriculture and silviculture activities and other nonpoint source discharges.\textsuperscript{49} Applicants for NPDES permits must provide a certification from the state that the discharge will

\begin{itemize}
\item \textsuperscript{43} 33 USC 1908.
\item \textsuperscript{44} 33 USC 1251(1).
\item \textsuperscript{45} 33 USC 1251(2)
\item \textsuperscript{46} 33 USC 1311(a).
\item \textsuperscript{47} 33 USC 1342.
\item \textsuperscript{48} 40 CFR 122.2.
\item \textsuperscript{49} 33 USC 1362(14).
\end{itemize}
comply with Clean Water Act effluent limitations and water quality standards. The EPA may also delegate its NPDES permit authority to states which adopt water quality programs that meet minimum federal discharge standards.

NPDES permits were not initially required for stormwater discharges. However, after a lawsuit overturned this exemption, Congress amended the Clean Water Act to require that after October 1992, all separate municipal storm sewer systems composed entirely of stormwater must have discharge permits except those associated with industrial activities, those from municipal systems serving more than 100,000 people, or those contributing to violations of water quality standards.

2. Effluent Limitations

Point source discharges must meet industry-specific effluent limitations (ELs) specifying the maximum amount of particular pollutants allowed to enter the water and restricting the quantities, rates and concentrations of the chemical, physical, biological constituents discharged. The EPA has drafted EL regulations on an industry-by-industry basis that reflect the industry processes, available control technologies, and cost factors.

There are generally three categories of ELs for point source discharges: "best practicable control technologies currently available" (BPT); "best available control technologies economically achievable" (BAT) for toxic and nonconventional pollutants; and "best conventional control technologies" (BCT) for conventional pollutants. Variances from some of these standards are permitted in special circumstances to prevent unfairness, where maximum use of technology within the economic capability of the operator is shown, or where

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50 33 USC 1341.
51 33 USC 1342(b).
52 33 USC 1342(p)(2).
53 33 USC 1311(b)(2)(e) and 1362(11).
54 40 CFR 400 et seq. See DAVIDSON AND DELOGU, supra note 13, at § 2.04.
55 DAVIDSON AND DELOGU, supra note 13, at § 2.04.
56 33 USC 1311(m) and (n); 40 CFR 125.30.
57 33 USC 1311(c).
there are no unacceptable impacts from nonconventional pollutants.⁵⁸ "New sources" of pollution are subject to the greatest degree of effluent reduction "including, where practicable, a standard permitting no discharge of pollutants."⁵⁹

Publicly owned sewage treatment works in existence prior to 1977 are required to provide "secondary treatment,"⁶⁰ and must also comply with water quality standards for particular water bodies.⁶¹ To be eligible for federal grants, POTWs must provide for the "best practicable waste treatment technology over the life of the work."⁶² Industrial facilities discharging pollutants into POTWs are subject to "pretreatment standards."⁶³

Secondary treatment may be modified where a POTW discharges into "marine waters" so long as the discharge does not interfere with the attainment or maintenance of water quality standards and protects public water supplies, indigenous shellfish, fish and wildlife, recreational activities.⁶⁴ In 1991, secondary treatment waiver requirements were strengthened so that POTWs must demonstrate that the discharge, "alone or in combination with pollutants from other sources," will not interfere with the attainment of water quality standards and establish a system for monitoring the impact of such discharges.⁶⁵ POTWs serving over 50,000 persons must pretreat toxic industrial discharges into the plant equivalent to secondary treatment,⁶⁶ and all POTWs must at least provide primary

⁵⁸ 33 USC 1311(g).

⁵⁹ 33 USC 1316(a)(1). The Act lists 27 categories of "new sources" from facilities constructed after the promulgation of the regulations including pulp and paper mills, feedlots, chemical manufacturing plants, refineries, timber products processing and others. 33 USC 1316(b)(1)(A).

⁶⁰ 33 USC 1314(d)(1). Treatment that meets specific criteria for biological oxygen demand, suspended solids, and pH. 40 CFR 133.102. Secondary treatment standards are lower for treatment facilities that receive flows from combined sewers (sewage and stormwater) and industrial wastes. 40 CFR 133.103.

⁶¹ 33 USC 1311(b)(1)(C).

⁶² 33 USC 1281(g)(2)(A).

⁶³ 33 USC 1317(b) and (c).

⁶⁴ 33 USC 1311(h)(2).

⁶⁵ 33 USC 1311(h)(2) and (3).

⁶⁶ 33 USC 1311(h)(6).
or equivalent treatment in order to be eligible for a secondary treatment waiver.\textsuperscript{67} It has been estimated that 17 of Maine's 62 facilities will have to take steps to comply with these new provisions.\textsuperscript{68}

3. Water Quality Standards

In addition to ELs, the Clean Water Act also establishes water quality standards (WQS) for particular water bodies.\textsuperscript{69} WQSs define water quality goals, designate uses to be made of the water body, and set criteria necessary to protect those uses. They also serve as the regulatory basis for establishing ELs and national effluent reduction standards established under sections 301 and 306 of the CWA.\textsuperscript{70} The EPA must therefore consider WQSs for particular water bodies, as well as ELs for particular industries, when issuing NPDES permits.\textsuperscript{71}

WQSs must be adopted by states consistent with CWA standards for protecting fish, shellfish and wildlife, recreation in and on the water, public water supplies, and agricultural, industrial and other purposes including navigation.\textsuperscript{72} State WQSs must comply with EPA's anti-degradation policy to protect existing in-stream uses; maintain water quality that exceeds that necessary to support fish, wildlife and recreation except where necessary to accommodate important economic or social development; and maintain and protect high quality waters constituting outstanding national resources.\textsuperscript{73} The states of Maine, Massachusetts and New Hampshire have each adopted water classification systems that incorporate the EPA's anti-degradation policies in both marine and freshwater bodies.

\textsuperscript{67} 33 USC 1311(h)(9). Primary treatment means "treatment by screening, sedimentation, and skimming adequate to remove at least 30% of the biological oxygen demanding material and of the suspended solids in the treatment works influent, and disinfection, where appropriate." \textit{Id.}

\textsuperscript{68} [Current Developments] \textsc{Env't Rep.} (BNA), at 1744 (February 1, 1991).

\textsuperscript{69} 33 USC 1313; 40 CFR 130-131.

\textsuperscript{70} 33 USC 1311 and 1316.

\textsuperscript{71} 33 USC 1312.

\textsuperscript{72} 33 USC 1313(c)(2) and 40 CFR 131.2

\textsuperscript{73} 40 CFR 131.12.
4. Ocean Discharge Standards

Section 403 of the Clean Water Act establishes special criteria for point source discharges into ocean waters.\textsuperscript{74} The Clean Water Act ocean discharge criteria applies mostly to discharges from POTW outfalls or from other point sources into the territorial sea. The Ocean Dumping Act, on the other hand, applies generally to the dumping of "material" transported by vessel or aircraft beyond the baseline from which the territorial sea is measured.\textsuperscript{75} Prior to approving permits for point source discharges into ocean waters under section 403, the EPA must determine that the discharge "will not cause unreasonable degradation of the marine environment," including effects on ecosystem diversity, public health and recreational activities.\textsuperscript{76} In issuing NPDES permits for ocean discharges, the EPA must consider among other things alternative locations and methods of disposal or recycling, including land based alternatives; special aquatic sites; commercial fishing impacts; and state coastal zone management plans and water quality standards.\textsuperscript{77}

5. Enforcement Provisions

The Clean Water Act contains tough enforcement provisions implemented primarily by the EPA and Corps, as well as by individual states with delegated permit programs. The provisions apply to violations of NPDES and section 404 permit requirements with respect to ELs, water quality standards, new source standards, toxic and pretreatment standards, and monitoring and record keeping requirements.\textsuperscript{78} The EPA is authorized to take action if the polluter fails to abate and the state fails to act within 30 days after notification of the violation. The EPA may issue an administrative compliance order or bring a civil or criminal action for enforcement in federal court. Administrative penalties may be imposed

\textsuperscript{74} Section 403 creates special requirements for discharges into the territorial sea, contiguous zone, or ocean water lying seaward of the baseline from which the territorial sea is measured. 33 USC 1343(a).

\textsuperscript{75} 33 USC 1402(b).

\textsuperscript{76} The regulations define unreasonable degradation of the marine environment as, "(1) Significant adverse changes in ecosystem diversity, productivity and stability of the biological community within the area of discharge and surrounding biological communities, (2) Threat to human health . . . or (3) Loss of esthetic, recreational, scientific or economic values which is unreasonable in relation to the benefit derived from the discharge." 40 C.F.R. 125.121-122.

\textsuperscript{77} 33 USC 1343(c); 40 CFR 122(a).

\textsuperscript{78} 33 USC 1318-1319.
up to $10,000 per day, and civil and criminal fines may reach up to $25,000 per day and up to 15 years imprisonment.\textsuperscript{79}

In addition, section 505 of the Clean Water Act contains significant citizen enforcement provisions. Person or persons "having an interest which is or may be adversely affected" are authorized to bring actions against any person or agency for violations of effluent standards or limitations, NPDES permit conditions, or agency orders.\textsuperscript{80} Violations that occurred wholly in the past are not subject to the citizen enforcement provisions,\textsuperscript{81} nor are the provisions applicable to nonpoint sources of pollution.\textsuperscript{82} Persons adversely affected may include citizens who use a water body or environmental organizations whose members use the water body.\textsuperscript{83} Citizens must give 60 days notice to the EPA, the states, and the polluter prior to filing any action, and can not file if the EPA or a state is commencing and diligently prosecuting a civil or criminal action.\textsuperscript{84} Attorneys fees and litigation costs may be awarded to citizens "whenever the court determines such award is appropriate."\textsuperscript{85}

\textbf{D. Nonpoint Source Pollution}

Pollution from nonpoint sources generally fall under state and local government regulation. However, section 319 of the Clean Water Act and the 1990 amendments to the CZMA establish federal incentives for state and local action to address nonpoint source pollution. (The NPS pollution programs of state soil and water conservation districts assisted by the U.S. Department of Agriculture are described in Appendix C.)

\textsuperscript{79} DAVIDSON AND DELOGU, supra note 13, at § 2.18.

\textsuperscript{80} 33 USC 1365(a).

\textsuperscript{81} Gwaltney v. Chesapeake Bay Foundation, 484 U.S. 49 (1987).

\textsuperscript{82} Oregon Natural Resources Council v. U.S. Forest Service, 834 F.2d 842 (9th Cir. 1987).

\textsuperscript{83} Friends of the Earth v. Consolidated Rail Corp, 768 F.2d 57 (1985).

\textsuperscript{84} 33 USC 1365(b); 40 CFR 135.1-3.

\textsuperscript{85} 33 USC 1365(d).
1. Section 319 of the Clean Water Act

Section 319 of the Clean Water Act\(^6\) requires states to prepare Nonpoint Source (NPS) Assessment Reports and Management Programs to identify: sources of NPS pollution; water bodies that are unable to meet applicable water quality standards without NPS pollution controls; best management practices (BMPs)\(^7\) to control NPS pollution; regulatory programs for enforcement and achieving BMPs; and an implementation schedule.\(^8\) States are eligible to receive federal funds for the implementation of approved NPS management programs.\(^9\) Maine, New Hampshire and Massachusetts have approved NPS Management Plans.

2. The 1990 Amendments to the CZMA

The CZMA was amended in 1990 to require states with coastal management programs to establish Coastal Nonpoint Source Pollution Control Programs that update and expand state NPS Management Programs developed under section 319 of the Clean Water Act.\(^{10}\) States that fail to submit approvable NPS programs risk funding cuts under the Clean Water Act and the CZMA.\(^{11}\) The CZMA authorizes the expenditure of $42 million between 1992-1995 to assist states in preparing their NPS programs.\(^{12}\)

The CZMA also establishes minimum standards for addressing the impacts of NPS pollution on coastal waters. These new standards require states to: identify land uses that contribute to coastal water pollution; identify critical coastal areas that will be subject to management measures; implement management measures necessary to maintain applicable water quality standards; provide technical assistance to local governments; allow for public participation; improve coordination among state and local agencies; and, if necessary, modify coastal

\(^{6}\) 33 USC 1329.

\(^{7}\) BMPs are defined as "[M]ethods measures or practices selected by an agency to meet its nonpoint source control needs. BMPs include but are not limited to structural and nonstructural controls and operation and maintenance procedures. BMPs can be applied before, during and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters." 40 CFR 130.3(m).

\(^{8}\) 33 USC 1328(b).

\(^{9}\) 33 USC 1329(h).

\(^{10}\) 16 USC 1455b.

\(^{11}\) 16 USC 1455b(c)(3) and (4).

\(^{12}\) 16 USC 1455b(h)(2)(B).
boundaries to implement recommendations. In June 1991, the EPA issued proposed guidelines for states adopting NPS programs pursuant to the CZMA to manage five major categories of NPS coastal pollution: agricultural runoff, silvicultural runoff, urban runoff, dams and shoreline erosion controls, and marinas and recreational boating. States must adopt NPS Coastal Control Programs within 30 months of the adoption of the final EPA guidelines.

E. PORT MANAGEMENT AND SAFETY

Federal port management and safety standards are established under the Port and Tanker Safety Act, and the Deep Water Port Act.

I. The Port and Tanker Safety Act

The Port and Tanker Safety Act authorizes the U.S. Coast Guard to protect navigation and vessel safety within navigable waters and the nation's ports and waterways. The Act confers upon the Coast Guard extensive enforcement and investigative powers and establishes procedures for handling oil and hazardous substances, prescribing minimum safety equipment, waterfront safety zones, managing vessel traffic, and vessel traffic separation schemes and safety fairways. In establishing these measures, the Coast Guard is directed take into account environmental, fishing, and economic factors, in addition to navigational safety, and must consult with other federal agencies, state representatives, affected users, environmental groups, and the general public. The Coast Guard may deny entry into U.S. ports and waters of foreign flag vessels not in compliance with the provisions of the Act, and may seize vessels to effect the payment of penalties. The Act also prohibits the transfer of cargo or the entry into U.S.

93 16 USC 1455b(b).
95 33 USC 1221-1236; 33 CFR 160-170.
96 33 USC 1227, 1232-1236.
97 33 USC 1223 and 1225.
98 33 USC 1224.
99 33 USC 1221(d) and 1224(b).
100 33 USC 1228.
101 33 USC 1232(c).
waters of any vessel with a history of accidents, pollution incidents, serious repair problems, or inadequate licensing standards.\textsuperscript{102}

The Act allows states to apply more stringent standards with respect to the safety of structures such as wharves, pipelines and oil platforms.\textsuperscript{103} States may also enact navigational safety provisions where their actions are not preempted by federal law and regulation, such as tug escort requirements.\textsuperscript{104}

2. The Deepwater Port Act

To accommodate new supertanker traffic, the need arose for offshore tanker mooring facilities to offload oil or oil products and pipe them ashore.\textsuperscript{105} The Deepwater Port Act was enacted in 1974 to encourage the development of such facilities and to ensure that they protect the marine and coastal environment.\textsuperscript{106} A "deepwater port" is a fixed or floating structure other than a vessel located beyond the territorial sea used as a port or terminal for the handling of oil for transportation to any state.\textsuperscript{107} Deepwater ports must be licensed by the Secretary of Transportation where he or she finds that it is in the national interest, the operator is financially responsible, and the best technology available will be used to reduce adverse environmental impacts.\textsuperscript{108} Environmental impact statements must be prepared,\textsuperscript{109} and the approval of the adjacent state must be secured.\textsuperscript{110} State laws are not preempted and states are expressly authorized to adopt complimentary legislation so long as such measures are not inconsistent with the provisions of the Act.\textsuperscript{111}

\textsuperscript{102} 33 USC 1228(a).

\textsuperscript{103} 33 USC 1225(b).

\textsuperscript{104} Ray v. Atlantic Richfield Co., 435 U.S. 151 (1978)

\textsuperscript{105} Supertankers may exceed 250,000 tons, yet the deepest U.S. ports can only accommodate vessels with a capacity of 100,000 tons (Los Angeles and Long Beach - 100,000 tons, and Portland, Maine, and Beaumont, Texas - 80,000 tons). DAVIDSON AND DELOGU, supra note 13, at § 11.01.

\textsuperscript{106} 33 USC 1501-1524; 33 CFR 137 and 148-150.

\textsuperscript{107} 33 USC 1502(10).

\textsuperscript{108} 33 USC 1503(c).

\textsuperscript{109} 33 USC 1504(f).

\textsuperscript{110} 33 USC 1503(9) and 1508.

\textsuperscript{111} 33 USC 1517(k) and 1518(b).
Once licensed, the operator is subject to inspection procedures and strict liability in the event of a spill. Owners and operators of the facility and any vessel are liable for all cleanup costs, including natural resource damages, and citizen suits are authorized. In addition, the Act authorizes the President to enter into negotiations with Canada and Mexico to determine the need for intergovernmental understandings or agreements, joint studies, and investigations to ensure the protection of the environment and to eliminate legal and regulatory uncertainties.

F. OIL AND HAZARDOUS WASTES

The transportation and clean up of oil and hazardous waste is regulated under the Clean Water Act, the 1990 Oil Pollution Act, and Superfund legislation. The wreck of the Exxon Valdez on March 24, 1989, and the resulting disastrous spill into the waters of Prince William Sound, Alaska, provided the impetus necessary for Congress to adopt comprehensive oil spill legislation in 1990 that was pending for 15 years. The spill demonstrated the inadequacy of existing federal oil spill laws, in particular section 311 of the Clean Water Act. The Oil Pollution Act of 1990 increases the clean-up funds and liability limits, and establishes a new national planning and response system. Hazardous wastes, other than crude oil, is regulated under Superfund legislation.

1. The Clean Water Act

Section 311 of the Clean Water Act prohibits the discharge of oil or hazardous substances into navigable waters and adjoining waters, and empowers the President to take appropriate action to clean up spills, prepare a National Contingency Plan and National Response Team to respond to and plan for spills, and remove or eliminate substantial threats of pollution from marine disasters. The Act limited the liability of vessels to $150 per gross ton or $250,000, whichever is greater, and $50 million for offshore and onshore

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112 33 USC 1503 and 1517.
113 33 USC 1517.
114 33 USC 1515.
115 33 USC 1521.
116 33 USC 1321(b)(1).
117 33 USC 1232(c) and (d).
facilities. It also authorized the creation of a $35 million fund to pay for clean up costs. At the time of the *Exxon Valdez* spill, the fund contained approximately $6 million.

2. The Oil Pollution Act of 1990

The Oil Pollution Act (OPA) of 1990 substantially modifies the Clean Water Act. It establishes new federal financial responsibility requirements for tankers carrying oil, new liability standards for oil spills, creates a new federal oil spill and liability fund to pay for removal costs and uncompensated damages, and federalizes spills through a new National Planning and Response System.

Liability and Compensation

The OPA creates a uniform federal system of strict liability and compensation in the event of oil spills for the owners and operators of vessels and facilities for all removal costs and damages, including harm to natural resources. It raises the maximum liability of vessels and offshore facilities, and provides for unlimited liability for gross negligence, willful misconduct, the violation of federal standards, or the failure to report a spill or cooperate in cleanup activities. These limits do not preempt state unlimited liability laws or other state oil spill provisions.

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118 33 USC 1231(f)(2) and (3).

119 33 USC 1321(k).


123 33 USC 2702.

124 Vessels over 3,000 gross tons have a maximum liability of $1,200 per ton or $10 million, whichever is greater. Offshore facilities may be liable up to $75 million and deepwater ports may be liable up to $350 million. 33 USC 2704(a).

125 33 USC 2704(c).

126 33 USC 2718.
If damages or removal costs exceed liability limits, additional funds may be made available up to $500 million per incident from a $1 billion federal oil spill liability trust fund, supported by a 5-cent-per-gallon tax on oil. Damages may be compensated to natural resources, real or personal property, subsistence use, revenue losses, profits and earning capacity, and public services.

**Prevention**

The new Oil Spill Pollution Act requires that nearly all newly-built tank vessels have double hulls when operating in U.S. waters. Single-hulled vessels are scheduled to be gradually phased-out of service beginning in 1995 and ending in 2015. The Coast Guard is authorized to conduct background checks, random drug tests, and limit the number of hours a licensed individual may work within a 24-hour period. A study is to be conducted to determine whether U.S. ports and channels need improved vessel traffic service systems or whether the Coast Guard needs additional authority to control vessel traffic. Escort vessels are required in waters for single-hulled oil tankers over 5,000 gross tons.

**Response and Removal**

The Act establishes a new National Planning and Response System to coordinate private and public responses to a spill. A National Response Unit is established in Elizabeth City, North Carolina to maintain a comprehensive computer list of spill removal resources, personnel and equipment, provide technical assistance and equipment, coordinate the removal of worst case spills, administer Coast Guard strike teams and review Area Contingency Plans. In each of the ten Coast Guard Districts, Response Groups and Area Committees are

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127 33 USC 2712 and 2713(d); 26 USC 9509.

128 33 USC 2702(b)(2).

129 46 USC 3703a.

130 46 USC 7101.

131 46 USC 7702(a)(2).

132 46 USC 3703 note.

133 33 USC 1223

134 46 USC 8503, 3703 note.

135 33 USC 1321(j)(2).
required to prepare Area Contingency Plans. These Plans must list equipment and personnel available to owners and operators, state, federal and local agencies, to ensure effective removal of discharges and mitigate damages, describe how the plan is integrated into other Area Contingency Plans, and be sufficient to remove a worst case spill.\textsuperscript{136} Tank Vessel and Facility Response Plans must also be prepared by all owners or operators of tank vessels or facilities.\textsuperscript{137} All vessels and facilities must have approved Response Plans within two and a half years.

The U.S. and Canada have prepared a Joint Marine Contingency Plan, updated in 1989, to provide a framework for cooperation in responding to pollution incidents that pose a significant threat to the coastal areas of both countries in the Gulf of Maine. The Plan is implemented by the U.S. and Canadian Coast Guard and drills simulating a collision off the George’s Bank were conducted in 1990.\textsuperscript{138}

3. Superfund

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA),\textsuperscript{139} also known as Superfund, addresses problems created by the accidental spill and release of hazardous substances from old or abandoned dumpsites. The definition of hazardous wastes includes any substance listed as hazardous or toxic under the Clean Water Act and other federal statutes but excludes petroleum and natural gas.\textsuperscript{140}

CERCLA is administered by the EPA to respond to releases of hazardous substances through removal and remedial actions. It compels private parties to abate imminent and substantial dangers caused by releases or threatened releases of hazardous substances; imposes liability on site owners, operators and others for response costs; and creates a Superfund to finance cleanup and remedial action by the government where responsible parties cannot be found, financed by a tax levied on chemicals and general appropriations.\textsuperscript{141} Releases of hazardous substances must be reported to the EPA which is authorized to respond to and clean up

\textsuperscript{136} 33 USC 1321(j)(4).

\textsuperscript{137} 33 USC 1321(j)(5).

\textsuperscript{138} MAINE OFFICE OF POLICY AND LEGAL ANALYSIS, REPORT OF THE COMMISSION TO STUDY MAINE’S OIL SPILL CLEANUP PREPAREDNESS (November 1990).

\textsuperscript{139} 26 USC 4611-4682, 42 USC 6901a-9657.

\textsuperscript{140} 42 USC 9601.

\textsuperscript{141} DAVIDSON AND DELOGU, supra note 13, at § 6.01.

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releases pursuant to the National Contingency Plan established under the Clean Water Act.\textsuperscript{142} CERCLA also establishes a National Priorities List of high priority sites for cleanup.\textsuperscript{143}

The Act imposes strict, joint and severable liability, for response costs, cleanup costs, and damages (including damages to natural resources) up to a limit of $50 million.\textsuperscript{144} There are no liability limits for willful misconduct or willful negligence.\textsuperscript{145} Although CERCLA does not generally apply to crude oil spills, oil can be considered a hazardous substance if it is adulterated by a substance otherwise considered hazardous.\textsuperscript{146} Courts, however, have not applied CERCLA to refined or unrefined gasoline spills.\textsuperscript{147}

\section*{G. Offshore Oil and Gas}

The leasing, exploration and development of submerged lands beneath federal waters (beyond 3 miles) for offshore oil and gas is conducted by the U.S. Department of the Interior under the Outer Continental Shelf Lands Act (OCSLA).\textsuperscript{148} In addition, the Coastal Zone Management Act requires that certain OCS activities must be consistent with the enforceable policies of approved state coastal management programs.\textsuperscript{149}

\subsection*{1. The Outer Continental Shelf Lands Act}

Interior’s OCS oil and gas leasing and development program consists of five distinct phases: (1) the 5-year leasing program; (2) individual lease sales; (3) geological and geophysical explorations; (4) plans for exploration; and (5) development and production plans.

\begin{itemize}
  \item \textsuperscript{142} 42 USC 9603-9605.
  \item \textsuperscript{143} 42 USC 9605(8)(B); 40 CFR pt. 300.
  \item \textsuperscript{144} 42 USC 9607(b).
  \item \textsuperscript{145} 42 USC 9607(c)(2).
  \item \textsuperscript{146} 42 USC 9601(14).
  \item \textsuperscript{147} Wilshire Westwood Assoc. v. Atlantic Richfield, 881 F.2d 801, 809 (9th Cir. 1989).
  \item \textsuperscript{148} 43 USC 1331-1356, 1801-1866.
  \item \textsuperscript{149} 16 USC 1456(c).
\end{itemize}
The Department of the Interior prepares a 5-year schedule of proposed lease sales indicating "the size, timing, and location of leasing activity which ... will best meet national energy needs." The program must obtain a proper balance between the potential for environmental damage, the discovery of oil and gas, and adverse impacts on the coastal zone. Comments from affected states and local governments must be considered by the Secretary of the Interior. The present 5-year plan expires in June, 1992, and the proposed 5-year plan for 1992-1997 was published for public comment in February 1991. Areas in the North Atlantic, including the Georges Bank, have been deferred until the year 2,000.

Individual lease sales are conducted and leases are granted to the highest bidder. An EIS must be prepared for lease sales and state recommendations for lease conditions or stipulations may be accepted if the Secretary determines that they provide a "reasonable balance between the national interest and the well-being of the citizens of the affected state."

Pre-lease permits for geological (core and test drilling) and geophysical (gravity, magnetic and seismic testing) explorations may be granted where the Secretary finds they are "not be unduly harmful to aquatic life in the area, result in pollution, create hazardous or unsafe conditions, unreasonably interfere with other uses of the area, or disturb any site, structure, or objects of historical or archeological significance." The Secretary may also approve post-lease exploration plans, unless they "would probably cause serious harm or damage" to fish and other aquatic life, property, minerals, the national security or defense, or the marine, coastal, or human environment.

150 43 USC 1344(a).
152 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. The President's decision excludes lease sale 96 from the 5-year plan, authorizes additional studies on the potential for hydrocarbon resources and the environmental effects of OCS development, and indicates that affected states will be consulted before leasing is conducted.
153 43 USC 1337.
154 43 USC 1345(c).
155 43 USC 1340(a) and (g); 30 CFR 251.3-5.
156 43 USC 1340(c).
157 43 USC 1340(c)(1).
Development and production plans for oil or gas resources discovered within leased areas may require the preparation of an EIS. The Secretary must consider state and local government comments and must reject any plan "that would probably cause serious harm or damage" to fish and other aquatic life, or the marine, coastal or human environment. The harm or threat of harm must decrease to acceptable limits within a reasonable period of time, and the advantages of disapproving the plan must outweigh the disadvantages.

The OCSLA also creates several programs to investigate the environmental effects of, and pay for damages caused by, offshore oil and gas exploration and development. A Fisherman's Contingency Fund pays for fishing gear or equipment lost or damaged by permitted offshore development activities. Adjacent states are entitled to share 27% of all federal revenues, bonuses, rents and royalties generated from OCS oil and gas pools underlying both the OCS and state waters between 3-6 miles offshore to provide funds for the mitigation of adverse economic and environmental effects. The OCSLA also establishes an "environmental studies program" within areas included in any lease sale to assess the environmental impacts of oil and gas development, and predict impacts which may result from oil spills, the discharge of drilling muds and cuttings, and the laying of pipes. Additional studies may also be funded to monitor the environment, and provide time-series and trend data.

2. The Federal Consistency Provisions of the CZMA

The federal consistency provisions of the Coastal Zone Management Act provide another avenue for state review of federal OCS oil and gas activities. The 1990 amendments to the CZMA restored state review of OCS oil and gas leasing under the CZMA by overturning the 1984 Supreme Court decision, Secretary of the Interior v. California. Consequently, states are now authorized to

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138 43 USC 1351(g).
139 43 USC 1351(h)(1)(D).
140 43 USC 1841-1846.
141 43 USC 1337(g) and 1331(4)(B).
142 43 USC 1346.
143 43 USC 1346(b).
144 464 U.S. 312 (1984). The decision held that OCS lease sales do not directly affect the coastal zone and therefore may not be reviewed by states under the CZMA federal consistency provisions. The 1990 amendments expressly authorize state review of federal activities both inside and "outside" the coastal zone. 16 USC 1456(c)(1)(A).
determine whether lease sales are consistent "to the maximum extent practicable with the enforceable policies of approved state management programs." Disagreements between states and the Department of the Interior may be mediated by the Secretary of Commerce, and the President may grant an exemption for federal activities he deems "in the paramount interest of the U.S."165

Plans of exploration and development and production plans issued by the Department of the Interior must also be certified as consistent with state CMPs.166 State objections to such plans may be appealed to the Secretary of Commerce, who may override the objection if he finds that the plan is consistent with the objectives of the CZMA or otherwise necessary in the interest of national security.167

II. PROTECTED AREAS

A. Wetlands and Sand Dune Protection

Key federal laws protecting wetlands and sand dune areas include the wetland regulatory program under section 404 of the Clean Water Act and section 10 of the Rivers and Harbors Act, and the federal Coastal Barrier Resources System.

1. Section 404 of the Clean Water Act

The Army Corps of Engineers regulates activities affecting wetlands under section 404 of the Clean Water Act.168 Section 404 requires the Corps to issue permits for the discharge of dredge and fill material into navigable waters.169

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165 16 USC 1456(1)(A)(B). The Presidential exemption may only be granted after a final court judgment that the activity is inconsistent with state CMP policies.

166 16 USC 1456(3)(B).


168 33 USC 1344.

169 33 USC 1344(a); 40 CFR 232.2.
Dredged and fill material includes material excavated from waters of the U.S., material used for replacing an aquatic area with dry land, or changing the bottom elevation of an waterbody.170 "Navigable waters" or "waters of the U.S." under the Clean Water Act is broadly defined to include not only the waters of the territorial sea but also coastal and inland wetlands, streams, ponds, mudflats, or wet meadows, "the use, degradation, or destruction of which would or could affect interstate or foreign commerce."171

"Wetlands" includes areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs and similar areas.172 The Corps and the EPA have issued a "Federal Manual for Identifying and Delineating Jurisdictional Wetlands" that provide guidance for identifying wetlands that fall within the Corps' section 404 jurisdiction. The Manual's three wetland parameters are currently undergoing revision: wetland hydrology, vegetation, and hydric soils. The revisions propose to increase saturation requirements from 7 to 15-21 days, and require water inundation or saturation to the surface rather than within 18 inches of the surface.173

Activities exempt from section 404 permit requirements include normal farming, silviculture and ranching activities; normal maintenance and emergency repair activities of dikes, dams, levees, breakwaters, bridges, and transportation structures; construction or maintenance of farm or stock ponds or irrigation ditches; temporary sedimentation basins on a construction site; and farm, forest, or temporary mining roads constructed in accordance with best management practices.174

The EPA has adopted section 404(b)(1) guidelines that require the Corps to consider the following criteria when evaluating wetland permits: (1) wetland discharges are not permitted where feasible, less environmentally damaging

170 40 CFR 232.2.

171 40 CFR 232.2(q); 33 CFR 328.3.

172 33 CFR 328.3(b); 40 CFR 232.3(r).

173 56 Fed. Reg. 40446 (Aug. 14, 1991). It has been estimated that these changes could result in the disqualification of many wetlands for federal and state protection under section 404 of the Clean Water Act. See Defining Wetlands: Science or Politics, 13 NATIONAL WETLANDS NEWSLETTER 10-14 (Nov. 1991) (20%-60% of the nations wetlands will lose their status as jurisdictional wetlands if the Manual is revised as proposed.)

174 40 CFR 232.3.
alternatives are available. Projects that are not water dependent are presumed to have less environmentally damaging alternatives; (2) discharges must not cause or contribute to significant adverse impacts, including direct, indirect and cumulative impacts, to wildlife, ecosystem integrity, recreation, aesthetics, economic values, and the aquatic environment; (3) discharges must not violate state water quality standards or jeopardize endangered species; and (4) potential adverse impacts on the aquatic ecosystem must be minimized to the extent appropriate and practicable. Unavoidable impacts may require compensatory mitigation (e.g., restoration, enhancement or creation of wetlands) after avoidable impacts are fully minimized.\footnote{175}

The EPA retains veto authority over the issuance of Corps' section 404 permits if it finds that the permit would have an "unacceptable adverse effect" on water supplies, shellfish beds and fishery areas, spawning and breeding areas, wildlife, or recreational areas.\footnote{176}

The Corps and EPA entered into a Memorandum of Agreement in 1990 that sets forth mitigation measures to avoid, minimize and compensate wetland losses. The MOA notes that while mitigation measures in individual permit decisions may not always achieve the goal of "no net loss" of wetlands functions and values, an overall goal of "no net loss" of wetlands should be maintained.\footnote{177}

Federal jurisdiction over wetlands does not preempt more stringent state and local wetland laws and states must certify that section 404 permits will not violate state water quality standards adopted under the Clean Water Act.\footnote{178} The Corps may issue general permits on a state, regional or nationwide basis for dredge and fill activities, as well as construction activities within navigable waters, that are similar in nature, and cause only minimal individual and cumulative adverse environmental effects on the environment.\footnote{179} The Corps may also

\begin{footnotes}

\footnote{176} 33 USC 1344(c); 40 CFR Part 231.


\footnote{178} Section 401 of the CWA, 33 USC 1341.

\footnote{179} 33 USC 1344(d). Twenty-six nationwide permits have been issued by the Corps under section 404 and section 10. They are listed at 33 CFR 330.5.
\end{footnotes}
delegate the authority to issue section 404 permits to states that meet federal guidelines. 180

2. The Rivers and Harbors Act of 1899

The Corps is also authorized to regulate the construction of any structure or work within navigable waters under sections 9 and 10 of the Rivers and Harbors Act of 1899. 181 The Rivers and Harbors Act authorizes the Corps to regulate the construction of such diverse activities as wharves, breakwaters or jetties; bank protection or stabilization projects; permanent mooring structures, vessels, or marinas; intake or outfall pipes; canals; boat ramps; aids to navigation; or other modifications affecting the course, location, condition or capacity of navigable waters. The Corps’ jurisdiction under the Act is limited to "navigable waters," or waters subject to the ebb and flow of the tide shoreward to the mean high water mark that may be used to transport interstate or foreign commerce. Thus the definition of "navigable waters" under the Rivers and Harbors Act is substantially more limited than the definition of "navigable waters" under the Clean Water Act, which extends to inland wetlands. The Corps must consider the following general criteria in evaluating projects within navigable waters: (1) the public and private need for the activity; (2) reasonable alternative locations and methods; and (3) the beneficial and detrimental effects on the public and private uses to which the area is suited. 182

After receiving an application for a section 404 wetland or a section 10 navigation permit, the Corps issues a public notice to solicit information from the public, adjacent property owners, interested groups, and state, local and federal agencies. The Corps may conduct a public hearing unless "the issues raised are insubstantial or there is otherwise no valid interest to be served by a hearing." 183 The Corps also conducts "public interest reviews" for both wetland and navigation permits to balance the "benefits which reasonably may be expected to accrue from the proposal . . . against its reasonably foreseeable detriments." 184 The Corps is

180 33 USC 1344(g) and (h). Thus far only the State of Michigan has exercised this option. Davis, "Making No Assumptions," 13 National Wetlands Newsletter 6 (1991).

181 33 USC 401 and 403.

182 33 CFR 320.4(a)(2).

183 33 CFR 372.4(a).

184 The public interest review is required to consider all relevant factors including cumulative effects, conservation, economics, aesthetics, general environmental concerns, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, (continued...)
also required to consult with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service to protect and conserve wildlife resources.185

3. The Coastal Barrier Resources Act

Congress passed the Coastal Barrier Resources Act in 1982 to protect undeveloped coastal barrier beaches.186 The Act is similar to an approach used by Congress to slow development and the building of new structures in floodplains and coastal areas subject to flooding and storm surge.187 Rather than utilizing planning, regulatory or acquisition strategies to limit growth and development within sensitive coastal areas, the Act shifts the financial risks and burdens of development from the federal government to the developer.188

The Act creates a federal coastal barrier resources system of mapped undeveloped barrier beaches, and associated wetlands and estuaries. To discourage development within these areas, federal expenditures and financial assistance are prohibited for federal flood insurance, disaster relief, road construction, marinas, community blocks grants, sewage treatment plants, and similar projects.189 Federal bank insurance, mortgage insurance, environmental studies, programs unrelated to development, and maintenance and repair of existing facilities are permitted.190 The Secretary of the Interior is directed to monitor such areas to determine the effectiveness of the legislation in protecting energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people. 33 CFR 320.4(a). A comprehensive analysis of state and federal wetland laws has been prepared for the Gulf of Maine Council by Jonathan M. Kurland entitled, "Habitat Mitigation Efforts in the Gulf of Maine: Stemming the Tide of Environmental Degradation" (January 1991). The Report notes that federal wetland mitigation efforts have been "hampered by inconsistency and lack of information." (at 42)

184(...continued)

185 Fish and Wildlife Coordination Act, 16 USC 661-666(c).

186 16 USC 3501-3510. Undeveloped coastal barriers are defined as depositional geologic features that are subject to wave, tidal and wind energies and protect landward aquatic habitats from direct wave action, and adjacent wetlands, marshes, estuaries, inlets and nearshore waters. These areas must contain "few manmade structures . . . that do not significantly impede geomorphic and ecological conditions." 16 USC 3502(1)

187 42 USC 4028, cited in DAVIDSON AND DELOGU, supra note 13, at § 11.06.

188 Id.

189 16 USC 3502(3).

190 16 USC 3505.
barrier beaches and report to Congress whether additional measures are required. In 1990, the system was expanded from the Atlantic and Gulf coast, to nearly 800,000 acres of undeveloped barrier islands and associated wetlands in the Great Lakes, the Florida Keys, Puerto Rico and the Virgin Islands. It also expanded the system to secondary barriers along the Atlantic and Gulf coasts. The Governors of affected states must now approve the inclusion of additional undeveloped barrier resources into the system and state and local governments are authorized to recommend the inclusion of state and locally-protected barrier resources to the Department of the Interior. A Coastal Barriers Task Force must report to Congress by the end of 1993 on the need for new policies to protect undeveloped barrier resources.

B. MARINE SANCTUARIES AND ESTUARINE RESERVES

Congress has created three federal programs to protect unusually sensitive and significant ocean and coastal areas: the National Marine Sanctuaries Program; the National Estuary Program; and the National Estuarine Reserve Research System.

1. The National Marine Sanctuaries Program

The Title III of the Marine Protection, Research, and Sanctuaries Act authorizes the Secretary of Commerce, with state and local consultation, to designate and protect discrete areas of the marine environment as national marine sanctuaries. These areas must be of national significance, and existing state and federal authorities must be inadequate to ensure comprehensive conservation and management, resource protection, scientific research, and public education. The designation of an area as a national marine sanctuary requires a resource assessment of present and potential uses of the area; the preparation of an EIS; public hearings; the preparation of a sanctuary management plan and sanctuary

191 16 USC 3509.


193 Rieser and Milliken, supra note 122, at 303-304.

194 16 USC 1431-1439.

195 16 USC 1433(a).
regulations; review by Congress and adjacent states; and final approval by the Secretary of Commerce.\textsuperscript{196}

The designation of an area as a National Marine Sanctuary makes the area eligible for special regulatory controls and management planning by the National Oceanic and Atmospheric Administration. Although natural resource protection is emphasized, multiple uses are encouraged.\textsuperscript{197} Regulations in existing sanctuaries have been adopted restricting oil and gas development, limiting the harvest of living marine resources, prohibiting the dumping or discharging of wastes, limiting vessel traffic, and altering the seabed.\textsuperscript{198} Although there are no established sanctuaries in the Gulf of Maine, Stellwagen Bank has been nominated and is undergoing federal review.\textsuperscript{199} Only 7 of the 100 potential sanctuary sites initially listed have been designated.\textsuperscript{200}

\section*{2. The National Estuary Program}

The EPA, on its own initiative or upon the nomination of a state, may establish national estuaries under section 320 of the Clean Water Act.\textsuperscript{201} National Estuary Programs convene a "management conference" to attain water quality, control point and nonpoint sources of pollution, and supplement existing pollution controls.\textsuperscript{202} The management conference is directed to assess trends in water quality, natural resources and uses; collect and assess data on toxics, nutrients and natural resources; assess the impacts point and nonpoint sources of pollution; develop plans for coordinated implementation; monitor the effectiveness

\textsuperscript{196} 16 USC 1434(a)(2) and 1433.

\textsuperscript{197} \textsc{Thorne-Miller and Catena}, \textit{The Living Ocean: Understanding and Protecting Marine Biodiversity} (1991) at 89.

\textsuperscript{198} \textit{Id.} at 90. Existing sanctuaries include Fagatêle Bay (American Samoa); Gulf of the Farallones (CA); the Channel Islands (CA); the U.S.S. Monitor (NC); Gray Reef (GA); Key Largo (FL); and Looe Key (FL).

\textsuperscript{199} Other sanctuaries under active review include Norfolk Canyon (VA); Cordell Bank (CA); Monterey Bay (CA); Flower Garden Bank (TX); and the Outer Coast of Washington State. \textit{See} Rieser and Milliken, \textit{supra} note 122, at 351-354. Twenty-nine potential sites have been designated on NOAA's Site Evaluation List. \textit{See} Special Issue on U.S. Marine Sanctuaries, \textit{Oceanus}, Vol. 31, No. 1 (Spring 1988).

\textsuperscript{200} \textsc{Thorne-Miller and Catena}, \textit{supra} note 197, at 92.

\textsuperscript{201} 33 USC 1330.

\textsuperscript{202} 33 USC 1330(2)(A).
of actions taken; and review all federal financial assistance programs.\textsuperscript{203} The EPA has designated 17 national estuaries. The programs are convened for 5 years during which federal research money and assistance is provided to prepare a comprehensive conservation and management plan to recommend priority corrective actions and compliance schedules.\textsuperscript{204} Massachusetts and Cape Cod Bay, and Casco Bay in the Gulf of Maine, have been designated as National Estuaries and are currently preparing 5-year research programs for funding.

3. The National Estuarine Reserve Research System

The Coastal Zone Management Act provides for a National Estuarine Reserve Research System to establish and manage, through federal-state cooperation, a national system of estuarine reserves representative of the various regions and estuarine types in the United States.\textsuperscript{205} The System is administered by the Department of Commerce in close coordination with the Marine Sanctuaries Program.\textsuperscript{206}

Estuarine reserves must be nominated by the Governor of a State in which the area is located. The Secretary of Commerce must find that the area is a representative estuarine ecosystem suitable for long-term research; the law of the coastal state provides long-term protection for reserve resources to ensure a stable environment for research; the designation will enhance public awareness and understanding and provide suitable opportunities for public education; and the state has complied with applicable regulations.\textsuperscript{207} Federal funds are available for site selection, the preparation of a management plan, the implementation of research, educational, and administrative programs, and the acquisition of lands and waters necessary to ensure the long-term management of the area.\textsuperscript{208} The operation of the Reserve is the responsibility of the state and while the major purpose of the reserve system is research, commercial development is prohibited or strictly controlled in most reserves.\textsuperscript{209} NOAA has designated 17 reserves

\begin{itemize}
  \item \textsuperscript{203} 33 USC 1331(b).
  \item \textsuperscript{204} The Act authorizes up to $12 million per year for administration of the program and research grants.
  \item \textsuperscript{205} 16 USC 1461; 15 CFR 921.
  \item \textsuperscript{206} Rieser and Milliken, \textit{supra} note 122, at 350.
  \item \textsuperscript{207} 16 USC 1460(b).
  \item \textsuperscript{208} 16 USC 1461(e).
  \item \textsuperscript{209} THORNE-MILLER AND CATENA, \textit{supra} note 197, at 93.
\end{itemize}
containing nearly 300,000 acres, including the Wells and Great Bay reserves in the Gulf of Maine.

C. WILDLIFE PROTECTION

The wildlife resources of the Gulf of Maine are or may be protected by a number of federal statutes and programs including the Endangered Species Act, the Marine Mammal Protection Act, the National Wildlife Refuge System, the Fish and Wildlife Coordination Act, and the Migratory Bird Treaty Act.

1. The Endangered Species Act

The Endangered Species Act (ESA) "has a substantive impact on virtually all facets of federal decision making."210 The purpose of the ESA is to protect the "ecosystems upon which endangered species and threatened species depend" and "to provide a means for the conservation of such... species."211 "Endangered species" are species in danger of extinction throughout all or a significant portion of its range,212 and "threatened species" are species likely to become endangered within the foreseeable future.213 The ESA prohibits the "taking" of endangered or threatened species,214 including the harassment, harming, capturing or collecting of any such species.215 The designations of species as "endangered" or "threatened" are made by the Secretaries of Interior or Commerce, depending on program responsibilities.216

The ESA requires all federal agencies to "conserve" endangered and threatened species, including plant species,217 meaning that such agencies must use "all methods and procedures" necessary to remove the threatened or

210 DAVIDSON AND DELOGU, supra note 13, at § 15.01.
211 16 USC 1531(b).
212 16 USC 1532(6).
213 16 USC 1532(20).
214 16 USC 1538(1)(B).
215 16 USC 1532(19).
216 16 USC 1533. Endangered and threatened species are listed by the U.S. Fish and Wildlife Service at 50 CFR 17 and by the National Marine Fisheries Service at 60 CFR 227.
217 16 USC 1531(c)(1) and 1332(16).
endangered classification.\textsuperscript{218} Section 7 of the ESA prohibits federal agencies from taking any action to "jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined . . . to be critical."\textsuperscript{219} "Critical habitats" are habitats that have physical and biological features essential to the conservation of the species and which may require special management considerations or protections.\textsuperscript{220}

Section 7 was the subject of the famous snail darter case which in 1978 halted the construction of the TVA's Tellico Dam project.\textsuperscript{221} As a result, section 7 was amended to allow for exemptions granted by an Endangered Species Committee consisting of the heads of 7 key federal agencies and departments.\textsuperscript{222} Exemptions may be granted if there are no reasonable alternatives to the agency action, the benefits of the action clearly outweigh conserving the species or its critical habitat, the action is of regional or national significance, no prohibited irreversible or irretrievable commitment of resources were made, and reasonable mitigation and enhancement measures minimize the adverse effects.\textsuperscript{223}

The ESA authorizes the federal government to acquire lands to conserve endangered or threatened species,\textsuperscript{224} and to provide funds and enter into management and cooperative agreements with states to administer areas and establish programs to conserve such species.\textsuperscript{225} The President is also authorized use foreign currencies accruing to the U.S. to provide assistance to any foreign country in the development and management of programs for the conservation of any endangered or threatened species.\textsuperscript{226}

\textsuperscript{218} 16 USC 1531(3).
\textsuperscript{219} 16 USC 1536(a)(2).
\textsuperscript{220} 16 USC 1532(5). Critical habitats are listed at 50 CFR 424.
\textsuperscript{222} 16 USC 1536(e)-(p). The 7 agency heads include the Secretaries of Agriculture, Army, and the Interior, and the heads of the Council of Economic Advisors, the EPA, and NOAA. 16 USC 1636(e)(3).
\textsuperscript{223} 16 USC 1536(h).
\textsuperscript{224} 16 USC 1534.
\textsuperscript{225} 16 USC 1535.
\textsuperscript{226} 16 USC 1537.
State endangered species laws may be more restrictive than the federal provisions. These laws protect endangered and threatened species, their critical habitats, and marine mammals throughout the Gulf of Maine including:

- Bald Eagle
- Least Tern
- Sei Whale
- Humpback Whale
- Humpback Whale
- Ridley Turtle
- Hooded Seal
- Pilot Whale
- White-Sided Dolphin
- Peregrine Falcon
- Roseate Tern
- Right Whale
- Short-nose Sturgeon
- Loggerhead Turtle
- Harbor Seal
- Killer Whale
- Piping Plover
- Sperm Whale
- Finback Whale
- Leatherback Turtle
- Gray Seal
- Harp Seal
- Harbor Porpoise
- Bottle-Nose Dolphin

2. The Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) was enacted to provide for federal protection, conservation and management of marine mammals in danger of extinction or depletion as a result of man’s activities. The MMPA imposes a moratorium on the taking and importation of marine mammals and marine mammal products, and establishes a federal permitting and regulatory scheme to allow takings incidental to commercial fishing and other activities. The MMPA also requires foreign nations to submit data to the Department of Commerce demonstrating that incidental kills of marine mammals are comparable to the U.S. rate and in no case exceed 1.25 percent. An embargo on foreign imports is authorized if US rates are exceeded. State laws are preempted unless authority has been transferred to the state for the conservation and management of particular species.

The MMPA is administered jointly by the Departments of the Interior and Commerce. The Departments also jointly manage a Marine Mammal Commission.

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228 16 USC 1361.

229 16 USC 1371.

230 16 USC 1371(a)(2)-(5) and 1373-1374.


232 16 USC 1379.
to assist in the development of regulations for the taking of marine mammals and to conduct independent research.\textsuperscript{233}

3. \textit{The National Wildlife Refuge System}

Many wildlife refuges are located in coastal areas including wetlands, estuaries, and nearshore environments. The National Wildlife Refuge System Act designates wildlife refuges, wildlife management areas, waterfowl production areas and other areas for the protection and conservation of fish and wildlife administered by the Secretary of the Interior.\textsuperscript{234} The U.S. Fish and Wildlife Service manages these refuges to restore, preserve, develop and manage wildlife and wildlands habitat, and protect and preserve endangered or threatened species and their habitat.\textsuperscript{235} The Secretary of the Interior is authorized to permit certain uses and grant easements within wildlife refuges compatible with the major purposes for which the refuge was established.\textsuperscript{236}

4. \textit{The Fish and Wildlife Coordination Act}

The Fish and Wildlife Coordination Act requires that federal or private agencies consider fish and wildlife values when planning federal or federally-permitted water-related projects.\textsuperscript{237} The U.S. Fish and Wildlife Service, and the head of the relevant state wildlife agency, must be consulted to assure that fish and wildlife resources and their habitats are adequately considered in determining the impacts of federal projects that control, modify, or develop the nation’s waters.\textsuperscript{238} The Act establishes the "goal" that water projects mitigate the negative impacts on wildlife, and fish and wildlife values receive "equal consideration" with other purposes in water resources planning.\textsuperscript{239} Federal agencies may also acquire lands

\textsuperscript{233} 16 USC 1362(11).
\textsuperscript{234} 16 USC 668dd.
\textsuperscript{235} 50 CFR 25.11(b).
\textsuperscript{236} 16 USC 668dd(d). Some of the uses and activities permitted in refuges by the Secretary of the Interior have been very controversial such as the use of the Arctic National Wildlife Refuge in Alaska for commercial oil and gas development. Thorne-MILLER AND CATENA, supra note 197, at 94.
\textsuperscript{237} 16 USC 661-666(c).
\textsuperscript{238} 16 USC 662(a).
\textsuperscript{239} 16 USC 661.
for wildlife purposes associated with water projects and integrate costs into the project.\footnote{16 USC 662.}

Although mitigation is a "goal" and not a requirement, the consultation requirement is enforceable and has been applied to a number of federal projects including hydroelectric projects, NPDES permits and section 404 dredge and fill permits.\footnote{See Sun Enterprises, Ltd. v. Laird, 359 F. Supp. 404 (W.D. Va. 1973); Sierra Club v. Alexander, 484 F. Supp. 455 (N.D.N.Y. 1980), aff'd, 633 F.2d 206 (1981).} The final decision, however, lies with the permitting agency.

5. The Migratory Bird Treaty Act

The Migratory Bird Treaty Act\footnote{16 USC 703-708.} codifies treaties between the U.S. and Great Britain, U.S.S.R., Mexico, and Japan to protect certain migratory birds. Birds, their parts, eggs and nests designated under the Act may not be taken, possessed, killed, sold, transported, or delivered unless authorized by the Secretary of the Interior (breeding of such birds however is permitted).\footnote{16 USC 705.} The Act also makes unlawful the importation of any bird or part thereof taken contrary to the laws of any Province in Canada.\footnote{16 USC 703 and 711. The Secretary has adopted regulations prescribing when such takings are permitted. 50 CFR 16 and 20.} Maximum penalties are $2,000 fines and 2 years imprisonment. Enforcement is provided by the Department of the Interior.

D. Marine Research

The federal government has a number of programs that provide funds for marine research in addition to those noted above. The details of these programs go well beyond the scope of this report. The most significant of these programs include the National Sea Grant College Program; the National Science Foundation; the Outer Continental Shelf Environmental Studies Program; the Land and Water Conservation Fund; the National Coastal Resources Research and Development Institute; and the Fish and Wildlife Conservation Fund. The 1990 amendments to the Marine Protection, Research and Sanctuaries Act created a system of nine regional marine research boards directed to develop comprehensive marine research plans, set priorities for the protection of water quality and marine
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THE CANADIAN FEDERAL FRAMEWORK  

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The British North America Act, 1867,\(^1\) now the Constitution Act, 1867,\(^2\) distributes legislative powers between the federal and provincial governments. The federal government, under section 91 of the Act, is charged with making laws for the Peace, Order and good Government of Canada (POGG); specifically, the federal government controls navigation and shipping (subsection 10), seacoast and inland fisheries (subsection 12), and the criminal law (subsection 27). Under section 92 of the Act the provinces have power over "the management and sale of public lands belonging to the Province and of the Timber and Wood thereon" (subsection 5), "local works and undertakings" (subsection 10), "property and civil rights in the Province" (subsection 13), "the imposition of punishment by fine, penalty, or imprisonment for enforcing any law of the Province . . ." (subsection 15), and "generally all matters of a merely local or private nature in the Province" (subsection 16). Further, pursuant to section 92A, the provinces have exclusive jurisdiction over the exploration, conservation, development and management of non-renewable natural resources and the conservation, development and management of forestry resources and of sites and facilities for the generation and production of electrical energy. Agriculture, pursuant to section 95 of the Act, is subject to concurrent control by the federal government and the provinces.

Because environment is not listed as a subject over which either the federal or provincial governments have power, jurisdiction over the environment is somewhat ambiguous. However, one aspect of environmental regulation, marine pollution control, was the subject of a recent decision of the Supreme Court of Canada. In R. v. Crown Zellerbach,\(^3\) the Supreme Court of Canada held that

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\(^1\) U.K., 30 & 31 Victoria, c.3.

\(^2\) U.K., 1983, c.11.

marine pollution is an appropriate matter for the federal government’s POGG powers and, therefore, that the federal Ocean Dumping Control Act was not ultra vires (i.e., beyond the powers of the enumerated federal legislative jurisdiction), even though the pollution occurred in waters within a province’s (British Columbia) jurisdiction. The case indicated that this power would allow the federal government to intervene in national environmental emergencies, and also on the basis of the two-pronged national concern doctrine. By this authority the federal government may regulate new matters not existing at the time of Confederation, as well as matters originally considered of a local/provincial nature which evolve as national concerns. Even though no actual environmental harm or direct impacts to fisheries or navigation were shown from the defendant’s deposit, the Court upheld federal control of marine pollution because of its predominantly extra-provincial, as well as international, character.

However, the Court still left considerable uncertainty as to when the national concern doctrine may be invoked and its effect on provincial jurisdiction. Rather vague parameters were established for determining whether a matter qualifies as a national concern. The matter must have singleness, distinctiveness and indivisibility that clearly distinguishes it from provincial concern, and the scale of impact on provincial jurisdiction must be reconcilable with Constitutional distribution of powers. While a finding of national concern might grant the federal government exclusive and plenary jurisdiction to legislate, including intra-provincial aspects, the Court indicated provinces may, through concurrent jurisdiction, protect coastal waters as an aspect of local jurisdiction.

Thus, the constitutional validity of some Canadian federal and provincial environmental laws, particularly that of the federal government, may be questioned in the courts. Increased federal efforts in this area may stand under the POGG power but this might be considered an encroachment on provincial legislative jurisdiction. Perhaps the most promising steps are cooperative efforts, in the forms of Memorandums of Understanding (MOU) and jointly enacted accords, that would clearly delineate the federal and provincial roles in various environmental issues.

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* The Ocean Dumping Control Act is now repealed and the provisions controlling ocean dumping are now contained within Part VI of the Canadian Environmental Protection Act.
A. POINT SOURCE POLLUTION

1. Fish Habitat and Water Quality Protection

The strongest provisions for protection of water resources from point source pollution in Canada are under the federal *Fisheries Act.* The general prohibition against destruction of fish habitat is contained within section 35 of the Fisheries Act: "no person shall carry on any work or undertaking that results in harmful alteration, disruption or destruction of fish habitat." Section 36(3) of the Act, a more general prohibition, states that a person cannot deposit a deleterious substance in water or in a place where the substance would enter water frequented by fish. The Act places absolute liability on the person who had management or control or who caused the release of the deleterious substance for clean-up costs and loss of income for fisherpersons. The Act does not limit this liability. Penalties for violation of these fish habitat protection provisions could be as much as $1 million per day with the possibility of imprisonment for any subsequent offences. Each day the offence is committed or continued is considered a separate offence. Officers of corporations, employers and licence holders can be punished if the corporation, employees or agents committed the offence. If the accused is found to have accrued monetary benefit from the offence, the court has the power to impose additional fines equalling the amount of the monetary benefit.

Certain major point source polluters are targeted through specific regulations and guidelines. The major industries addressed are chlor-alkali plants, petroleum refineries, metal mining operations, meat and poultry products plants, potato processing plants, fish processing plants and pulp and paper mills. The Environmental Protection Service (EPS) enforces specific regulations for all chlor-alkali plants. The EPS also enforces regulations for new, altered or expanded plants for the pulp and paper, potato, meat and poultry, metal mining and petroleum industries; plants existing at the time when these regulations were proclaimed in force (between 1971 to 1979) are only controlled through guidelines. Fish processing plants are only addressed in guidelines. Guidelines are not legally binding but provide operators and owners of existing plants with minimum national standards of effluent quality and of the Best Practicable Process and Treatment Technology (BPT). While not all plants in these target industries are subject to enforceable standards enunciated in regulations, these plants may be held in violation of the general prohibitions of the Fisheries Act.

Fish habitat protection is also addressed in section 37 of the Fisheries Act and through a departmental policy on fish habitat management. Section 37 grants

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5 *Fisheries Act,* R.S.C. 1985, c.F-14, as amended by R.S.C. 1985 (1st Supp.), c.31, ss.34, 35, 95, 96, 97, c.35, ss.1, 3, 5, 6, 7; R.S.C. 1985 (2nd Supp.), c.1, s.213(1), c.27. s.10; R.S.C. 1985 (4th Supp.), c.40, s.2; S.C. 1990, c.16, s.10, c.17, s. 20; S.C. 1991, c.1.
the Minister of Fisheries and Oceans power to require information and studies of works or undertakings that are resulting or likely to result in fish habitat disruption or deleterious deposit. The Minister, after reviewing information and studies, is authorized (subject to approval by the Governor in Council) to order modifications or restrictions or to direct closing for such time deemed necessary in the circumstances. A departmental fish habitat policy issued in 1986 established a no net loss principle as a habitat conservation goal and an overall net gain as a long-term policy objective.

In addition to the Fisheries Act, protection of the quality of bodies of water is possible under the Canada Water Act. This Act allows the federal Minister of Environment to designate federal waters, interjurisdictional waters, and international and boundary waters as water quality management areas. Such a designation would allow Environment Canada, in possible cooperation with a province or provinces, to specifically control the water quality of the area. Despite this possibility, the Canada Water Act has never been used to designate any water quality management areas.

2. Toxic Substances

Part II of the Canadian Environmental Protection Act (CEPA) regulates the release of designated toxic substances. If a designated toxic substance is released contrary to the prescribed controls, the person having effective control of the substance or who caused the release has a duty to report the release and to take all measures to prevent or remedy the situation. Such a person is liable for costs of remedial measures or for measures taken to reduce or mitigate the danger to the environment. The substances designated as being toxic are chlorobiphenyls, dodecachoropentacyclododecane, polybrominated biphenyls, chlorofluorocarbons, polychlorinated terphenyls, asbestos, lead, mercury, vinyl chloride, bromochlorodifluoromethane, bromotrifluoromethane, and dibromotetrafluoroethane. All of these substances are either prohibited or restricted in their use in processing or release into the environment.

Pursuant to these sections of CEPA and the fish protection provisions of the Fisheries Act, Environment Canada and the EPS have proposed new regulations

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6 Dept. of Fisheries and Oceans, The Department of Fisheries and Oceans Policy for the Management of Fish Habitat (Minister of Supply & Services Canada: Ottawa, 1986).

7 Canada Water Act, R.S.C. 1985, c.C-11, as amended by R.S.C. 1985 (1st Supp.), c.31, s.29; R.S.C. 1985 (4th Supp.), c.16, s.141, s.142, s.143, s.144.

8 Canadian Environmental Protection Act, R.S.C. 1985 (4th Supp.), c.16, as amended by S.C. 1989, c.9, s.1(E), s.2; SOR/89-351, SOR/90-582, SOR/90-583.
for the pulp and paper industry. The proposed *Pulp and Paper Effluent Regulations* (to replace the current regulation under the Fisheries Act) will designate "acutely lethal effluent", biochemical oxygen demanding matter (BODM), and "suspended solids" as deleterious substances.

In addition, Environment Canada proposes new regulations, namely the Pulp and Paper Effluent Chlorinated Dioxins and Furans Regulations and the Pulp and Paper Mill Defoamer and Wood Chips Regulations under CEPA. These new regulations will apply to all pulp and paper mills of given production rates, including the existing mills excluded from the current regulations; they are expected to be proclaimed by the end of 1991.

**B. OCEAN DUMPING**

Canada signed the Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter on December 29, 1972. CEPA, in its Ocean Dumping provisions (Part VI of the Act), prohibits deliberate disposal in any of the waters over which Canada has jurisdiction. The Act also prohibits dumping in seas under the jurisdiction of a foreign state or any other area of the sea not part of Canadian waters, by Canadian ships and aircraft or by non-Canadian ships and aircraft loaded in Canada.

A person may dump a substance in the territorial sea or in any fishing zone of Canada if it is authorized and carried out in accordance with a permit issued under CEPA. A person may also dump to avert danger to human life at sea or to any ship, aircraft or other anthropogenic structure. However, under CEPA, there is a duty on that person to minimize, as far as possible, danger to human life and damage to the marine environment.

A permit to dump in the marine environment may only be granted by Environment Canada if:

(a) the substance is rapidly rendered harmless by physical, chemical or biological process of the sea and does not render normally edible marine organisms inedible or unpalatable or endanger human health or the health of animals;

(b) the substance does not contain another substance in a quantity or concentration that exceeds the quantity or concentration determined by or under the regulations;

(c) the dumping or disposal of a certain quantity of the substance is necessary to avert an emergency that poses an unacceptable risk relating to human health and admits of no other feasible solution; or
(d) the substance is to be transformed by incineration or other means of thermal degradation and any substance that results from such a transformation is a substance in respect of which a permit may be granted under paragraph (a) or (b).

CEPA specifies a list of prohibited substances for which a permit is not to be granted unless consultation has taken place with any foreign state likely to be affected by the dumping and notification has been given to the nation holding the Convention’s secretariat. The prohibited substances are organohalogen compounds, mercury and mercury compounds, cadmium and cadmium compounds, persistent plastics and other persistent synthetic materials, crude oil and its wastes, refined petroleum products, petroleum distillate residues, high-level radioactive wastes or materials, and substances in whatever form produced for biological and chemical warfare. CEPA also lists restricted substances and stipulates a list of factors, namely the general characteristics and composition of the substance, the characteristics of the proposed dumping site, the method of deposit and other general considerations that the Minister of Environment must take into account in deciding whether or not to exercise his or her discretion to grant a permit.

C. Ship Source Pollution

The Canada Shipping Act\(^9\), implemented through the federal Department of Transport, contains measures aimed at reducing and preventing ship source pollution and oil spills. The regulations designate a number of substances and materials as pollutants, including specific chemicals, garbage, oily mixtures and persistent oily mixtures. Garbage and the specified chemicals may not be discharged or dumped except in cases of emergency. Oily mixtures and persistent oily mixtures may not be discharged generally, yet the Act allows for their discharge in an emergency, at specified amounts, concentrations and distances from the shoreline, or unavoidable discharges during the normal operations of the ship. An example of a standard for an allowed discharge is the situation of water ballast from the cargo tank of a tanker. Such water may be discharged where the tank has been cleaned so that any effluent therefrom, "if it were discharged from a stationary tanker into clean, calm water on a clear day, would produce no visible traces of persistent oil on the surface of the water".

The regulations also prescribe measures to reduce oil pollution during loading, unloading or bunkering operations and require that ships retain oil residues for discharge into reception facilities. The Department of Transport has proposed new regulations aimed at reducing pollution from small pleasure and

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non-pleasure vessels. The maximum penalty for the discharge of a pollutant is $250,000 and the Act does not require a contingency plan nor does it impose a duty to remedy.

The regulations also address the shipping of dangerous goods and dangerous bulk materials. Packing, stowing, loading, unloading, and labelling precautions are set out, in accordance with the International Maritime Dangerous Goods Code (IMDG Code), to prevent chemical interactions between the dangerous goods and to prevent their leakage or escape during transport and handling.

To reduce accidents at sea or while the ship is entering port, the regulations require ships to carry charts and publications and to maintain navigating appliances at prescribed standards. National standards for Vessel Traffic Services (VTS) are provided with particular zones set out in eastern Canada. Substandard vessels are to be identified and special measures are to be taken to compensate for their defect or deficiency to increase the level of safety and to reduce the risk of pollution. These safety measures not only apply to Canadian ships but also to all non-Canadian ships entering the territorial sea of Canada: non-Canadian ships entering Canada's territorial sea must be certified for compliance with safety standards, navigation appliances, pollution prevention and limitations on the quantities of pollutants to be carried.

In 1989 Canada became party to the 1969 International Convention on Civil Liability for Oil Pollution Damage (CLC 1969) and the 1971 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (Fund Convention 1971). In the event of an oil spill, Canada has access to the International Fund and its own Ship-source Oil Pollution Fund (SOPF). SOPF is currently at an approximate level of $163 million, which is available to cover lost income of fisherpersons, clean-up costs and costs of preventative action. The shipowner's liability is limited to approximately $200 per tonne to a maximum of $21 million under the Canada Shipping Act.

D. OFFSHORE OIL AND GAS EXPLORATION AND DRILLING

The federal government has enacted the Oil and Gas Production and Conservation Act\(^\text{10}\) (OGPCA) which regulates offshore oil and gas drilling, provides for conservation of the resource and contains measures to reduce marine pollution from these activities. Following a jointly enacted federal - provincial accord, Nova Scotia adopted the OGPCA and set up joint coordination of the resource through the Canada - Nova Scotia Offshore Oil and Gas Board. The Province of Nova Scotia and the federal government have also agreed upon a

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moratorium for exploration and drilling on Georges Bank; the moratorium lasts until January 1, 2000 and, in the interim, a panel set up by the Board is to publicly review the moratorium. The OGPCA will be discussed more thoroughly in Appendix D.

The OGPCA is currently under review and proposed revisions aimed at increasing the safety controls and pollution measures are expected to become public sometime before the end of 1991.

E. PORTS AND RECREATIONAL HARBOURS

The Department of Transport, through the Canada Ports Corporation Act\textsuperscript{11} (CPCA), regulates all federal harbours. The one federal harbour under this Act in the Bay of Fundy - Gulf of Maine region is St. John in New Brunswick. The CPCA addresses pollution only slightly and makes a polluter liable for damages to port property and removal of nuisances; this liability is not limited in the Act. The CPCA does not contain a duty to remedy and only imposes a maximum $500 fine or maximum 30 days imprisonment as a penalty.

Under the auspices of the Fishing and Recreational Harbours Act\textsuperscript{12} the Small Craft Harbours Division of the DFO has commenced installation of waste oil receptacles at the over 300 small craft recreational harbours in the Scotia-Fundy region. Approximately 70 to 80 tanks are installed and in use as of September, 1991. Policies regarding these tanks are now being developed. For the present time, the DFO is relying of voluntary deposition of waste materials; of course, unauthorized dumping of waste oil into the marine environment is contrary to the provisions of the Fisheries Act.

F. TRANSPORTATION OF DANGEROUS GOODS

The federal government through the Department of Transport regulates the transport of dangerous goods. The Transportation of Dangerous Goods Act\textsuperscript{13} also adopts the IMDG Code. It designates the goods which require the specified safety standards and applies to any means used to transport the dangerous goods. The substances designated as dangerous goods include explosives, gases (compressed,

\textsuperscript{11} Canada Ports Corporation Act, R.S.C. 1985, c.C-9, as amended by R.S.C. 1985 (2nd Supp.), c.1, s.213(2); R.S.C. 1985 (4th Supp.), c.1, s.44.

\textsuperscript{12} Fishing and Recreational Harbours Act, R.S.C. 1985, c.F-24, as amended by R.S.C. 1985 (1st Supp.), c.31, ss.36, 37, 98; R.S.C 1985 (2nd Supp.), c.20, s.3; S.C. 1989, c.3, s.44.

deeply refrigerated, liquefied or dissolved under pressure), flammable and combustible liquids, flammable solids, oxidizing substances and organic peroxides, poisonous and infectious substances, radioactive materials, and corrosives. The Act specifies a duty to report any release or escape of any of these substances and a duty to take emergency remedial measures to mitigate any danger caused by their release. The government may also take remedial measures and is entitled to recover the costs of the cleanup. The Department of Transport can require any person intending to handle or transport dangerous goods to provide evidence of financial responsibility.

G. NON-POINT SOURCE POLLUTION

Canada does not address non-point source pollution as an issue in itself. The federal government does address two non-point sources individually, however, which are nutrients in detergents and pest control products.

1. Nutrients

Part III of CEPA addresses nutrients and stipulates that "no person shall manufacture for use or sale in Canada or import any cleaning agent or water conditioner that contains a nutrient in a concentration that is greater than the prescribed permissable concentration of that nutrient in that cleaning agent or water conditioner." The regulations designate phosphorus and its compounds as nutrients and prescribe the maximum concentrations of phosphorous in laundry detergents.

2. Pesticides

Under the Constitution Act, 1867, agriculture is subject to the concurrent legislative control of the federal and provincial governments; this is perhaps one of the few environmental issues in which the federal and provincial roles are clearly defined. The federal Department of Agriculture is responsible for testing and registering pest control products whereas the provincial governments are responsible for regulating the pest control product’s handling, sale and use within the province.

The federal Pest Control Products Act\(^\text{14}\) requires registration of all pest control products; some classes of pest control products with well known properties are exempted from the registration process within the Act to reduce costs and increase administrative efficiency. Some active ingredients are prohibited or restricted to prescribed concentrations within pest control products. If a control

product has not been previously tested, the applicant for registration must provide Agriculture Canada with specified information regarding the product. The Minister of Agriculture may refuse to register a product for various reasons, including "the use of the control product would lead to an unacceptable risk of harm to (i) things on or in relation to which the control product is intended to be used, or (ii) public health, plants, animals or the environment." A pest control product cannot be sold, imported, exported or moved across provincial boundaries unless the regulations have been complied with, including registration of the control product.

A Review Task Team reviewing the pesticides regulatory structure issued Recommendations for a Revised Federal Pest Management Regulatory System in December, 1990. The report calls for new legislation which would, among other things, restructure the current regulatory scheme, establish an independent Pest Management Regulatory Agency, and include more consultation with other federal departments and the provinces.

H. FEDERAL ENVIRONMENTAL IMPACT ASSESSMENT

1. EIA of Federal Undertakings Under CEPA

Part IV of CEPA allows the Minister of Environment to carry on a type of environmental impact assessment for federal undertakings. The Minister can require any person who carries on, or proposes to carry on, any federal work or undertaking, or any activity on federal lands, to provide the plans, specifications and information regarding the work or undertaking. This information could be used to determine the environmental impact of that work or undertaking. Within Part IV, federal lands means those lands that belong to the federal government or in respect of which the federal government has power to dispose and those submarine areas not within a province and the water and air above such lands. Part IV does not state what the Minister of Environment could do once he or she received this information.

2. 1984 Environmental Assessment Guidelines Order

The Environmental Assessment and Review Process Guidelines Order casts a potentially broad net of proposals subject to federal review. Proposals located on federal lands, involving a federal financial commitment, environmentally affecting an area of federal responsibility or undertaken by an initiating federal department would all be subject to environmental assessment review. Initiating departments are to "self-assess" proposals to see if environmental implications are significant and, if so, would have to refer a proposal to the federal Minister of Environment for a public review. While public concern about a proposal is to be grounds for a full public review, the Guidelines appear to leave the initiating
department as the ultimate judge of whether public concern made public review desirable. Initiating departments, being required to screen or assess proposals, are left the discretion to find environmental effects mitigable with known technology and thereby to allow a project to proceed without a formal public review. If an environmental assessment review panel is appointed to hold public hearings, a panel would have recommendatory powers only. Duplication of public reviews are to be avoided where a proposal is subject to environmental regulation independently of the Process.

3. Proposed Legislation

The federal government has proposed a Canadian Environmental Assessment Act (Bill C-13). The Bill would establish a Canadian Environmental Assessment Agency under the federal Minister of Environment to administer the EIA process. The Bill potentially covers projects carried out in whole or in part by a federal authority, projects receiving any kind of financial assistance from any federal authority, projects carried out on federal lands (including the territorial sea and fishing zones), or projects authorized or licenced in whole or in part by the federal government.

The overall EIA process is extensively outlined as are some environmental factors and risks that the assessment must consider. Public review of the EIA is considered and the public would have access to the information collected in an assessment under federal access to information laws. The Minister of the Environment may refer a project to a public review panel or to mediation where warranted by public concerns or where the Minister determines a project is likely to cause significant environmental effects but it is uncertain whether such effects are mitigable or justifiable. The federal Minister of Environment would have to report annually to Parliament regarding the activities of the Agency and administration and implementation of this legislation.

The federal government's tabling of a new Canadian Environmental Assessment Act offers to plug a few major holes in the existing Environmental Review Process. The Act would grant explicit federal powers to prohibit proponents from undertaking construction of development activities until an environmental assessment is completed. Section 47 authorizes the federal Minister of Environment to prohibit by order the proponent from doing anything to carry out the project in whole or part and the Attorney General of Canada may seek a court injunction where such a ministerial order is or is likely to be contravened.

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15 The first reading of Bill C-13 has been completed and the Bill was referred to the Legislative Committee on May 29, 1991. A chairperson for the committee was appointed on May 31, 1991. (The session adjourned June 21, 1991). This Bill was formerly proposed as Bill C-78 in 1990. A Consolidated Working Draft of Amendments for Committee Review was issued on October 10, 1991.
Such federal enforcement powers, however, are limited to where a project may have significant adverse environmental effects interprovincially, internationally or on federal lands.

The proposed legislation contains broad exclusion and exception powers. Pursuant to section 6, a responsible authority is allowed to exclude projects from an environmental assessment if the project is described on the exclusion list. The Governor-in-Council is authorized through regulations to exempt projects where it is determined that the contribution of the responsible authority to projects is minimal or for reasons of national security. The legislation only guarantees assessments of projects and does not expressly require assessment of proposed government programs or policies such as Cabinet decisions. The legislated framework would continue the non-binding, recommendary nature of public reviews.

Bill C-13 not only provides for joint federal-provincial review panels, but also allows for cooperative environmental assessment with a government of a foreign state or a subdivision of a foreign state. According to proposed Section 37(3), the federal Minister of the Environment and the Secretary of State for External Affairs may enter an agreement or arrangement with another jurisdiction respecting the joint establishment of a review panel and procedures by which the assessment is to be conducted.

I. CONSERVATION

1. Migratory Birds

The Migratory Birds Convention Act\textsuperscript{16} adopts the Migratory Birds Convention signed by Canada and the United States on August 16, 1916. Migratory bird sanctuaries are established and strong measures are established to protect migratory game birds, migratory insectivorous birds and migratory nongame birds within these sanctuaries. Some permits may be issued by Environment Canada to carry on some activities within these sanctuaries, but the permit should only be issued if the activity will not interfere with the birds. Open and closed seasons for hunting migratory game birds are established.

2. **Wildlife**

National Wildlife Areas are established pursuant to the Canada Wildlife Act. Endangered species are prescribed and activities capable of interfering with wildlife within the designated wildlife areas are strictly curtailed.

3. **Marine Plants**

The Fisheries Act contains provisions for the federal Department of Fisheries and Oceans (DFO) to regulate the harvesting of sea plants. The DFO may issue a licence for one year to harvest marine plants; the Act allows the DFO to stipulate the gear used in the harvesting, the manner of harvesting, quantities of the plant taken, and the areas of coastal waters that may be harvested.

The 1991 amendments to the *Fisheries Act* have added a new twist to these provisions, however, generating concern for their constitutional validity. Previously, the Fisheries Act defined "fish" as including marine plants thus drawing marine plants into the federal legislative jurisdiction. The new amendments repeal the old definition of "fish" and replace it with a definition that does not include marine plants as "fish". The marine plant sections, themselves, remained unchanged.

New Brunswick and Nova Scotia also have statutes related to the conservation and harvesting of marine plants which are discussed in Appendix D.

4. **National Parks**

Environment Canada, through Parks Canada, regulates national parks under the National Parks Act. Recreational uses of the park are regulated and wilderness areas, protected species and threatened species are established and conserved within national parks. If a pollutant is discharged within a park without the authority of a permit, the Act places a duty on the person having care and control of the substance to take remedial measures to prevent damage to human health, flora, fauna or the environment within the park.

The federal government, in its recently released Green Plan, has set a goal of setting aside 12% of Canadian lands as parks by the year 2000. Marine parks are possible under this Act but the current focus is on establishing terrestrial parks; nevertheless, the federal government has set a goal of three marine parks.

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by 1996 (none in the Bay of Fundy) and an additional three by the year 2000 (with a proposed site in the Bay of Fundy). An existing park in New Brunswick bordering on the Bay of Fundy, Fundy National Park, at least preserves a portion of the coastline.

Some problems with the park establishment goal have been identified. In particular, the federal government may have difficulty gaining title over the land to be designated as a park particularly where federal-provincial jurisdiction is unsettled and public participation in the parks process is left up to the federal Minister of DOE’s discretion.

5. Watercourse and Fish Pass Protection

The federal Fisheries Act addresses the conservation of fish passes and watercourses. The DFO has the power to require a person obstructing a watercourse to construct and maintain fish passes with "stops" and "diverters" above and below the obstruction to avoid the destruction of fish and to aid in their ascent. The DFO may also require the owner of a watercourse obstruction to provide a sufficient flow of water over the spill way or in the sluices to the water below to permit the safe and unimpeded descent of fish.

J. Navigable Waters Protection

The Navigable Waters Protection Act\textsuperscript{19} grants to the Minister of Transport three powers over obstructions to navigation. He or she must approve and may condition the construction of structures in the water, such as wharves, structures for aquaculture sites, and pipelines and bridges. He or she must approve the dumping of fill and excavation of materials from the waterbed, which would encompass such activities as artificial island construction and harbour dredging; he or she also may require the removal of debris, such as tools and vehicles, left in the water by work-crews.

Ministerial approval could be bypassed, however, in two situations. No approval would be needed for a work constructed under the authority of an Act of Parliament and no approval would be needed for a work, not a bridge, boom, dam or causeway, which "in the opinion of the Minister, does not interfere substantially with navigation."

With regard to the approval process, discretion on the part of the Minister is predominant. No set procedures or fixed time-frame limit ministerial review of construction proposals. The Minister is free to impose conditions in permits "upon

\textsuperscript{19} Navigable Waters Protection Act, R.S.C. 1985, c.N-22, as amended by R.S.C. 1985 (2nd Supp.), c.1, s.213(1).
such terms and conditions as the Minister deems fit." The 1986 amendments to the Navigable Waters Works Regulations\textsuperscript{20} at least establish the time period for which ministerial approvals extend.

K. FEDERAL OFFSHORE LAWS

The federal government passed the Offshore Application Act an act in December, 1990,\textsuperscript{21} which clearly permits the federal government to apply federal laws to the offshore area and to any installations or structures located in the offshore area. This Act states that federal laws could be applied as if the offshore area forms part of the territory of Canada. Section 4 applies federal laws to internal waters and the territorial sea of Canada to the extent that such application is consistent with the extent and object of those laws.

In addition to this power, the Act contains provisions that would allow the federal government to apply a province's laws to the territorial sea off the coast of that province. These laws would apply as if the offshore area adjacent to the province is within the territory of that province. This provision, section 7 of the Act, has not yet been proclaimed in force; the rest of the Act was proclaimed on February 4, 1991. Consistent with the debate as to which government has ultimate control over the offshore areas, the Act states that section 7 could not be used by the provinces for jurisdictional claim over the offshore area or the living or non-living resources of that area.

\textsuperscript{20} Navigable Waters Works Regulations C.R.C. 1978, c.1232, as amended by SOR/84-182, SOR/86-966, SOR/88-461.

\textsuperscript{21} Canadian Laws Offshore Application Act, S.C. 1990, c.44. [proclaimed in force Feb.4, 1991: SI/91-18, except s.7].
## APPENDIX C:
### COMPARATIVE ASSESSMENT OF STATE LAWS

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COMPARATIVE ASSESSMENT OF STATE LAWS

I. REGULATED ACTIVITIES

Section A assesses and compares the regulatory programs of the States of Maine, New Hampshire and Massachusetts related to: (1) coastal development; (2) water quality; (3) hazardous wastes; (3) oil spills; and (5) offshore oil, gas and mineral development.

A. COASTAL DEVELOPMENT

1. Planning and Zoning Controls

Of the three Gulf of Maine states, only Maine has adopted state-wide comprehensive planning and zoning controls to protect coastal and marine resources from the impacts of development.

Maine’s Mandatory Shoreland Zoning Act\(^1\) requires municipalities to prepare Shoreland Zoning Ordinances that meet minimum state standards to control development and protect resources within "shoreland areas." Such ordinances apply within 250 feet of saltwater bodies, rivers and coastal wetlands; within 250 feet of great ponds and freshwater wetlands that exceed 10 acres; and within 75 feet of streams. The State is authorized to impose shoreline zoning ordinances upon municipalities that fail to adopt adequate ordinances.

Local governments must establish resource protection, limited residential, and stream protection zoning districts within shoreland areas. State standards require that local governments implement specific measures within these zones to protect coastal resources and water quality, including:

- construction setbacks (75-100 feet) and height limits (35 feet);

\(^1\) 38 MRSA 435-447 (DEP Ch. 1000).
- minimum lot sizes (30,000-40,000 square feet);
- minimum shoreline frontages (150-200 feet);
- maximum lot coverages (20%); and
- soil erosion and sedimentation plans to revegetate disturbed soil, implement temporary runoff controls, and install permanent soil stabilization measures.

Maine also provides financial incentives for each municipality to prepare comprehensive plans and zoning ordinances throughout their jurisdiction that meet 10 state growth management goals under the Comprehensive Planning and Land Use Regulation Act. These goals encourage orderly growth and development; protect the State's rural character; prevent sprawl; protect water quality and critical natural resources such as wetlands, wildlife, fisheries habitat, sand dunes, shorelands, scenic vistas and unique natural areas; protect marine industries, ports, and harbors; protect public access to the shore; and protect agriculture, forest resources and outdoor recreation.

Each comprehensive plan must inventory natural and recreational resources, and adopt policies and zoning ordinances that promote state goals. Plans must contain an inventory and analysis of projected growth, natural and marine resources, recreation and open space, and significant points of access. They must also contain policies to promote the State's coastal policies. Each Plan must establish growth areas and rural areas; rural areas must protect water quality, agricultural and forest resources, open space, scenic vistas and access to coastal waters. Municipalities in Maine were scheduled to complete their comprehensive plans by 1996 until funding for the program was withdrawn in December 1991.

Under Maine's Subdivision Law, local governments must ensure that subdivisions of land into three or more lots do not have undue adverse effects on:

- scenic or natural beauty;
- wildlife or natural areas;
- public rights for physical or visual access to the shoreline;
- water quality;
- soil erosion and flood zones; and
- the disposal of sewage and solid wastes.

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2 30-A MRSA 4311-4344 (DECD Chs. 200-202). These incentives were removed in December, 1991.

3 30-A MRSA 4401-4406.
Subdivisions exceeding 20 acres of 5 or more lots are reviewed by the State under the Site Location of Development Act.\(^4\)

In addition to these local zoning and planning requirements, Maine's Land Use Regulation Commission (LURC) establishes state planning and regulatory authority throughout unincorporated areas.\(^5\) These areas are mostly inland but also include about 5% of the State's coastal zone and over 200 islands. LURC has prepared a comprehensive land use plan creating protection and management zones and Wetland Protection Subdistricts. Land use standards establish minimum shoreline frontages, minimum lot sizes, and maximum lot coverage requirements, depending on sewage and slopes; LURC also requires 75-125 foot shoreline setbacks from all water bodies.

Massachusetts and New Hampshire do not utilize similar state-wide comprehensive planning and zoning requirements to address coastal issues.\(^6\) However, Massachusetts has established two regional planning and regulatory agencies, the Cape Cod Commission\(^7\) and the Martha's Vineyard Commission.\(^8\)

Both the Cape Cod and Martha's Vineyard Commissions are authorized to review local government zoning and development regulations and land use controls. Development may be prohibited within sensitive areas called Districts of Critical Planning Concern (within 500-1000 feet of the high water line, 100 feet of wetlands and streams, or unique natural areas). The Martha's Vineyard Commission prohibits septic systems, residential uses and dredge and fill activities within 100 feet of the shore, and limits permitted uses to protect water quality and prevent beach erosion. Both Commissions have direct regulatory authority over large-scale development (called Developments of Regional Impact).\(^9\) The Cape Cod Commission also has the authority to prepare a Regional Policy Plan for the entire Cape Cod area to identify critical resources, provide open space, and

\(^4\) 38 MRSA 481-490 (DEP Chs. 372-376)

\(^5\) 12 MRSA 681-689 (LURC Ch. 10).

\(^6\) New Hampshire does review subdivisions for septage and water quality impacts under its Water Pollution and Waste Disposal Law, RSA 485-A:29-44.

\(^7\) Stat. 1989, c. 716.


\(^9\) These include historic developments, bridges, roads or driveways to the coast; developments exceeding 30 units (or 10 units in Martha's Vineyard); commercial development exceeding 10,000 square feet (or 1,000 square feet in Martha's Vineyard); subdivisions of 15 or more acres; and in Martha's Vineyard, development within 100 feet of the shoreline or wetland vegetation.
establish policies to control growth, waste disposal, and protect coastal resources. The Cape Cod Commission reviews local comprehensive plans for consistency with the Regional Plan.

2. State Coastal Management Programs

Massachusetts, Maine and New Hampshire each have federally approved coastal management programs under the Coastal Zone Management Act (CZMA). This entitles each state to receive federal funding for implementing their coastal management programs, and gives the states the authority to review federal and federally permitted activities that affect their coastal zones. Each state program is "networked" to coordinate existing state programs and laws with coastal management policies that call for the protection of marine resources, critical habitats, shoreline processes, water quality, water dependent uses, and public access. The states have not adopted a centralized approach to coastal management (i.e. direct state-wide planning and regulation within the coastal zone through a "Coastal Commission").

The Maine and New Hampshire coastal management programs are administered by their state planning offices. The Massachusetts' coastal program is located in the Executive Office of Environmental Affairs and therefore is on equal footing with other executive department agencies. The Massachusetts program implements state coastal policies by assisting agencies in the promulgation of regulations to assure consistency with state coastal policies and enjoys a more central role in assuring effective and coordinated implementation of state coastal management policies than the Maine and New Hampshire programs. Although Maine has enacted legislation requiring all state, federal and local agencies to conduct their activities consistent with state coastal policies, it has not established an mechanism to implement these policies.

Each state program reviews federal, federally-funded, and federally-permitted activities that affect their state's coastal zone to assure consistency with enforceable state coastal polices. In Massachusetts, consistency reviews are

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10 16 USC 1451-1464.

11 In 1990, New Hampshire received $.5 million, Maine $1.2 million, and Massachusetts $1.5 million in federal CZMA funds.

12 For example, the Massachusetts coastal program comments on environmental impact reports, and prepares coastal management regulations implemented by other Executive agencies, such as the tidelands and wetlands rules of the Division of Wetlands and Waterways. The coastal management programs of the other states lack this authority and therefore do not play as central a role.

13 38 MRSA 1801-1803.
conducted by the coastal program office, while Maine and New Hampshire consistency reviews are conducted by other executive department agencies and coordinated through the coastal program office.

3. Coastal Facility Site Review

Maine reviews large-scale development under the Maine Site Location of Development Act (buildings with footprints in excess of 60,000 square feet, the development of 10 units or more of housing, and subdivisions exceeding 20 acres). Large-scale projects must meet the following state standards:

- development must fit harmoniously into the environment and not adversely affect existing uses, scenic character, open space, air and water quality, or other natural resources. Secondary and cumulative impacts must be considered;

- development must not cause unreasonable soil erosion, nor inhibit the natural transfer of soil or movement of sand within sand dune systems. Sediment must be removed from runoff waters, sediment and erosion control plans must be prepared and implemented, and stormwater management systems must be properly designed;

- buffer zones must be established to protect adjacent waterbodies; and

- adequate water supplies, sewerage and solid waste disposal must be provided.

New Hampshire, also requires a state permit, site plan, and water quality and runoff protection measures for subdivisions and developments that alter more than 100,000 square feet of terrain (or that undertake construction "in or on the border" of surface waters). Massachusetts has no comparable state-wide law that regulates large scale development (with the exception of the Massachusetts Environmental Policy Act, see below).

Massachusetts and New Hampshire have established state boards for licensing energy facilities and assuring that such facilities do not have adverse

14 38 MRSA 481-490 (DEP Chs. 372-376).

impacts on coastal waters. In Maine, energy facilities are licensed by the Board of Environmental Protection under the Site Location of Development Act and BEP air quality rules.

4. Environmental Impact Assessment

Massachusetts is the only Gulf of Maine state that requires environmental impact reports (EIRs) for certain state activities, permits and assistance programs. The Massachusetts Environmental Policy Act (MEPA) requires the Secretary of Environmental Affairs to determine whether projects cause a significant impact upon the environment; if so an EIR must be prepared and the Secretary must certify that "all feasible measures have been taken to avoid or minimize" the environmental impacts of the project. EIRs are required for all dredging projects that exceed 10,000 cubic yards of material, wetland alterations exceeding one acre, non-water dependent projects on tidelands or submerged lands, and marina projects exceeding 250 slips.

MEPA requires that EIRs analyze reasonable alternatives and contain feasible measures to minimize environmental impacts. The Preparation of EIRs are not required where an EIS is prepared under National Environmental Policy Act or where the Secretary finds that an EIR would cause "undue hardship."

B. Water Quality Controls

1. Ocean Dumping

Maine, Massachusetts and New Hampshire regulate ocean dumping through state clean water laws and statutes regulating the disposal of dredged material. These laws supplement the regulation of ocean dumping activities by the EPA and Army Corps of Engineers under the Ocean Dumping Act and Clean Water Act.

Each state has adopted a water classification system for inland and marine waters based upon water quality standards in which discharges are generally

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17 MGLA 30:61-62H (301 CMR 11.00).

18 Environmental Notification Forms (ENFs) must be filed with the Secretary for smaller coastal related projects (such as dune alterations, dredge and fill operations, armoring coastal banks, small marinas, sewage discharges and mineral extractions). These projects may require EIRs if the Secretary finds that they will have a significant impact on the environment.
prohibited in the highest rated waters (A or SA waters). Discharges are permitted in waters classified B or C so long as they do not lower the classification.

Massachusetts requires that the disposal of dredged material or wastes, and the filling of state waters, be licensed and supervised by the Division of Water Pollution Control. Unreasonable degradation or endangerment of the marine environment is prohibited. Massachusetts prohibits dumping (except specially authorized municipal wastes) in the State's five designated ocean sanctuaries, and open ocean dumping in other offshore areas is permitted only in low-energy, sandy sites and only if there are no significant biological impacts or adverse impacts on fisheries. 

Ocean dumping of dredged spoils must occur only within designated sites.

Maine regulates ocean dumping through its Natural Resources Protection Act, but requires only that the dredged spoils be tested, transportation routes minimize adverse impacts on the fishing industry, and disposal sites be geologically stable. The disposal of dredged spoils into sites approved by the Army Corps of Engineers pursuant to Section 404 of the federal Clean Water Act is exempt from state discharge requirements.

New Hampshire regulates ocean dumping under the Water Pollution and Waste Disposal Law and the Filling in Public Waters Law. Ocean dumping and dredge and fill activities are licensed by the Division of Water Supply and Pollution Control and the Wetlands Board, but specific ocean dumping standards are not provided.

2. Discharges from Vessels

Section 312 of the federal Clean Water Act prohibits the discharge of untreated sewage from marine sanitation devices into coastal waters. States may adopt more stringent controls, and prohibit all discharges from holding tanks (even if chlorinated) into marine waters, only if they have an approved program that requires and provides vessel pump out facilities. Massachusetts and Maine

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19 Dredged Material Disposal and Filling in Waters, MGLA 21:27(12), 21:42, 91:52-56 (310 CMR 9.26, 9.40, 314 CMR 9.00). Dredging is prohibited between March and June to protect fisheries and must otherwise be conducted in a manner that protects fisheries and shellfish beds.

20 38 MRSA 480-D(9) and E.


22 33 USC 1322.
require marinas to provide pump out facilities for cleaning out holding tanks and disposing of sewage and sanitary wastes, but New Hampshire does not.23

Discharges into both fresh and salt waterbodies from holding tanks are prohibited in Massachusetts, but Maine and New Hampshire prohibit such discharges only into fresh waters.24 Maine and Massachusetts prohibit the use of Tributyltin as an antifouling agent.25

3. Point Source Pollution

Massachusetts, Maine and New Hampshire have each adopted comprehensive clean water laws that:26

- prohibit unlicensed discharges of pollutants from pipes, outfalls and other discrete conveyances;
- license, regulate and fund the construction, operation and maintenance of sewage treatment facilities and water pollution abatement projects;
- establish a water classification system for all inland and marine water with minimum water quality standards;27
- establish a waste discharge license system with effluent limitations for discharges into surface waters; and

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23 Massachusetts requires that marinas provide one sewage pumpout facility for every 50 berths and boatyards must provide adequate oil, grease and sediment traps. MGLA 91:59B, 310 CMR 9.39. Maine requires pumpout facilities only for marinas with at least 18 slips or moorings for vessels that exceed 24 feet in coastal waters. 38 MRSA 423.


25 38 MRSA 419-A.


27 Each classification has standards for dissolved oxygen, coliform bacteria, shellfish harvesting, and direct discharges. Generally, direct discharges are prohibited into highest rated (A) waters; lowest rated (C) waters must be suitable for fishing and secondary contact recreation.
monitor water quality and conduct scientific research.

Regional Water Quality Planning. Massachusetts has established a program for reducing, controlling, and eliminating discharges into state waters through the preparation of comprehensive river basin and regional plans. Maine authorizes the formation of Lake and Coastal Watershed Districts to acquire property, conduct research, establish assessment districts, and adopt programs to manage and protect water quality and aquatic resources on a watershed basis. Maine also requires water quality planning in local comprehensive plans. New Hampshire has a Water Protection Assistance Program to encourage municipalities to prepare water resource management and protection plans to plan water supply projects, identify potential threats to local water quality and supplies, and design management strategies.

Septic Waste Disposal. Massachusetts has adopted minimum state standards for individual sewage disposal systems licensed by local boards of health. The Massachusetts Wetlands Protection Act generally prohibits subsurface sewage disposal systems within and adjacent to (within 100 feet of) coastal and freshwater wetlands. The State's environmental code requires 100 foot setbacks from surface water supplies and 50 foot setbacks from other water bodies.

In Maine, individual septic systems are regulated by local plumbing inspectors licensed by the Department of Human Services pursuant to the State Plumbing Code. Single family lots with septic systems must be at least 20,000 square feet, be set back at least 100 feet from water bodies, and have a minimum 100 foot shoreline frontage. Maine also prohibits new overboard discharges of residential sewage (discharges of domestic pollutants not treated in municipal
sewage plants or subsurface septic systems) and has established a program to fund the elimination of existing residential and commercial overboard discharges.\textsuperscript{34}

New Hampshire licenses subdivisions and individual septic systems to prevent pollution of public and private water supplies (small residential systems designed and installed by the owner are exempt).\textsuperscript{35} Septic systems must be set back at least 75 feet from wetlands. However, the regulations allow 25 feet of wetlands to be filled to comply with the 75 foot setback requirements.\textsuperscript{36} New Hampshire requires that sellers of waterfront property provide septic system assessments to prospective buyers to determine if the site meets current standards.

**Land Application of Sludge.** Massachusetts permits the land application of sludge and septage only for "beneficial purposes" (providing nutrients or improving the quality of soil to grow vegetation).\textsuperscript{37} Land application must also be adequately stabilized and set back to prevent seepage into surface waters.

Maine requires each municipality to dispose of its own sludge and septic wastes subject to state standards and provides for stabilization and setback requirements for land spreading to prevent seepage into surface waters and groundwater aquifers.\textsuperscript{38} Property owners may discharge residential septage onto their property twice a year provided it is at least 300 feet from property boundaries or surface waters.

**Interstate Pollution Control.** Maine, Massachusetts and New Hampshire all belong to the New England Interstate Water Pollution Control Compact.\textsuperscript{39} The Compact creates the New England Interstate Water Pollution Control Commission to abate existing and future pollution of interstate inland and tidal waters. The Commission coordinates interstate water pollution control efforts of the member states through interstate forums on water related environmental issues; reviews state water classification systems; maintains a water quality sampling and testing network; contracts with states to perform specific regulatory

\begin{itemize}
\item \textsuperscript{34} 38 MRSA 414-A. Existing overboard discharges may be relicensed if state funds are unavailable, if there are no alternatives, and if discharges are not into redeemable shellfish beds. DEP Ch. 596.
\item \textsuperscript{35} WS 1004. Subdivisions are required to provide 30,000-70,000 square foot minimum lot sizes.
\item \textsuperscript{36} WS 1007.04 and Wt 303.08.
\item \textsuperscript{37} MGLA 21:43 (310 CMR 32.00).
\item \textsuperscript{38} Waste Management, 38 MRSA 1301-1310B (Chs. 420, 567).
\item \textsuperscript{39} Maine (38 MRSA 491-537); Massachusetts (MGLA 21, App. 1-5); and New Hampshire (RSA 484:17-26). Other member states include Connecticut, New York, Rhode Island, and Vermont.
\end{itemize}
and planning functions; and establishes standards and programs for training, educating and certifying operators of waste water treatment plants.\textsuperscript{40}

4. Nonpoint Source Pollution

Massachusetts, Maine and New Hampshire have all adopted Nonpoint Source (NPS) Management Plans pursuant to Section 319 of the federal Clean Water Act. These Plans coordinate existing state laws and regulations, and generally contain the following components:

- they describe existing NPS pollution control strategies;
- list priority waters impaired or threatened by NPS water pollution;
- identify the most important categories of NPS pollution within the state;
- define best management practices (BMPs) for each NPS category; and
- establish a schedule to implement NPS pollution control strategies.

Massachusetts, Maine and New Hampshire have also adopted groundwater protection strategies that include groundwater classification and discharge licensing systems. New Hampshire has also recently adopted a wellhead protection program to protect groundwater resources that supply public drinking water.\textsuperscript{41}

Each state has a program to monitor existing and license new underground storage tanks to prevent leakage of toxic and hazardous wastes into surface and

\textsuperscript{40} Massachusetts and New Hampshire also participated in the Northeastern Water and Related Land Resources Compact, which was formed to conduct research, resolve interstate conflicts and coordinate policies on water and related land resources. The Northeastern Water and Related Land Resources Compact, MGLA 91 App:4-1, 4-2; RSA 484:13-16. Maine is not a participant. It is uncertain whether the Compact is still active.

\textsuperscript{41} The wellhead protection program increases inspection and enforcement and prohibits new landfills, junkyards, septage lagoons and other activities within designated groundwater areas. Personal Communication, Ann Poole, New Hampshire Nonpoint Source Program, February 1, 1991.
groundwater systems. Massachusetts also requires service stations and marinas to accept waste oil and have waste oil retention facilities to prevent discharges into sewers and waters.

Erosion control mechanisms and BMPs are key elements in addressing the impacts from NPS pollution. New Hampshire requires state alteration of terrain permits for excavations that exceed 100,000 square feet and border on surface waters, and requires the preparation of erosion and sedimentation control plans. However, smaller projects may be reviewed by local governments without the implementation of erosion control BMPs. Maine provides comprehensive erosion controls through a number of existing laws. Massachusetts, however, has no comprehensive state-wide erosion and sedimentation control requirements.

Maine, Massachusetts and New Hampshire have established voluntary soil and water conservation districts to conserve soil, water, wildlife and related natural resources, and to prevent soil erosion, flooding and sediment damage. Districts may conduct surveys, research and demonstration projects, acquire property, prepare comprehensive plans, and implement watershed-wide preventive and control measures.

New Hampshire is the only state that has established a program to control acid rain by reducing sulfur dioxide emissions by 50% by the year 1995.

C. HAZARDOUS WASTES

Maine, Massachusetts and New Hampshire each have hazardous waste management programs that:

42 Maine Underground Oil Storage and Ground Water Protection Law, 38 MRSA 561-570; Massachusetts Rules, 527 CMR 9.00. The New Hampshire program, however, only regulates tanks over 1,100 gallons. Local governments are encouraged to develop BMPs and inventories for smaller tanks (for home heating oil, for example). RSA 146-C. New EPA regulations will apply federal standards to tanks over 250 gallons.

43 Large scale projects exceeding 60,000 square feet and subdivisions exceeding 20 acres require sedimentation plans and permanent erosion control measures under the Site Location Law; in smaller subdivisions undue soil erosion is prohibited under the Subdivision Law. Municipalities must designate resource protection zones under the Mandatory Shoreland Zoning Act in which development and clearing vegetation within 250 feet of high value wetlands, on slopes exceeding 20 degrees, and in areas subject to severe erosion is prohibited. And "unreasonable" erosion is prohibited within and adjacent to all wetlands, rivers, lakes and tidal waterbodies under the Natural Resources Protection Act.

44 Maine, 12 MRSA 1-200; New Hampshire, RSA 430-B1-10. The Massachusetts program is non-statutory.

license hazardous waste operators and the transportation of hazardous wastes within the state;

- license the siting of facilities to dispose of hazardous wastes and require setbacks from water bodies;

- identify and clean up hazardous waste sites; and

- administer a hazardous waste cleanup fund.46

In addition, Massachusetts requires voter approval for the construction of nuclear power plants and siting facilities for the disposal or storage of low-level radioactive wastes.47 The State Legislature must also certify that there exist adequate means for the disposal of radioactive wastes.

Maine has specifically rejected the location of high-level radioactive wastes within the State,48 and requires special legislative and voter approval of facilities for the disposal and storage of low-level radioactive wastes.49 Maine has also developed a program requiring facilities that use hazardous or toxic wastes to reduce such wastes by 30% by the year 1997.50 Massachusetts has also adopted a Toxic Use Reduction Act requiring the preparation of toxic use reduction plans.51

New Hampshire has no special legislation that limits the location of nuclear power plants or the disposal of radioactive wastes within its boundaries. It relies on federal controls.

46 The Massachusetts Hazardous Waste Management Act, MGLA 21C:1-14 (310 CMR 30.00, 314 CMR 8.00); the Maine Hazardous Matter Control Law, 38 MRSA 1317-1319, 1361-1371, 1401-1404 (DEP Chs. 800-860); and the New Hampshire Hazardous Waste Management Program, RSA 147(A-D) (NHAR He-P 1905).


48 38 MRSA 1461A-1466.

49 38 MRSA 1479 and 1493.

50 The Toxic Use Reduction Law, 38 MRSA 2301-2312.

51 MGLA 211:1-23.
D. OIL SPILL PREVENTION

Maine, New Hampshire, and Massachusetts each have comprehensive oil pollution prevention laws. These laws provide for licensing oil terminal facilities and vessels used to transport oil and:

- prohibit the discharge of oil into state waters;
- assign principal responsibility to the state for cleaning up spills;
- administer an oil spill fund for clean-up costs, uncompensated damages, and third party damages (except for Massachusetts);
- provide unlimited liability for damages incurred by third parties, clean up costs and natural resources;
- require strict liability for petroleum facilities and handlers for costs and damages incurred from spills, and stiff civil and criminal penalties; and
- limit responder liability, under good Samaritan provisions, for persons who undertake cleanup operations without charge or at the state’s request, unless willfully or grossly negligent.

Only Maine requires the preparation and approval of oil spill contingency plans for all licensed terminals. Terminal contingency plans must include a comprehensive plan to cleanup spills, a list of abatement equipment available for cleanup activities, a procedure to notify the state and affected persons, and methods for disposing of recovered wastes. The Maine Department of Environmental Protection is authorized to conduct unannounced drills to determine the adequacy of response plans. Maine also subjects terminals to liability for spills from vessels within 12 miles of shore.

52 Maine Oil Discharge Prevention and Pollution Control Law, 38 MRSA 541-560 (DEP Chs 600-680); Massachusetts Oil Terminals, Pollution Prevention Law, MGLA 21:27(14), 50-50B, 91:59-59A (314 CMR 15.00); and New Hampshire Oil Spillage in Public Waters Law, RSA 146-A:1-15, 146-D:1-9 (NHAR Ws 402, 404, 410-411).

53 The new federal Oil Pollution Act establishes a National Planning and Response System that requires, among other things, Area Contingency Plans to assure the removal of worst case spills, and Tank Vessel and Facility Response Plans reviewed by the federal government for all vessels and facilities. (See Appendix A).

54 38 MRSA 552(2).
Although Maine does not have a State Oil Spill Response Plan the Governor has the authority to declare a state of emergency under the Maine Civil Emergency Preparedness Act should an oil spill occur. An appendix to the State's overall emergency response plan dealing specifically with oil spills is being drafted. It is uncertain how the plan will coordinate the actions of the Maine Emergency Management Agency and the Maine Department of Environmental Protection.

Massachusetts has a State Contingency Plan for oil and hazardous materials that establishes notification and cleanup procedures. Although the State does not require licensed terminals to have oil spill contingency plans, it does have the authority to require terminals to have suitable equipment available for a spill. Maine and Massachusetts require that boom devices be deployed around all vessels transferring petroleum products and require state approval for the use of dispersants.

Massachusetts and New Hampshire have limited bonding requirements for facilities and vessels entering state ports which may be applied to costs for removing and containing spills; Maine has no financial responsibility requirements. However, the new federal Oil Pollution Act of 1990 establishes uniform requirements that financial responsibility by vessel owners and onshore facilities be demonstrated through a number of measures, including evidence of insurance, surety bonds, and letters of credit.

E. OFFSHORE OIL/GAS/MINERAL DEVELOPMENT

Massachusetts and Maine require state exploration and extraction permits for the exploration and development of offshore oil, gas, and minerals. Massachusetts prohibits offshore drilling and mining within its five established ocean sanctuaries and in other offshore areas such activities must not

55 37-B MRSA 701-806.


57 310 CMR 40.00.

58 MGLA 21:50.

59 Massachusetts Mineral Resources, MGLA 21:54-56; Maine Mining on State Lands, 12 MRSA 541-550.
"unreasonably interfere with navigation, fishing or conservation of natural resources."

Maine’s Submerged Lands Leasing Law does not address the conservation of marine resources nor specifically address the impacts from proposed sand and gravel mining operations. New Hampshire’s permit requirements for the removal of sand and gravel from beneath navigable waters only provides for the protection of public and private rights. In Massachusetts, sand and gravel mining is prohibited in shellfish and finfish spawning and feeding areas, areas that serve as a source of sediment for beaches, and where it would adversely affect waves and currents.

II. PROTECTED AREAS

The following section describes the laws and programs of the States of Maine, New Hampshire and Massachusetts affecting protected areas within the coastal and marine environment of the Gulf of Maine with respect to: (1) coastal wetlands and sand dune areas; (2) tidelands and submerged lands; (3) marine sanctuaries; (4) critical coastal areas; (5) coastal wildlife protection; and (6) coastal acquisition and recreation.

A. COASTAL WETLANDS AND SAND DUNE PROTECTION

Maine regulates uses within coastal and freshwater wetlands, sand dune systems, rivers, streams and significant wildlife habitats under one statute, the Natural Resources Protection Act (NRPA). State permits are required for construction activities within "protected natural areas" (sand dune systems and significant wildlife habitats), and within or "adjacent to" all coastal wetlands, freshwater wetlands and great ponds exceeding 10 acres, and rivers and streams with watersheds exceeding 25 miles. Maine’s Mandatory Shoreland Zoning Act requires local governments to establish "resource protection" zones within 250 feet of moderate or high value wetlands, within which residential and commercial

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60 310 CMR 29.00.

61 Leases of submerged lands in Maine must not unreasonably interfere with public access or public trust rights to intertidal lands, navigation, fishing or other existing marine uses, diminish the availability of commercial fishing services and facilities, or the ingress and egress of riparian owners. Maine Submerged Lands Leasing Law, 12 MRSA 558-A(2).

62 See 12 MRSA 558(A)-559.

63 38 MRSA 480 A-S (DEP Chs. 310, 343-345, 355).
development is prohibited. Activities affecting freshwater wetlands and ponds under 10 acres are regulated by local governments.64

In Massachusetts, development affecting coastal and inland wetlands is regulated by local governments pursuant to standards established under the Wetlands Protection Act.65 The State implements the Protection of Coastal Wetlands Law (now called the Wetlands Conservancy Program)66 and the Inland Wetlands Restriction Act67 which authorizes the adoption of regulatory orders imposing restrictions upon selected coastal and inland wetlands. Subsequent development must comply with state orders as well as local government permit reviews.

The Massachusetts Wetland Protection Act requires local governments or conservation commissions to regulate alterations within freshwater wetlands exceeding 5,000 square feet, all coastal wetlands, beaches, dunes, rivers, lakes, lands under said waters, or lands subject to tidal action or coastal flooding. Activities within 100 foot buffers of such areas may be regulated. Activities outside the 100 foot buffer zones may only be regulated after they "actually alter" such areas. Local government actions may be appealed to the Massachusetts Department of Environmental Protection.

In New Hampshire, the State Wetlands Board regulates dredging, filling and construction activities within and adjacent to (within 100 feet of the highest observable tide line) coastal wetlands, sand dunes, and state waters.68 In addition, the Board regulates activities within freshwater wetlands of any size but does not have fixed buffer zones. Local governments are authorized to designate "prime wetlands," within and adjacent to which no "significant" net loss of wetland values may occur. "Adjacent" is defined on a case-by-case basis depending on the impacts of the activity.

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64 Projects within these wetlands are also regulated by the Army Corps of Engineers pursuant to Section 404 of the Clean Water Act, 33 USC 1344. (See Appendix A)

65 MGLA 131:40-45 (310 CMR 10.00).

66 MGLA 130:105 (302 CMR 4.00).

67 MGLA 131:40A (302 CMR 6.00).

68 Fill and Dredge in Wetlands Law, RSA 482-A:1-27 (NHAR Wt 100-800).
1. Wetland Standards

Massachusetts has adopted stringent standards protecting inland wetlands by generally prohibiting the destruction of vegetated wetlands and wetlands habitat. The destruction of up to 5,000 square feet of bordering vegetated wetlands is permitted, but only if replaced on a 1:1 basis.70

Maine and Massachusetts prohibit unreasonable adverse impacts on coastal wetlands. Massachusetts prohibits projects within or adjacent to (within 100 feet) salt marshes from destroying "any portion" of the wetland or adversely affecting productivity, and applies a "no net loss" wetlands policy as part of its federal consistency review process. Maine prohibits activities that would cause a loss in "wetland area, functions and values" if there are less damaging "practical alternatives," and has established mitigation banking and wetland compensation programs.71

New Hampshire's no net loss of wetlands policy is applicable only to projects that significantly affect "prime" freshwater wetlands mapped by local governments.72 Dredging in coastal wetlands is only permitted between November 15 - March 15. Fill in freshwater wetlands not exceeding 3,000 square feet or 5% of the affected wetland, and excavation of ponds less than 1 acre, are considered minimum impact projects.

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70 310 CMR 10.55.

71 Mitigation is required if wetland functions are lost at a minimum 1:1 ratio for restoration, enhancement or creation of Class II or III wetlands; at a minimum 2:1 ratio for Class I wetlands; and at a minimum 8:1 ratio for preservation of existing wetlands. A mitigation banking program may also be established to compensate for up to 25 acres of wetland alterations. DEP Ch. 310. Class I wetlands include all tidal and subtidal lands and areas containing threatened or endangered species or habitats of such species. Class II wetlands are areas within 250 feet of coastal wetlands with at least 20,000 square feet of marsh vegetation or open water, or floodplain wetlands. All other wetlands are Class III wetlands.

72 RSA 482-A:11. "Prime" wetlands are defined in the Board’s wetland regulations (Wt 701). Generally, they must contain important wetland values and be of "substantial significance . . . because of their size, unspoiled character, fragile condition, or other relevant factors." RSA 482-A:15.
2. Dune Construction and Sea Walls

Maine prohibits unreasonable soil erosion and sedimentation and the inhibition of the natural transfer of soil from the terrestrial to the marine environment. Sea walls and all other structures within frontal dunes or v-zones are prohibited, but sea walls along banks are permitted so long as they do not unreasonably affect beach sediment or shoreline processes.

Massachusetts requires that construction within or adjacent to (within 100 feet) coastal dunes must not adversely affect dune forms, vegetation or stability, or impede the lateral and seaward migration of sand. Sea walls on coastal dunes are generally prohibited. Sea walls on coastal banks are permitted to prevent storm damage to buildings in existence prior to 1978, but only if no other protective measures are feasible. Construction within 100 feet of coastal banks must not adversely affect the movement of sediment and must preclude the future use of sea walls or bulkheads.

New Hampshire prohibits construction on sand dunes and the alteration of sand dunes or dune vegetation, but has no specific policies prohibiting the construction of sea walls.

3. Wildlife Habitats

Maine’s Natural Resources Protection Act prohibits unreasonable harm to fisheries and significant wildlife habitat, including plant or aquatic habitat with respect to development within or adjacent to coastal wetlands and freshwater wetlands exceeding 10 acres. Massachusetts wetlands laws also prohibit adverse effects on marine fisheries and wildlife habitat from projects within or adjacent to fresh or coastal wetlands, and the interference with bird nesting habitat on sand dunes.

New Hampshire is authorized to consider the impacts of development in or near wetlands on wildlife habitat, but specific guidance and standards are not provided.73

4. Recreational Uses

Maine prohibits the unreasonable interference with scenic, aesthetic, recreational or navigational uses, including established public rights of access. These provisions apply to fresh and saltwater wetlands, great ponds, rivers,

73 For a complete discussion of the wildlife habitat provisions of state and federal wetland laws, including the laws of Canada and the Provinces of Nova Scotia and New Brunswick, see Kurland, "Habitat Mitigation Efforts in the Gulf of Maine."
streams, and significant wildlife habitats.\textsuperscript{74} Massachusetts has extensive recreational requirements for projects within tidelands in its Chapter 91 licensing provisions.\textsuperscript{75} The New Hampshire Wetlands Board is authorized to consider impacts upon navigation, aesthetics, abutting owners, water quality, flooding, recreation and other public benefits, but no definitive standards are established. New Hampshire wetlands law also requires that filling below the high tide line protect public rights.

5. **Barrier Beach Systems**

Maine has established a Coastal Barrier Resources System which prohibits the expenditure of state funds for development within barrier beaches designated under the U.S. Coastal Barrier Resources Act.\textsuperscript{76} Massachusetts Executive Order 181 prohibits state investment on barrier beaches, except for the maintenance of navigational channels. New Hampshire has no barrier beach law but few, if any, undeveloped barrier beaches remain within the state.

B. **Tidelands/Submerged Lands Management**

Maine and Massachusetts own all submerged lands seaward of the low-water mark or 1,650 feet seaward from the high tide line, whichever is further landward. Intertidal lands, between the low and high tide line, are privately owned by the riparian property owner subject to a public easement for fishing, fowling and navigation.\textsuperscript{77} New Hampshire owns submerged lands seaward of the high tide line.

Maine manages state-owned submerged and intertidal lands under the Submerged Lands Leasing Law\textsuperscript{78} and has relinquished title to and public trust rights in all submerged and intertidal lands filled before October 1975.\textsuperscript{79} The Submerged Lands law prohibits filling state intertidal or submerged lands unless there are no "practical alternatives," no reasonable opportunities to relocate, and public trust rights are not impaired. Privately owned intertidal lands are protected by comparable standards under the Natural Resources Protection Act.

\textsuperscript{74} 38 MRSA 480-D. However, it only applies to freshwater wetlands that exceed 10 acres.

\textsuperscript{75} See Massachusetts Public Waterfront Act under Tidelands/Submerged Lands Management.

\textsuperscript{76} Coastal Barrier Resource System Law, 38 MRSA 1901-1905.


\textsuperscript{78} 12 MRSA 558-573.

\textsuperscript{79} 12 MRSA 559.
The Massachusetts Public Waterfront Act\textsuperscript{80} requires state tidelands licenses for uses on filled as well as flowed tidelands and applies public trust rights of fishing, fowling and navigation to filled tidelands, so long as such lands are not landlocked (i.e. landward of the first public road or no more than 250 feet from the high tide line, whichever is further landward).

New Hampshire manages its submerged lands under the Conveyance of Property Under Water Law.\textsuperscript{81} No specific requirements for protecting public rights or water dependent uses have been established.

1. Public Benefits

The Director of the Maine Bureau of Public Lands is authorized to require public benefits from submerged lands leases, such as public access and recreational facilities, but rules have not yet been promulgated that specify how such benefits should be provided.\textsuperscript{82}

Massachusetts, on the other hand, has adopted extensive regulations providing public benefits for leasing public tidelands and submerged lands. Tidelands permits (known as Chapter 91 licenses) are required for any filling, altering, or new construction, as well as any change in use, continuation of use not previously authorized, or expired use. All uses must be for a "proper public purpose" and must protect public rights by:

- not significantly interfering with navigation and rights to swim over public and private tidelands;
- providing continuous lateral public access rights on private and filled tidelands for fishing, fowling, and navigation;
- allowing public swimming, strolling and other recreational activities on "public" tidelands and submerged lands; and
- allowing public access to private marinas, and requiring that public slips, moorings and facilities be provided.

\textsuperscript{80} MGLA 91:1-63 (310 CMR 9.00).

\textsuperscript{81} RSA 4:40(a-e).

\textsuperscript{82} The Director of the Bureau may refuse to lease submerged lands where it would interfere with customary or traditional public access ways to, or public trust rights in, on or over intertidal or submerged lands.
2. Water Dependent Uses

Maine encourages the use of its submerged lands for commercial fishing and other water dependent uses by leasing submerged lands for such uses at 1%–2% of fair market value (compared to 10% for upland or non-water dependent uses). It also requires that leases do not unreasonably interfere with navigation, fishing and other existing marine uses, and do not diminish the availability of services and facilities for commercial marine activities. Maine also limits the conversion of existing water dependent uses to non-water dependent uses on submerged lands or state-owned tidelands.

In Massachusetts, water dependent uses on tidelands are preferred and are provided extensive protections. Non-water dependent uses must not disrupt or diminish the capacity of land to accommodate water dependent uses, must devote reasonable portions for water dependent uses including public pedestrian access, must promote public uses, must be primarily for public purposes, and must provide 1:1 open space. Private non-water dependent uses are prohibited on flowed tidelands or on the ground level of structures within 100 feet of the shoreline.

3. Underwater Archeological Resources

Massachusetts and New Hampshire have legislation regulating the exploration, removal and salvage of underwater archeological resources.

4. Aquaculture

Maine, Massachusetts, and New Hampshire have adopted laws for leasing submerged lands for aquaculture. The Maine Aquaculture Leasing Act establishes a procedure for leasing state-owned intertidal and submerged lands for finfish and shellfish aquaculture and resolving use conflicts. Aquaculture must not

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83 The fair market value of submerged lands is based upon the assessed value of the adjacent upland parcel multiplied by the reduction factor based upon the use of the leased submerged land. 12 MRSA 558-A(2)(A).

84 Conversion to non-water dependent uses is permitted only if there are no unmet demands for water dependent uses, there are no alternative sites, and public trust rights are not impaired.

85 The Massachusetts Underwater Archeological Resources Act, MGLA 6:179-180 (312 CMR 2.00), creates the Massachusetts Board of Underwater Archeological Resources. New Hampshire asserts title to historic resources under state waters pursuant to RSA 227-C:6-8. The federal government has delegated to states the authority to preserve shipwreck sites under the Abandoned Shipwreck Act, 43 USC 2101-2106.

86 12 MRSA 6071-6074 (DMR Ch. 2).
unreasonably interfere with the ingress and egress of riparian owners, navigation, fishing and other uses of the area, or public use and enjoyment within 1000 feet of public beaches, parks and docks. Leases must be located at least 2000 feet from other aquaculture sites or fish weirs.

Maine also provides for extensive environmental controls of aquaculture sites. Prior to issuing leases, the bottom must be surveyed, sampled and a video must be made. Aquaculture operations are prohibited in SA waters and viscera must be disposed only in authorized locations. Finfish aquaculture sites should provide for 10 foot clearance from the bottom, .1 knot minimum currents, and biannual infauna benthic surveys. The State must certify, prior to transporting marine organisms into state waters (such as salmon smolts), that indigenous marine life and its environment will not be endangered by bacteria, fungus, virus or other infectious diseases or parasites. In addition, all imported eggs must be disinfected and certified "disease free."

New Hampshire also requires that persons wishing to conduct finfish or shellfish aquaculture operations on tidelands or submerged lands obtain a license. Aquaculture operations must not cause the deterioration of natural or established runs of anadromous fish, and prior to release into state waters, all fish must be examined by a qualified pathologist to certify that they are disease free. However, there are no provisions for assessing water quality impacts or resolving use conflicts from aquaculture operations.

Massachusetts has no state-level finfish aquaculture leasing law. Municipalities are authorized to issue shellfish licenses for aquaculture operations on or above submerged lands, and must be compatible with public uses and navigation.

C. MARINE SANCTUARIES

Massachusetts is the only Gulf of Maine state that has established offshore ocean sanctuaries. Maine and New Hampshire have not established a comparable mechanism for identifying or protecting areas of ecological significance in the marine environment.

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87 Aquaculture, RSA 211:62-c.

88 The Director of the Division of Marine Fisheries is authorized to issue permits for raising and harvesting finfish in connection with aquacultural enterprises. MRSA 130:17B.

89 MRSA 130:68A.
The Massachusetts Ocean Sanctuaries Act\textsuperscript{90} creates five ocean sanctuaries covering all state offshore waters, with the exception of the area between Lynn and Marshfield. Within these sanctuaries, Massachusetts prohibits exploiting, developing, significantly altering, or endangering the ecology or appearance of the ocean, seabed or subsoil. The Act prohibits:

- the location of structures on the seabed or subsoil;
- offshore electric generating stations;
- the drilling for or removal of oil, gas or minerals. Sand and gravel may only be removed for shore protection or restoration projects; and
- the incineration and dumping of wastes (except for municipal wastes if there are no feasible alternatives, no harm to marine resources, the wastes are pretreated, and a plan is implemented to control combined sewer overflows). Discharges from existing facilities are permitted.

D. CRITICAL AREAS

Massachusetts, Maine and New Hampshire have each adopted programs for designating critical areas.\textsuperscript{91} In Massachusetts, Areas of Critical Environmental Concern (ACEC) may include coastal areas, fishery habitats, estuarine wetlands, natural areas and sensitive inland areas. Special permits are not required for developments in ACECs, but stringent performance standards are imposed under existing laws.\textsuperscript{92} Scientific information is gathered within ACECs and all state, state regulated, or state funded projects must be reviewed under the Massachusetts Environmental Policy Act.

\textsuperscript{90} MGLA 132A:12A-18, 302 CMR 5.00, 310 CMR 9.27.

\textsuperscript{91} Massachusetts Areas of Critical Environmental Concern, MGLA 21A:2(7) (301 CMR 12.00); The Maine Critical Areas and Endangered Plants Program, 5 MRSA 3310-3316; and the New Hampshire Areas of Particular Concern Program, a non-statutory program within the State’s coastal program.

\textsuperscript{92} For example, activities within ACECs that require Chapter 91 licenses or wetlands permits must have “no adverse impacts,” and improvement dredging and the disposal of dredged material is prohibited. In addition, ACEC waters are designated “SA” with strict antidegradation and discharge standards.
Maine has adopted a non-regulatory Critical Area and Endangered Plants Program that establishes a Register of Critical Areas and Heritage Coastal Areas.\(^93\) The Maine Register of Critical Areas contains an inventory of sites containing plant and animal life or geological features worthy of preservation, and other areas of significant natural, scenic, historical or scientific value. Such areas are recommended for protection through voluntary conservation agreements and state acquisition, although the program contains no funds for acquisition. Property owners must consent to designations and approve any protective measures taken.

Heritage Coastal Areas are established in areas that contain geological, botanical, zoological, historical, or scenic features of exceptional state or national significance. The Heritage Coastal Area Program, like the Critical Areas Program, is voluntary and relies on acquisition, conservation agreements with owners, and special considerations from government agencies for protection. Although no funds for acquisition are provided, Critical Areas and Heritage Coastal Areas receive priority consideration under the Land for Maine's Future Program.

The New Hampshire Coastal Program has established a non-statutory program to designate Areas of Particular Concern (APCs) including, coastal and estuarine waters, tidal and freshwater wetlands, floodplains, beach and sand dunes, rocky shores, unique natural areas, the Port of Portsmouth, and the shoreline of Great and Little Bay "Areas for Restoration Preservation" may qualify for acquisition or additional regulation and three salt marsh areas totalling over 600 acres have been so designated by the Great Bay Research Reserve Program.

New Hampshire has enacted a Native Plant Protection Act and Natural Heritage Inventory,\(^94\) prohibiting the unauthorized taking of native plants found to be endangered, threatened, or of special concern. These species may be placed on a Natural Heritage Inventory. The destruction of species on the Inventory located on public lands or the lands of another are subject to civil and criminal penalties, although landowners are not prohibited from removing listed plants from their property. Massachusetts protects endangered and threatened plant species under its Endangered Species Act.\(^95\) Maine is authorized to list endan-

\(^93\) 5 MRSA 3310-3316.

\(^94\) RSA 217-A:1-12 (NHAR RES-N 100-300).

\(^95\) MGLA 131:26A (321 CMR 8.00-9.00).
gered and threatened plant species for informational purposes under its Critical Area and Endangered Plants Program.  

E. COASTAL WILDLIFE PROTECTION

Massachusetts, Maine and New Hampshire each have adopted endangered species laws to supplement the federal Endangered Species Act. Massachusetts authorizes the Division of Fisheries and Wildlife to prepare a list of endangered and threatened species, or species of special concern. The list may include fish, birds, mammals, reptiles, amphibians, or plants and currently includes some marine species (2 species of sturgeon and 6 species of whale). Massachusetts recently substantially strengthened its Endangered Species Law by providing for the designation of "significant habitats" for the conservation of threatened and endangered species. The Director must certify that any proposed alterations will not reduce the viability of such habitats to support endangered or threatened populations. Massachusetts has identified portions of Stellwagen Bank and Cape Cod Bay as a special habitat for the endangered northern right whale.

Maine protects significant wildlife habitats, including waterfowl, seabird, shorebird and salmon spawning habitats, under the Natural Resource Protection Act, and has also adopted an endangered species law to designate threatened and endangered species and protect essential habitats. The Commissioner of the Maine Department of Inland Fisheries and Wildlife must approve projects within essential habitats that require state or local government action to ensure that habitats are not altered and that protections for designated species are not violated.

Maine has no non-federally designated marine species on its endangered species list, except two shore bird species (the least tern and the piping plover). The roseate tern and 2 non-federally designated turtle species are listed as

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96 5 MRSA 3310-3316.

97 Protection of Endangered Species of Wild Animals, MGLA 131:26A (321 CMR 8.00-9.00), as amended by Stat. 1990, c. 408. The Division may also notify the Department of Environmental Protection to take special steps to protect inland fishery resources by preventing the discharge of wastes. MGLA 131:41-42.

98 Massachusetts also authorizes the acquisition and designation of property owned by the Commonwealth as wildlife sanctuaries, in which hunting, fishing, firearms, garbage dumping, and fires are prohibited. MGLA 131:7-10 (321 CMR 7.00).

99 38 MRSA 480 A-S (DEP Chs. 310, 343-345, 355).

100 12 MRSA 7751-58 (DIF&W Ch. 8).
threatened. Maine lists the golden eagle as well as the federally-designated bald eagle as endangered. Maine currently has the only substantial population of bald eagles in the northeastern United States, and has mapped and protects eagle nesting sites from "significant alterations and unreasonable harm." 101

New Hampshire has adopted an Endangered Species Conservation Act to protect endangered and threatened wildlife species, including marine mammals, but excluding other marine species. 102 The Act authorizes the State to initiate conservation programs to protect endangered and threatened species including acquisition, limitations on takings, restrictions upon boat traffic, and agreements with other state, local and federal agencies.

F. COASTAL ACQUISITION AND RECREATION

Massachusetts, Maine and New Hampshire have a number of programs that provide for the preservation and public use of coastal property through acquisition and local government assistance programs. In addition, Massachusetts and Maine have adopted laws that encourage the recreational use of private property by limiting landowner liability for the public use of private land.

The Massachusetts Coastal Facilities Improvement Program provides assistance to towns to undertake harbor and waterfront improvements or prepare harbor improvement plans. 103 Grants may be issued by the State Coastal Zone Management Office to fund 50% of local costs up to $2 million (funds were exhausted in 1987). Improvements must be used for public facilities for fishing, shellfishing, marine commerce, marine recreation or public access, but may not be used for dredging.

The Massachusetts Self-Help Program provides assistance to local conservation commissions for 80% of the costs for acquiring land to protect natural resources and provide outdoor recreation. 104 In 1987, the State approved a $55 million bond to fund the program. However, applications submitted by cities


103 MGLA 21F:1-7 (301 CMR 22.00).

104 MGLA 132A:11 (301 CMR 5.00, 7.00).
and towns for the remaining $16 million in the Program are being returned because of the State's current fiscal crisis.105

Maine has no specific program for acquiring coastal property but established a $35 million bond program to acquire land throughout the state for recreational and conservation purposes under the Land for Maine's Future Law.106 The law establishes priorities for properties with high recreational and scenic values, undeveloped shorelands, wetlands, habitats for endangered or threatened plant and animal species, and lands that provide public access to recreational opportunities. The $35 million bond program is nearly exhausted and in 1990 the voters rejected a bond measure for an additional $18 million.107

Most of New Hampshire's shoreline is publicly-owned.108 The State has established a Land Conservation Investment Program to acquire lands and interests in lands of statewide, regional, and local conservation and recreation importance for preservation, protection and public access purposes.109 These lands may include aquifer recharge areas, watersheds, recreational lands, areas of special scenic beauty, plant and wildlife habitats, undeveloped shorelines, wetlands, flood storage areas and other important open space and natural resource areas. The Program establishes a trust fund for land acquisition. The Program is scheduled to terminate in June 1993 unless renewed by the Legislature.

105 "Funding cut curtails open-land program," Boston Globe, January 27, 1991 at 25. The article estimates that since 1962, the Program has spent $52 million to fund 1,124 projects in 231 communities, preserving more than 37,000 acres of land and water. Id. at 27. In addition to the Self-Help Program, the Massachusetts Division of Conservation Services designates conservation districts to establish educational programs and voluntary controls to preserve renewable resources, including fisheries and wildlife, erosion and flood controls, and water conservation. MGLA 21:18-25. The Division of Marine Fisheries and the Division of Fisheries and Wildlife are also authorized to acquire land to protect marine fisheries and wildlife. MGLA 130:17(8).

106 5 MRSA 6200.

107 Other state programs for acquiring lands for public recreation are administered by the Bureau of Public Lands (for public recreation, wildlife and timber); the Bureau of Parks and Recreation (for state parks); the Department of Economic and Community Development (for community parks and recreation programs); and the Department of Inland Fisheries and Wildlife (for habitat restoration, particularly wetlands, and boat access). DIF&W currently manages over 16,000 acres of wetlands and has programs in place to purchase additional areas.

108 The New Hampshire Coastal Program notes that 78% of the State’s Atlantic shoreline is under public ownership and 60% of the land within 1,000 feet of the shoreline is publicly owned or managed.

The Massachusetts Public Access Board is an interagency board that designates areas to be acquired for public access to great ponds and other waters as well as trails and paths for snowmobiling, hiking, skiing or other uses. Acquisition and operation of such public access areas are chargeable to a Public Access Fund. New Hampshire also has an interagency Right-of-Way Board to implement the State's Right-of-Way to Recreational Waters Law. The Law requires the Board to review all transactions by state agencies to acquire or dispose of any land to assure that rights-of-way to state waters for boating, bathing, fishing, or other recreational uses are retained and provided.

Massachusetts and Maine have also enacted laws that limit the liability for landowners who allow the public use of their land for recreational purposes. In Massachusetts, owners are not liable for injuries to persons or property while on their land except for willful, wanton, or reckless misconduct, and owners owe no duty to either licensees or invitees.

Under Maine law, landowners, lessees or occupants owe no duty of care to protect persons entering their land for recreational or harvesting activities from injury due to the condition of the premises; no duty to keep their property in a safe condition for the benefit of the public; and no duty to warn the public about potential dangers on the property. The law encourages hunting, fishing, hiking, boating, swimming, clamming or simply going to the beach for recreational purposes. Liability protection is not afforded to owners who receive compensation or engage in willful or malicious conduct. Protected landowners who are sued and found not liable under these provisions are entitled to compensation from the plaintiff for their legal costs, including attorneys' fees.

Persons who grant public access rights pursuant to New Hampshire's Land Conservation Investment Program are not liable for injuries suffered on those lands except for willful or wanton misconduct.

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110 MGLA 21:17A.
111 RSA 230:72-73.
112 MGLA 21:17C.
113 14 MRSA 159-A.
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COMPARATIVE ASSESSMENT OF PROVINCIAL LAWS

A. DEVELOPMENT AND PLANNING

1. Provincial Planning Legislation

Neither New Brunswick nor Nova Scotia specifically addresses coastal zone management in provincial planning legislation. Although some environmental issues related to planning and development are allowed or required to be addressed within New Brunswick and Nova Scotia's legislation in the form of policies, this does not constitute coastal zone management.

In Nova Scotia, municipalities have primary authority over all planning issues pursuant to the Planning Act. The provincial Department of Municipal Affairs is able to develop provincial land use policies regarding the use and protection of land resources including coastal areas. However, no such policies have been issued. If such a policy were issued by the provincial government, the affected municipalities would have to incorporate it into their municipal planning strategies. For now, municipalities may include environmental considerations in their individual municipal planning strategies but are not required to do so.

The New Brunswick Community Planning Act divides the province into seven planning regions. A plan for each region must be developed and must contain policies for the orderly economic, social and physical development of the region, including policies on the control and abatement of all forms of pollution in the natural environment and the management of water resources. Individual municipalities within the seven regions are required to develop plans that include statements of policy on the development and use of land in the municipality, the

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1 Planning Act, R.S.N.S. 1989, c. 346.

2 Community Planning Act, R.S.N.B. 1973, c.C-12, as am. by S.N.B. 1974, c.6 (Supp.); 1977, c.M-11.1, s.4; 1978, c.11; 1979, c.9, e.41, s.19; 1980, c.9; 1981, c.6 (Sch.A), c.11; 1982, c.3, s.9; 1983, c.8, s.6, c.18; 1984, c.39; 1986, c.6, s.6, c.8, s.23; 1987, c.6, s.9; 1989, c.8, c.55, s.26; 1990, c.22, s.6, c.61, s.24.
conservation and improvement of the physical environment, the control and abatement of all forms of pollution of the natural environment, and the provision of municipal services such as sewage collection, treatment and disposal, water supply and distribution and garbage disposal. The municipalities must also develop zoning by-laws to regulate building development and standards of pollution control. Should an area not be incorporated as a municipality, the Lieutenant-Governor in Council has the power to plan for these areas. Developments that contravene the Community Planning Act can be stopped and will incur penalties.

The Community Planning Act does not comprehensively address coastal issues. Not many municipalities have used the Act's planning tools to control or guide settlement in the coastal zone. The Act does not require developments on the coast to be setback unless the property has been designated as a floodplain. Municipalities are not required by the Act to enforce any regulation of development along their coasts; the Act only provides that municipal regulation of building developments is possible.

2. Other Efforts Toward Land Use Planning

Nova Scotia has established a Land Use Committee with various departments involved including Fisheries, Natural Resources and Environment. Nova Scotia has been developing a coastal zone management strategy for fifteen years and hopefully, the new Coastal Zone Issue Group under the Land Use Committee will be able to implement some of these strategies. Also, Nova Scotia's Department of Environment has proposed changes to the Planning Act in its Minister's Task Force on Clean Water report released July 24, 1991, and as outlined more fully later, some changes are aimed at integrating land use planning with water quality control.

In New Brunswick the Land and Water Advisory Committee represents many provincial government departments and other interested parties. This Committee has drafted a policy document with seven proposed guiding principles. Also, New Brunswick's Policy Secretariat chaired an inter-departmental committee to

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3 From a report by Laura Johnson of the New Brunswick Department of Environment, Coastal Zone Management: A Review of Relevant Literature and Legislation (September 1990, unpublished), at 18.

4 Id.

5 Id. at 23.
beachfront development. (The committee's recommendations will be reviewed later in this report). The New Brunswick Natural Resources and Energy Coastal Zone Mapping Program has produced hard copy maps of biological, geological and physical aspects of New Brunswick's coastal zone.

3. **Land Registration and Information Service (LRIS) and the FMG Resource and Environmental Database**

LRIS, a cooperative effort by the Council of Maritime Premiers, is based in Amherst, Nova Scotia. LRIS is intended to become a database regarding the maritime coastal zone to serve a broad spectrum of needs: coastal infrastructure, resource management, planning, conflict resolution, environmental impact assessment, emergency response, etc. The ultimate objectives of LRIS are (i) to input and structure hydrographic, topographic and thematic digital data in a manner appropriate for Geographic Information System analysis and hard copy output, (ii) to develop a directory to coordinate the coastal zone data and information, and (iii) to facilitate or provide access to the coastal zone data and information. LRIS does not provide land use planning and coastal zone management but allows others to make informed land use and coastal zone management decisions. The government of Nova Scotia has committed $300,000 to LRIS and coastal zone mapping for the '91-'92 fiscal year.

The FMG Project integrates a broad cross-section of environmental, resource and socio-economic information for the Bay of Fundy - Gulf of Maine - Georges Bank (FMG) Region. The digital database consists of maps, geographically-referenced numerical data and text files. The maps include such topics as bathymetry, bedrock and surficial geology, bottom sediments, physical and chemical oceanography, fish species distribution, political and administrative boundaries, and population and land use characteristics. It also addresses critical resource and environmental issues such as marine and coastal pollution, ocean dumping, acid rain and aquaculture sites. The FMG Database was funded through the federal Department of Supply and Services with contributions from other Canadian federal government departments, the Council of Maritime Premiers and Texaco Canada Resources Ltd.

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6 *Id.*

7 From a discussion paper prepared by LRIS for the Coastal Zone Information Workshop in Amherst, Nova Scotia, on July 25, 1991.

8 *Id.* at 3.

9 *Id.* at 13.
4. Environmental Impact Assessment

Both New Brunswick and Nova Scotia include environmental impact assessment within their legislation.

New Brunswick's environmental impact assessment (EIA) requirements are contained within the *Clean Environment Act*¹⁰ (CEA) and a regulation made thereunder. The CEA requires registration of certain proposed undertakings which may not commence without approval of the provincial Minister of Environment. The undertakings enumerated in the CEA include mineral developments, offshore oil drilling, some pipelines, causeways and multispans bridges, sewage treatment and disposal facilities, ports, harbours, radioactive materials facilities, facilities that commercially process timber resources, and all undertakings affecting any unique, rare or endangered features of the environment. An EIA may be waived by the Minister of Environment. If an EIA is required, the public has input in the preparation of the guidelines for the EIA and during the review of the EIA. The proponent of the undertaking actually conducts the EIA and submits it to the Minister. The Minister may or may not approve the undertaking or may impose conditions. If the approval is violated the CEA imposes a duty on the proponent to report the violation and remedy the effects of such violation. The Minister has the right to withdraw approval of an undertaking if the terms of an approval have been violated.

The Nova Scotia *Environmental Assessment Act*¹¹ and regulations govern EIAs. The Minister of Environment determines environmental significance and whether an EIA is required. The Regulations in Schedule A specifically provide that certain undertakings are of particular concern including: industrial facilities for dangerous goods; large chemical and hydrocarbon storage facilities; facilities that chemically treat timber resources; fish meal plants; permanent hazardous waste treatment sites; projects involving the transfer of water between drainage sites; petrochemical plants; oil refineries; dismembering-rendering plants; radioactive materials facilities; heavy water plants; water reservoirs exceeding a certain storage capacity; any undertaking disrupting a total

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¹⁰ *Clean Environment Act*, R.S.N.B. 1973, c.C-6, as am. by S.N.B. 1974, c.4 (Supp.); 1975, c.12; 1976, c.19; 1983, c.17; 1985, c.6; 1986, c.3; 1987, c.6, s.3; 1989, c.52; 1990, c.61, s.21. *Environmental Impact Assessment Regulation* N.B. Reg. 87-83, as am. by 87-108.

of 2 hectares or more of wetland; and facilities for the extraction or processing of minerals, coal, oil shale, peat moss, gypsum, etc. Upon registration of an undertaking, the Minister may provide approval or require either a preliminary report or a full environmental impact assessment. The proponent prepares and submits the preliminary report and EIA, if either or both are required. Criteria are set out in the statute that the Minister must consider when determining whether an EIA for an undertaking is required. The Act also provides some of the guidelines for the EIA, itself. The Minister of the Environment may appoint a committee to review the EIA Report or may refer the Report to the Environmental Control Council which requires public consultation. If the Minister approves the undertaking, the Minister may still impose requirements regarding environmental monitoring and rehabilitation of the affected environment.

B. POLLUTION CONTROL

1. Water Quality Control

   Point Source Pollution

   Nova Scotia and New Brunswick attempt to control point source water pollution through environmental12 and water protection13 legislation. These statutes prohibit pollution of water by any person, including a corporation, unless that person has obtained a permit from the relevant provincial environment department. In New Brunswick and Nova Scotia, this legislation specifically prevails over any other legislation that would purport to allow pollution of water.

   New Brunswick’s legislation more specifically targets the coastal zone, stating that it applies to all waters of the province including "coastal water within the jurisdiction of the Province, ground water and surface water." Nova Scotia’s legislation more vaguely refers to the coastal zone, stating that no person may pollute "into or in any well, aquifer, lake, river, stream, creek, pond, spring, lagoon, swamp, marsh, wetland, reservoir or other body of water or watercourse or on any shore or bank thereof...". The general term "other body", theoretically, could be construed to include marine waters but this is not clear.

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12 Environmental Protection Act, R.S.N.S. 1989, c. 150. Clean Environment Act, R.S.N.B. 1973, c.C-6, as am. by S.N.B. 1974, c.4(Supp.); 1975, c.12; 1976, c.19; 1983, c.17; 1985, c.6; 1986, c.6, s.3; 1987, c.6, s.7, c.11; 1989, c.52; 1990, c.61, s.21.

Nova Scotia’s legislation is more extensive than New Brunswick’s legislation in that it not only prohibits the addition of pollutants into the environment without a permit, it also requires a permit for the removal of any material from the environment if the removal causes or tends to cause pollution. Such provisions could be very helpful in controlling dredging activities, erosion from building activities and pollution from submarine aggregate mining activities.

Violation of the terms of a permit is not necessarily an offence for which the permittee would be prosecuted. If the terms of a permit are violated in Nova Scotia, the provincial Minister of Environment may issue an order to require the facility or person to comply with the terms of the permit or other terms the Minister may wish to impose. Violation of such a ministerial order is an offence and prosecution may be commenced. While this system of ministerial orders does slow down the sanctioning process, one of its benefits is that it allows the province to negotiate with the permittee for compliance with the relevant standards.

Sewage Control: Pursuant to municipal legislation, individual municipalities are responsible for sewage collection and disposal in Nova Scotia and New Brunswick. Neither province specifically prohibits the discharge of untreated household waste and sewage into the marine environment; indeed, this is a common practice in the maritimes. Theoretically, general prohibitions on water pollution could be used to force municipalities to treat their sewage but this has not been done. Both provinces do offer financial assistance to municipalities wishing to construct sewage treatment works. This offer, however, leaves the installation of sewage treatment solely up to the initiative of municipalities.


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14 Municipal Act, R.S.N.S. 1989, c.295. Municipalities Act, R.S.N.B. 1973, c.M-22, as amended by R.S.N.B. 1974 (Supp.), c.33; S.N.B. 1975, c.40; 1976, c.40; 1977, c.34, c.35, c.M-11.1, s.19; 1978, c.D-11.2, s.29, c.41, c.41; 1979, c.41, s.88, c.47, c.M-21.01; 1980, c.32, s.28; 1981, c.52; 1983, c.8, s.24, c.54; 1984, c.9; 1985, c.4, s.46, c.17, c.61; 1985, c.A-7.11, s.41 (not yet proclaimed); 1986, c.8, s.83.


16 Health Act, R.S.N.S. 1989, c. 195. On Site Sewage Disposal Regulations N.S. Reg. 135/82, as am. by N.S. Reg. 161/86. Health Act, R.S.N.B. 1973, c.H-2, as am. by S.N.B. 1974, c.19 (Supp.); 1975, c.27; 1976, c.11; 1979, c.32, c.V-3, c.41, s.60; 1980, c.24; 1982, c.N-11; 1983, c.8, s.14, c.37; 1985, c.4, s.29; 1986, c.4, s.24, c.8, s.53; 1987, c.R-0.1, c.6, s.38, c.24; 1988, c.24, s.62; 1990, c.22, c.8, c.61, s.59. General Regulation N.B. Reg. 88-200, as am. by N.B. Reg. 89-132, 90-43.
Nova Scotia establishes minimum lot sizes for installation of on-site sewage disposal systems. A health officer is involved in the planning process for the installation of the system and must consider effects on watercourses and the ocean specifically. Nova Scotia further allows a health officer to order the removal of any "nuisance" from a beach or any boat or vessel, including sewage and human refuse.

New Brunswick licences the construction of on-site sewage disposal systems and prescribes minimum lot sizes able to hold on-site sewage disposal systems. Pipes for sub-surface disposal fields must be more than 1.2 metres above the high water mark of any watercourse or body of water. The field, itself, may not be located closer than 75 metres from a potable water supply and 15 metres from the shore or high water mark of a lake, stream or body of water not used as a potable water supply.

Litter Abatement: Nova Scotia prohibits the discharge, release, throwing away or emission of litter into the environment, including water, by any person. The legislation specifically prohibits littering by contractors during construction or demolition of a building and littering from facilities and buildings. New Brunswick does not have similar provisions other than general prohibitions against water pollution.

Salvage Yards: New Brunswick and Nova Scotia both target point source pollution from salvage yards.

Nova Scotia’s Salvage Yards Licencing Act requires all salvage yards to be licensed. The salvage yards must comply with Nova Scotia’s environmental and water protection regulations and they must not be located within 500 feet of a public bathing beach and other recreational sites.

New Brunswick has the Unsightly Premises Act which calls upon owners and occupiers of all premises within the province to maintain their properties. Salvage yards may not be located within 300 metres of public bathing beaches.

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18 Salvage Yards Licencing Act, R.S.N.S. 1989, c. 410. Licencing Regulations Unpublished

19 Unsightly Premises Act, R.S.N.B. 1973, c.U-2, as am. by S.N.B. 1975, c. 64; 1977, c. M-11.1, s.29; 1986, c.8, s.128; 1989, c.55, s.50; 1990, c.22, s.52, c.61, s.141.
Water Quality Areas: New Brunswick and Nova Scotia have the legislative power to designate an area around water works or a potable water supply as protected and to implement protective measures. Because these provisions apply only to water works or potable water supplies, their application to pollution control in the marine environment is obviously limited.

Non-Point Source Pollution

Neither New Brunswick nor Nova Scotia has legislation which specifically addresses non-point source pollution. Both provinces have pest control products legislation to regulate the application, use, sale, handling and disposal of pest control products within their jurisdictions. Other non-point sources of pollution, such as road salting and sanding, are within the regulatory jurisdictions of the municipalities.

Pest Control Products: Both provinces regulate pest control products by requiring licences for applicators and permits for applications. Nova Scotia exempts the "generally accepted ordinary activities of farms, individuals and households" from these provisions. Aerial applications, aquatic applications and the handling, use and disposal of pest control products contrary to label directions resulting in air, soil, or water contamination require permits. New Brunswick requires permits for applications within any area of the province including land and water bodies, except ground application to a person’s own property, including agricultural land.

2. Hazardous Wastes Management

Nova Scotia provides for extensive management of hazardous wastes. Under the Dangerous Goods and Hazardous Wastes Management Act, Nova Scotia regulates the sale, storage, use, handling and disposal of certain designated dangerous goods and hazardous wastes. The regulations list many substances as dangerous goods, including explosives, organic peroxides, compressed gases, spontaneously combustible substances, radioactives, "environmentally hazardous" substances, and "dangerous wastes". The Act and its regulations specifically target

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21 Pest Control Products Act, R.S.N.S. 1989, c. 341.

22 Pesticides Control Act, R.S.N.B. 1973, c.P-8, as am. by S.N.B. 1976, c.45, 1979, c.54, 1982, c.3, s.55, c.48; 1986, c.8, s.96; 1987, c.4, s.11, c.6, s.79, c.40; 1989, c.55, s.41; 1990, c.61, s.106.

23 Dangerous Goods and Hazardous Wastes Management Act, R.S.N.S. 1989, c.118 as amended by S.N.S. 1990, c.27.
the handling and disposal of PCBs, waste oil and contaminated waste oil, and petroleum products. The regulations include specific standards for the storage and handling of these substances, and also include general prohibitions such as: "No person shall cause, suffer or permit the dumping, depositing, dropping, throwing, discharging or leaving of petroleum products in such a manner that it may contaminate soil or water or may be carried away with run-off water of surface drainage." In the event of spillage or discharge of one of these substances the Act and regulations impose a duty on persons responsible for the substance to notify the provincial Minister of Environment and to remedy the spillage or discharge. The Minister of Environment may also take remedial action if any of these substances are discharged; the legislation allows the Minister to recover the costs of the cleanup and preventative measures from the person responsible for the substance in court. The legislation requires licencing of hazardous waste and dangerous goods treatment and disposal facilities, and bulk petroleum plants are required to develop contingency plans. Notably, the Act and its regulations, with a few exceptions, do not apply to "accepted ordinary activities of individuals, households and farms."

New Brunswick addresses the storage of petroleum products, pursuant to a regulation issued under the Clean Environment Act. Licences must be obtained for petroleum product storage sites and the provincial Department of Environment assesses the environmental sensitivity of the site before granting the permit. Petroleum storage at marinas is also controlled under this regulation and standards are designed to prevent spills caused by damage to tanks or piping from ice, debris or flooding. The owner of a marina is also required to submit to the Minister of Environment proof of liability insurance, covering at least one year. If the Minister determines that the system poses a serious threat of pollution, the Minister may increase the amount of insurance required.

3. Offshore Oil, Gas and Mineral Development

As noted previously, the federal and Nova Scotia governments have entered into a joint accord for the management of oil and gas development in the offshore area adjacent to Nova Scotia. The agreement, implemented through the Canada - Nova Scotia Offshore Petroleum Resources Accord Implementation Act establishes joint management of the resource through the Canada - Nova Scotia Offshore Oil and Gas Board. In the Accord, Nova Scotia agreed to adopt

24 Petroleum Product Storage and Handling Regulation N.B. Reg. 87-97, as am. by N.B. Reg. 88-51, 88-251, 88-273.
the standards of the federal *Oil and Gas Production and Conservation Act*\(^{26}\) (OGPCA) into its own legislation.\(^{27}\)

The OGPCA contains measures to reduce marine pollution from offshore oil and gas development. Regulations are designed to prevent waste of the resource and to reduce damage to the natural environment, whether it is physical damage to the seabed from structures or damage from pollutants. Operators of offshore facilities must draft development plans before commencing operations which must be approved by the Chief Conservation Officer. Operators must also develop environmental protection plans for the protection of the environment from oil or gas, pollutants or waste materials discharged during operations. The regulations impose a duty to report spills, accidents or loss of hydrocarbons. Operators must have proof of financial capability to carry through the project and to leave the site as provided in the original development plan. Operators are absolutely liable for all damages resulting from spills but the regulations limit the amount of liability; for the Bay of Fundy region, an operator's liability for a spill is limited to $30 million.

In addition to these regulations the Canada - Nova Scotia Offshore Oil and Gas Board has "Offshore Waste Treatment Guidelines."\(^{28}\) These guidelines are intended to provide operators with technical guidance to assist in compliance with the standards of the OGPCA. Wastes from offshore petroleum exploration or production installations should be treated and disposed of according to the standards in these guidelines.

Nova Scotia and the federal government have agreed to a moratorium for exploration and drilling on Georges Bank which will last until January 1, 2000. According to the *Canada - Nova Scotia Offshore Petroleum Resources Accord Implementation Act*, Section 141, the Board is to establish a panel by January 1, 1996 to publically review the moratorium. This public review is to consider all viewpoints, including economic, social and environmental perspectives, and is to make recommendations to the Board regarding the continuance of the moratorium.


\(^{28}\) Published January, 1989.
New Brunswick provides for regulation of offshore oil and gas development in its *Oil and Natural Gas Act*. Through this Act the provincial Department of Natural Resources and Energy issues licences for exploration, drilling and leasing of offshore areas. The Act imposes a duty upon the licencee to take remedial action for any damage done and allows the Department to take remedial action if an operator does not stop or prevent the escape of oil or natural gas from a well. Also the Department is able to shut down a well pending an inquiry into the well's operations. In the last few years, only one exploration for petroleum resources has occurred in the offshore area adjacent to New Brunswick.

New Brunswick also had an agreement with the federal government regarding offshore oil and gas development. In February, 1977, New Brunswick signed a Memorandum of Understanding in Respect of the Administration and Management of Mineral Resources Offshore of the Maritime Provinces with the federal government and the other Maritime provinces. When the federal government entered into the Accord with Nova Scotia on March 2, 1982, and negotiated exploration agreements for the Northumberland Strait in 1983, New Brunswick was forced to recognize that the federal government had abandoned the MOU and its obligations thereunder. In 1983, New Brunswick advised the federal government that New Brunswick's agreement to the terms of the defunct MOU in no way derogated from their claim over the offshore area.

Offshore aggregate mining is becoming a possibility in Nova Scotia. The Nova Scotia department of Natural Resources is considering entering into a Memorandum of Understanding (MOU) with the federal government, similar to the MOU on aquaculture that will be discussed later in this section, which would provide for the effective development and management of the industry. As with aquaculture, environmental regulation of the industry would likely rest primarily with the federal government.

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29 *Oil and Natural Gas Act*, S.N.B. 1976, c.O-2.1, as am. by 1977, c.M-11.1, s.21; 1979, c.41, s.89; 1983, c.8, s.26; 1984, c.53; 1985, c.4, s.52, c.19, c.M-14.1, s.134; 1986, c.4, s.39, c.8, s.91; 1987, c.6, s.75; 1990, c.61, s.96. Survey System Regulation N.B. Reg. 86-190. Geophysical Exploration Regulation N.B. Reg. 86-191. Licence to Search and Lease Regulation N.B. Reg. 86-192.

30 Based on a telephone conversation with Laura Johnson of the N.B. Department of Environment.

31 This information is contained in a letter dated April 27, 1983, from Gerald S. Merrithew, New Brunswick Minister of Natural Resources (as the department was then called) to Jean Chretien, then Federal Minister of Energy, Mines and Resources.
4. Transportation of Dangerous Goods

New Brunswick and Nova Scotia both have statutes governing the land transportation of dangerous goods. The statutes simply adopt the standards of the federal Transportation of Dangerous Goods Act and impose liability on employers for the offences of employees. Nova Scotia's statute further imposes liability on corporate officials for offences committed by the corporation.

C. Conservation

I. Tidelands/Submerged Lands Management

Crown Ownership

In New Brunswick and Nova Scotia, the ownership of lands below the high tide mark is vested in the Crown, (the government), and are not owned privately. A jurisdictional dispute between the federal and provincial governments has arisen because it is not constitutionally established that either the provincial or federal governments have exclusive control over tidelands/submerged lands for the purpose of legislation. A mixture of federal and provincial regulation of tidelands/submerged lands has emerged. The federal and provincial governments have formally coordinated only one aspect of management of this area, aquaculture, through joint Memorandum of Understandings (MOUs).

Tidelands/Submerged Lands Management

Nova Scotia has a number of statutes dealing with the management of the foreshore. Two of these statutes, the Oyster Fisheries Act, and the Beaches and Foreshores Act, are no longer used but have remained as part of Nova Scotia's legislation. The Crown Lands Act is the statute managing all provincial lands under the authority of the provincial Department of Natural Resources: leases and permits for activities on the foreshore are actively issued through this Act. Other statutes which govern the foreshore and submerged lands

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34 Oyster Fisheries Act, R.S.N.S. 1989, c.330.

35 Beaches and Foreshores Act, R.S.N.S. 1989, c.33.

that are actively in use are the *Beaches Act*,\textsuperscript{37} the *Aquaculture Act*,\textsuperscript{38} and the *Sea Plants Harvesting Act*.\textsuperscript{39} These statutes are discussed further below.

New Brunswick no longer uses the *Oyster Fisheries Act*\textsuperscript{40} to licence areas of the foreshore and harbours and bays for oyster cultivation. These provisions, as in Nova Scotia, will be contained within the new *Aquaculture Act*.\textsuperscript{41} New Brunswick manages all provincial Crown lands through its *Crown Lands and Forests Act*\textsuperscript{42} under the provincial Department of Natural Resources and Energy.

**Marine Plants Harvesting**

Both New Brunswick and Nova Scotia have statutes controlling the harvesting of irish moss\textsuperscript{43} but neither of these statutes is actually used. New Brunswick repealed all of the regulations issued under its statute and Nova Scotia has never published its regulations nor amended them since 1973. In practice, the federal Department of Fisheries and Oceans (DFO), pursuant to the marine plants harvesting provisions of the federal *Fisheries Act*, regulates the harvesting of irish moss along the coasts of New Brunswick and Nova Scotia. New Brunswick may be interested in reclaiming control over irish moss harvesting from the federal government.

For marine plants other than irish moss, Nova Scotia implements the *Sea Plants Harvesting Act*.\textsuperscript{44} This Act controls the harvesting of rockweeds and kelp but not irish moss or eel grass. It requires commercial harvesters of these plants to obtain licences from the provincial Department of Fisheries and leases

\textsuperscript{37} *Beaches Act*, R.S.N.S. 1989, c.32.

\textsuperscript{38} *Aquaculture Act*, R.S.N.S. 1989, c.18 as amended by S.N.S. 1990, c.23.

\textsuperscript{39} *Sea Plants Harvesting Act*, R.S.N.S. 1989, c.416.

\textsuperscript{40} *Oyster Fisheries Act*, R.S.N.B. 1973, c.O-7, as am. by S.N.B. 1983, c.3, s.8; 1986, c.8, s.94; 1990, c.22, s.37, c.61, s.101.

\textsuperscript{41} *Aquaculture Act*, S.N.B. 1988, c.A-9.2, as am. by S.N.B. 1990, c.22, s.3, c.61, s.9.

\textsuperscript{42} *Crown Lands and Forests Act*, S.N.B. 1980, c.C-38.1, as am. by S.N.B. 1982, c.3, s.38; 1984, c.21; 1985, c.10; 1986, c.8, s.26, c.27; 1987, c.15; 1990, c.22, s.10, c.61, s.30.


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for areas of the solum. All harvesters must ascribe to enumerated standards during harvesting to ensure regrowth and a sustained yield of plants.

**Aquaculture**

Nova Scotia has a Memorandum of Understanding (MOU) with the federal government coordinating the development of commercial aquaculture within Nova Scotia. Nova Scotia’s *Aquaculture Act*\(^{45}\) governs the licensing of the aquaculture industry and leasing of submarine areas for aquaculture sites. Applications for aquaculture licences are reviewed by many provincial and federal departments. The provincial Department of Fisheries, in conjunction with the federal Department of Environment and the Environmental Protection Service, tests and confirms the water quality and potential health hazards of the aquaculture site before licensing the aquaculture activity. In addition, the Act contains provisions that allow the Nova Scotia Governor-in-Council to establish and protect the water quality in an aquaculture area such that anyone depositing a deleterious substance in the area would require approval to do so. As yet, the Governor-in-Council has not established any water quality protection areas; prevention of pollution of all fish habitat, including aquaculture sites, remains with the federal Department of Fisheries and Oceans under the federal *Fisheries Act*. The *Aquaculture Act* also regulates oyster fishing which was previously the sole responsibility of the federal Department of Fisheries and Oceans.

New Brunswick’s *Aquaculture Act* and its regulations have been recently proclaimed\(^{46}\) and New Brunswick also has a MOU with the federal government. The MOU establishes a Canada - New Brunswick Aquaculture Management Committee and sets out procedures for the orderly development of aquaculture in New Brunswick. New Brunswick licences and leases aquaculture activities and the federal government comments on provincial licencing and leasing activities. Both governments are responsible for industry compliance with the relevant statutes. Licences issued by New Brunswick may contain additional terms and conditions concerning measures to be taken by the licensee to minimize the risk of environmental degradation from aquaculture.

2. **Critical Areas**

Both New Brunswick and Nova Scotia protect areas of land through a system of provincial parks and both provinces protect special or critical ecological areas.

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\(^{46}\) The *Aquaculture Act* and its regulations were proclaimed in November, 1991.
New Brunswick and Nova Scotia’s systems of parks\(^{47}\) are much the same. Both provinces may acquire land for use as a provincial park to provide for public recreation facilities and for the conservation of flora and fauna. Many activities that would harm or kill flora and fauna or harm their habitat are restricted or prohibited.

For conservation of critical ecological areas, Nova Scotia has enacted the *Special Places Protection Act*.\(^{48}\) This Act designates ecological sites that (i) represent natural ecosystems, (ii) exemplify ecosystems modified by human activity thereby offering an opportunity to study the natural recovery of ecosystems from such modification, and (iii) contain rare or endangered native plants or animals in their natural habitats. These reserves are established on crown lands or on private lands with the permission of the land owner. Activities on these reserves are restricted through permits issued by Nova Scotia Museums of the provincial Department of Education.

New Brunswick’s *Ecological Reserves Act*\(^{49}\) allows the provincial Department of Natural Resources and Energy, through the Recreational and Ecological Reserves Program, to designate representative sites as ecological reserves with much the same criteria Nova Scotia uses to establish its ecological reserves. The *Ecological Reserves Act* actually allows the New Brunswick Department of Natural Resources and Energy to purchase land for the purposes of establishing ecological reserves. The *Historical Sites Protection Act*\(^{50}\) allows the Department of Education to set aside and protect sites of significant historical or anthropological interest.

None of this legislation specifically targets the conservation and protection of the coastal zone but these statutes may be used for such purpose. For example, pursuant to the Nova Scotia *Provincial Parks Act*, Five Islands Provincial Park lies on the coast of the Bay of Fundy, thereby protecting the coast in that area. New Brunswick’s government has set aside $1 million to establish a park, Le Parc de L’Aboiteau, along its southeastern coast.

\(^{47}\) *Provincial Parks Act*, R.S.N.S. 1989, c.367. *Parks Act*, S.N.B. 1982, c.P-2.1, as am. by 1986, c.6, s.33, c.8, s.95; 1987, c.N-5.2, s.24; 1988, c.67, s.7; 1990, c.22, s.39, c.61, s.103.

\(^{48}\) *Special Places Protection Act*, R.S.N.S. 1989, c.438, as amended by S.N.S. 1990, c.45.

\(^{49}\) *Ecological Reserves Act*, S.N.B. 1975, c.E-1.1, as am. by 1979, c.18; 1986, c.8, s.32; 1987, c.17; 1990, c.61, s.37.

\(^{50}\) *Historical Sites Protection Act*, R.S.N.B. 1973, c.H-6, as am. by S.N.B. 1975, c. 79; 1976, c.30; 1977, c.27; 1978, c.28; 1979, c.41, s.62; 1982, c.3; 1983, c.7, s.8, c.30, s.13; 1986, c.8, s.55; 1990, c.6, c.61, s.62.
3. Wildlife Protection

Nova Scotia does not protect coastal wildlife, as such, but does control the hunting of wildlife as a whole. The *Wildlife Act*\(^{31}\) establishes wildlife sanctuaries and wildlife management areas in which wildlife (defined as only nondomesticated vertebrates) is conserved and protected. Endangered and threatened species may be designated with measures taken for their conservation, but this has not been done in Nova Scotia. In the Act, certain wildlife have been designated as protected such that hunting them requires a special licence. These include the eagle, the osprey, falcon, hawk, owl, and Canada grouse. In general, however, wildlife may not be hunted except with a permit, thus allowing the Department of Natural Resources to control the taking of certain species.

New Brunswick, pursuant to the *Endangered Species Act*,\(^{52}\) protects three endangered birds inhabiting the coastal zone: the bald eagle; the osprey; and the peregrine falcon. This Act does not specifically target coastal wildlife but can be used to protect any endangered species requiring special conservation measures.

In both provinces wildlife is protected in provincial parks and ecological reserves established by the legislation discussed previously ("Critical Areas").

4. Coastal Acquisition and Public Access

In Nova Scotia, the *Provincial Parks Act* and the *Beaches Act* may be used to acquire coastal lands for public use and protection. As noted, the *Provincial Parks Act* does not specifically apply to the coastal zone but can be used to acquire land along the coast. The *Beaches Act* allows the provincial Department of Natural Resources to purchase lands above the high water mark along the coast for public recreational use. These beaches are purchased to provide public access to areas above the high water mark and access to the public lands below the high water mark.

New Brunswick has the *Ecological Reserves Act* and the *Parks Act*, both of which may be used to acquire land along the coastal zone. New Brunswick also has the *Tourism Development Act*\(^{53}\) which allows the Department of Tourism, ...

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\(^{52}\) *Endangered Species Act*, S.N.B. 1974, c.E-9.1 (Supp.), as am. by 1982, c.3, s.22; 1986, c.8, s.39; 1990, c.61, s.44.

\(^{53}\) *Tourism Development Act*, R.S.N.B. 1973, c.T-9, as amended by S.N.B. 1975, c.62; 1976, c.57; 1984, c.32; 1986, c.6, s.51, c.8, s.124.
Recreation and Heritage to purchase land for the purpose of tourism development and public park creation.

However, New Brunswick does not have legislation specifically allowing provincial acquisition of coastal lands for either public or conservation purposes. As mentioned, the lands below the high water mark are owned publically, but it is unclear that New Brunswick ensures public access to these foreshore areas. Coastal residential developments may be (and have been) subdivided so that lots extend to the high water mark, effectively restricting access to the public coastal zone.54

5. Beach Protection

Nova Scotia’s Beaches Act attempts to be a comprehensive regulation of all aspects of beaches, from their acquisition for public use to their protection from mining. Nova Scotia defines a beach within this Act as all that area lying seaward of the high water mark and any area lying landward of the high water mark that has been designated as such.

New Brunswick does not have an equivalent statute but approaches the same issues through different legislation. Other than for regulation of mining of beaches, New Brunswick does not provide a clear legislative definition of a beach. In 1989, the Policy Secretariat formed a Committee on these issues and issued a report entitled “A Policy On Beachfront Development and Public Access”. This report recommended five basic principles, including (i) reasonable public access to beaches should be assured, (ii) protection of the coastline, and (iii) priority should be given to the acquisition of property along the coast.55

Mining

Under the Nova Scotia Beaches Act, mining of beaches may only occur with the approval of the provincial Department of Natural Resources. The policy of Natural Resources is to eliminate beach mining altogether, which has basically been accomplished.56

54 Supra note 3 at 15.

55 Id. at 25.

56 Based upon a phone conversation with Bruce Wilmshurst of Nova Scotia Department of Natural Resources (as of September 16, 1991, Lands and Forests joined with the Department of Mines and Energy to become the Nova Scotia Department of Natural Resources).
The New Brunswick Quarriable Substances Act requires any person mining on a designated shore area, regardless of ownership, to obtain a permit from the provincial Department of Natural Resources and Energy. This shore area is designated as 300 metres above and 300 metres below the high water mark of any lake, pond, river or body of water and includes any bed, bank, beach, shore, dune, bar, flat or mud flat lying in that land. The policy of Natural Resources and Energy is to eliminate mining within this 600 metre core along the coastal zone.

Recreational Uses

In Nova Scotia, the Beaches Act allows the Department of Natural Resources to designate beach areas above the high water mark and to regulate recreational uses of beaches. These beaches are designated for public recreational use. Activities such as wilful destruction of beach property or removal of beach material on beaches are prohibited; other activities such as driving motor vehicles on beaches can be restricted and posted on individual beaches. The Department of Natural Resources may also protect designated beaches from activities on lands adjacent to the designated site by entering into management agreements with the adjacent landowner.

New Brunswick does not specifically protect beaches, but rather protects crown lands, a category in which ocean shore areas below the high water mark are included. New Brunswick’s Trespass Act prohibits motor vehicle use in ocean shore areas, saltwater marshes, and freshwater marshes. Other than this prohibition, New Brunswick’s legislation does not specifically regulate recreational use of coastal areas. The All-Terrain Vehicle Act 1985 could allow the Department of Transportation to control all-terrain vehicle use of beaches and sand dunes but such control is not currently expressed in the Act or its regulations.

Wharf Construction and Stabilization Structures

Nova Scotia regulates the construction of private wharves and other structures extending seaward of the high tide mark through a Department of Natural Resources internal policy under the Crown Lands Act and the Beaches Act. This policy attempts to limit infill or solid wharf construction and to

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57 Quarriable Substances Act, R.S.N.B. 1973, c.Q-1, as am. by S.N.B. 1978, c.38, s.9; 1980, c.45; 1982, c.3, s.63; 1983, c.73; 1986, c.8, s.109; 1990, c.61, s.118.


59 All-Terrain Vehicle Act 1985, S.N.B. 1985, c.A-7.1, as am. by S.N.B. 1986, c.9; 1987, c.N-5.2, s.19; 1988, c.67, s.2; 1990, c.7, c.22, c.61, s.4.
encourage the construction of wharves designed to interrupt near shore circulation as little as possible. The permitting process for wharf construction stipulates the maximum size of the wharf and other structural details to achieve this goal. The policy and permitting process prohibits some activities, such as the use of beach or waterbed materials to fill cribs and infilling below the high water mark, and calls for stabilization of soils exposed during wharf construction and the use of non-toxic materials.

New Brunswick is able to regulate the construction of stabilization structures within the 600 metre protected zone through the *Quarriable Substances Act*. Since the construction of stabilization structures involves the use, removal or displacement of beach material, the provincial Department of Natural Resources and Energy can use this Act to prohibit stabilization structures. This regulatory scheme has obvious problems: (i) the Act was not designed to regulate stabilization structures; and (ii) the Act can only affect stabilization structures in the 600 metre zone so that if a person erects such a structure on private land without impinging on the protected zone, the Department of Natural Resources and Energy may not be able to prohibit the structure.

6. *Wetlands*

New Brunswick and Nova Scotia do not have legislation specifically protecting wetlands. Nova Scotia attempts to protect wetlands through its environmental impact assessment process where an assessment could be required for any undertaking threatening 2 hectares or more of wetland. New Brunswick could protect wetlands through its environmental impact assessment requirement for undertakings affecting any unique, rare or endangered features of the environment.

Both New Brunswick and Nova Scotia have marshland reclamation legislation. These statutes, under provincial agriculture departments, ambiguously call for the reclamation, protection and development of marshlands in their statements of purpose. This legislation may have fallen somewhat into disuse, but in both provinces the tone of the overall legislative scheme is towards the agricultural reclamation of wetlands.

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60 *Supra* note 3, at 19.

7. Watercourses

Both New Brunswick and Nova Scotia control watercourse alteration in their water protection legislation. All watercourses are vested as Crown property and are not privately owned.

New Brunswick’s *Clean Water Act*\(^6\) states that anyone planning a project or structure that would alter or divert all or part of a watercourse, or water flowing therein, requires a permit from the provincial Department of Environment.

Nova Scotia, under the *Water Act*, also requires any person proposing to alter a watercourse to obtain a permit before commencing any work. Such alteration includes dredging of a watercourse, diversion of the watercourse from its natural channel, the placement of rock or other erosion prevention material along the shore or bank of a watercourse, the construction or maintenance of any structure over the watercourse which would affect the flow of the water, and the construction of a fishway or the installation of fishing equipment.

\(^6\) *Watercourse Alteration Regulation* N.B. Reg. 90-80.
ADDENDUM: NEW DIRECTIONS IN NOVA SCOTIA’S LEGISLATION

The Nova Scotia Department of Environment has released its Minister’s Task Force On Clean Water (Final Report and Recommendations). This report proposes a new Water Resource Act and calls for the formation of a new lead agency in water quality control in Nova Scotia. These changes would attempt to integrate land use planning concerns with water quality protection. Some of the recommendations included in the report address environmental issues confronting the Gulf of Maine - Bay of Fundy region:

**Development and Planning**

(i) The report states that a new Water Resource Act should "establish provincial water policies for water resource management integrated with water and land use concerns."

(ii) The report calls on the province to "Develop and adopt Provincial policies on erosion and sediment control, stormwater management, and the use of buffer zones... These would be applicable to development activities undertaken by private developers, government agencies, and industry (e.g. agriculture, forestry, mining, construction)."

(iii) The report seeks to "amend the Planning Act [Nova Scotia] to be consistent with the principle of integrated water and land use management, including provisions to support the management of surface and groundwater, flood plains and wetlands in the initial conceptual planning stage of proposed developments."

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64 Id. at 12.

65 Id. at 14.

66 Id.
Point Source Pollution

The report states that Nova Scotia should:

(i) "Develop provincial sewage treatment standards that will improve water quality of streams, rivers and lakes and to protect the water resource, wetlands and wildlife habitat;"67

(ii) "Develop and adopt provincial effluent quality regulations for the discharge of wastewater from industry, recreation and commercial craft and waste disposal sites into fresh water and estuaries;"68 and

(iii) "Recognize on-site disposal of waste water as a legitimate and cost-effective mechanism of water quality protection and pollution control which should be regulated and managed to ensure adequate service to individual properties and protection of the environment."69 The report lists some needed regulations of on-site sewage disposal.

Wetlands Conservation

(i) The province should "continue to identify, classify, conserve and manage all wetlands, through the administration of programs that are compatible with and supported by the policies under the proposed Water Resource Act and programs under the Wildlife Act [Nova Scotia]."70

(ii) The report states that "water resource legislation must be an effective tool in controlling the alteration, infilling, drainage and loss of wetlands, regardless of ownership."71

67 Id. at 12.
68 Id.
69 Id. at 13.
70 Id. at 14.
71 Id.
Jurisdiction Issues

The report recognizes that "there is some doubt about the jurisdictional limits respecting freshwater and saltwater boundaries, the responsibilities for harbours, the infilling, construction of wharves and watercourse alterations. It is therefore recommended that the province:

Undertake a review of legislation covering estuaries and harbours to clarify and define the limits of provincial and federal jurisdiction."\(^{72}\)

\(^{72}\) Id. at 17.