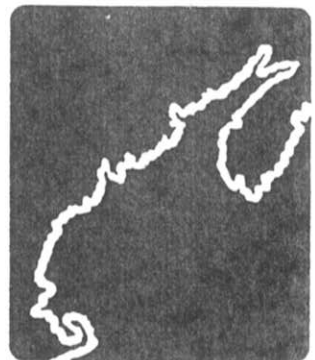


Gulf of Maine
Council on the Marine Environment
**Summary Report of Activities:
1991-1994**

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PREFACE

During the past three years the Gulf of Maine Council on the Marine Environment has commissioned and/or received a wide range of workshops, reports and publications on the Gulf of Maine and its watershed. This report is a synthesis of the recommendations from the more than 30 such work products. Its focus is on Environmental Quality, Public Education and Outreach, and Organizational Infrastructure.

Development and release of this report is timely as the Gulf Council is entering its second 5-year period and is reevaluating its priorities. In 1995 the Council is expected to release an updated Natural Resources Action Plan that will serve as its blueprint for cooperative actions through the year 2000.

INTRODUCTION

The Agreement on the Conservation of the Marine Environment of the Gulf of Maine Between the Governments of the Bordering States and Provinces established the Gulf of Maine Council on the Marine Environment with a mission *to maintain and enhance marine environmental quality in the Gulf of Maine and to allow for sustainable resource use by existing and future generations.*

The Agreement also called for the development and implementation of a 10-year *Natural Resources Action Plan* to address a variety of Gulfwide priority issues, which were identified and grouped into five categories: Monitoring and Research, Coastal and Marine Pollution, Education and Participation, Habitat Protection, and Protection of Public Health.

During the course of the first years of Council activity, several reports were commissioned and over thirty workshops were held to pursue the objectives in the *Action Plan*. This report is a synthesis of the recommendations of these reports and workshops.

Although the subject categories of the *Action Plan* helped to organize committee mandates and to guide initial implementation, the work of the Council, Working Group, Committees, and workshops over the last several years can be more accurately described by functional, rather than subject categories (e.g., "coastal and marine pollution" as a subject category in the *Action Plan* necessarily includes functional elements from each of the other subject categories—monitoring, research, education, and public health protection). Consequently, this report is organized by function, as reflected by the workshop recommendations themselves:

- Environmental Quality and Ecosystem Parameters (including specific research needs, habitat and resource protection, and coastal and marine pollution concerns);
- Public Outreach, Education, and Communication; and
- Organizational Infrastructure and Management (both for Gulf of Maine Council activities and subsequent cross-jurisdictional efforts).

It should be noted that the workshops convened by the Council covered a diversity of subjects, ranging from general, broad-brush considerations of watershed management issues and inter-agency cooperation, to extremely specific and detailed examination of particular issues, habitats, and species. This summary also reflects this scope—both general and specific recommendations and issues appear with equal emphasis, but with the understanding that not all recommendations contain the same degree of detail, and that, similarly, not all

are equally comprehensive. While recommendations from various reports were synthesized whenever appropriate to produce this report, none were omitted or changed in order to "match" any other; the integrity of the original recommendations remains intact.

Finally, the *products* that resulted from *Action Plan* implementation are not reviewed in this report, but are nevertheless an important source of visibility, communication, and direct effect of the Council's mission. These include publications (both existing and pending) such as *Sustaining Our Common Heritage*, the *Gulf of Maine Magazine*, the Wild Gulf Poster Series and the *Wild Gulf Almanac*, Fact Sheets, Program Highlights, and Annual Reports.

Below is a coded list of the publications and individual workshop reports that are synthesized in this summary. The list is organized by general subject area. Each report has been assigned a code, which allows the reader to determine the specific source or sources contributing to each summary recommendation. The accompanying matrix provides additional information on these work products.

Reports and Workshops*

I. Environmental Quality and Ecosystem Parameters

A. Research and Protection

1. Habitat Mitigation in the Gulf: Kurland (IA.1)
2. Gulf Science Workshop: Woods Hole (IA.2)
3. Gulf Cetacean Recovery Plan (IA.3)
4. Habitat Workshop: Boothbay Harbor (IA.4)
5. Priority Species/Regional Habitat (IA.5)
6. Wetlands Change Analysis (IA.6)
7. Shellfish Habitat Restoration Workshop: St. Andrews (IA.7)
8. Council Protocol: Identification and Protection of Regionally Significant Habitats and Constituent Species (IA.8)

B. Coastal and Marine Pollution

1. Nonpoint Source Pollution Review: Ferdinand (IB.1)
2. Environmental Impacts of Aquaculture (IB.2)
3. GulfWatch: Annual Summaries (IB.3)
4. Point Source Inventory: Phase I (IB.4)

II. Public Outreach, Education, and Communication

1. Environmental Educators Meeting and Report (II.1)
2. NGO Workshop: Cape Elizabeth (II.2)
3. Workshop for Funders: Wells (II.3)
4. State of the Gulf Fact Sheet (II.4)
5. Council Volunteer Monitoring Resolution (II.5)

III. Organizational Infrastructure and Management

1. Legal and Institutional Analysis: MLI/Dalhousie (III.1)
2. Action Plan Workshop: Halifax (III.2)
3. Data and Information Management: Durham (III.3)
4. Coastal Zone Management: Fredericton (III.4)
5. Data and Information Committee: 5-Year Plan (III.5)
6. CME Conference: Wolfville (III.6)
7. Council Draft Protocols:
 - a) Coastal Zone Management (III.7a)
 - b) Data and Information Exchange (III.7b)
 - c) Transboundary Environment Impact Assessment (III.7c)
8. Submerged Lands: St. Andrews (III.8)
9. Regional Seas Analysis (III.9)

* Each publication and workshop report is coded so the reader knows the source of the original recommendations that were provided to the Council and others in the Gulf of Maine.

GULF PROGRAM SPONSORED MEETINGS & REPORTS (1991 - 1994)

The Gulf of Maine Council on the Marine Environment has initiated a review of its 10-year Natural Resources Action Plan and is scheduled to produce an update in July 1995. Listed below are meetings and reports the Council sponsored or assisted in where Gulf priorities were discussed. Each of these will be reviewed and considered for inclusion in the updated Action Plan.

Meetings/Reports	Date	Author	Recommended Actions/Suggestions						
			Moni- toring	Pollu- tion	Habi- tat	Educ- ation	Info. Mgt.	Re- search	Other
Habitat Mitigation in the Gulf	1/91	Kurland			x				
Gulf Science Workshop: Woods Hole	1/91	CME	x				x	x	
10-year Action Plan	7/91	CME	x	x	x	x	x	x	x
Environmental Educators Meeting: Portland	7/91	CME				x			
Legal & Institutional Analysis: MLI/Dalhousie U.	1/92	CME		x	x		x		x
Action Plan Workshop: Halifax	4/92	EC/Dal. U.	x	x	x				x
Nonpoint Source Pollution Review	7/92	Ferdinand		x			x		
Resource Valuation Workshop: Durham	7/92	NOAA							x
Habitat Workshop: St. Andrews	10/92	CME	x		x		x		
Regional Seas Analysis	7/92	Dorskey							x
Gulf Cetacean Recovery Plan	7/92	NE Aquar.			x				
Submerged Lands: St. Andrews	9/93	NBDOE							
Dredging & Ocean Dumping: Halifax	10/93	Corps/EC	x	x	x				
Data & Information Management: Durham	11/93	RMRP/CME					x		
NGO Workshop: Cape Elizabeth	7/93	CCF				x			x
Environmental Impacts of Aquaculture	7/93	CME	x	x	x				
Shellfish Bed Restoration	7/93	CME		x	x				
Coastal Zone Management: Fredericton	7/93	CME	x		x	x	x	x	
Workshop for Funders: Wells	2/94	CCF	x	x	x	x	x	x	
Habitat Workshop: Boothbay Harbor	2/94	RMRP/CME	x		x		x	x	
Priority Species/Regional Habitat	6/94	CME			x		x		
GulfWatch: Annual Summaries	6/94	CME	x				x		
Wetlands Change Analysis	6/94	USF&WS	x		x				
Data & Information Committee: 5-year Plan	6/94	CME					x		
GulfWatch: 10-year Plan	8/94	CME	x						
State of the Gulf Fact Sheet	8/94	EPA/CME					x	x	x
CME Conference: Acadia	8/94	CME	x	x	x	x	x	x	x
Coastal Zone '94: Halifax	9/94	EC/DFO							x
Point Source Inventory: Phase I	10/94	NOAA	x	x					
Science/Policy: Kennebunkport	11/94	NAS/CME	x		x		x	x	
Council Protocols Information Exchange Coastal Management Habitat	12/94	CME			x		x		x
Council Volunteer Resolution	12/94	CME	x	x		x			
Air Quality Workshop: Fredericton	7/94	IJC		x					

SYNTHESIS OF RECOMMENDATIONS

This synthesis of recommendations, based on the publications and workshops, is divided into three major sections including:

- Environmental Quality and Ecosystem Parameters
- Public Outreach, Education and Communication
- Organizational Infrastructure and Management

To help set a context for the recommendations and to ensure the Program remains focused on its previously stated priorities, two information items are presented with this synthesis. First is the relevant sections of the 1989 Governors and Premiers Agreement that initiated the Gulf Program. Second is the applicable sections of the 1991 Gulf Action Plan.

In 1994 the Council, as it began its five-year review of the Action Plan revision, chose to focus on habitat as a unifying theme for its subsequent actions. Consequently to assist the reader all report and workshop recommendations that pertain to habitat are underlined.

I. Environmental Quality and Ecosystem Parameters

1989 GOVERNORS AND PREMIERS AGREEMENT: PERTINENT TEXT:

...discuss and act upon environmental issues of common concern, including...

A. Research and Protection

- ...protection and conservation of the ecological balance within the Gulf of Maine ecosystem*
- ...relationship between land use and the marine environment*
- ...sustainable use of resources within the Gulf of Maine*
- ...coordinated monitoring program to provide improved information for future decisions concerning the Gulf*

B. Coastal and Marine Pollution

- ...the problem of marine debris and medical waste...*
- ...minimize actions that...could result in degradation of environmental quality or depletion of resources leading to loss of sustainable use or environmental viability*
- ...reduce impacts from existing pollution sources and prevent future environmental degradation of the Gulf of Maine*

1991 Action Plan: Summary of Goals and Objectives

● Research:

- obtain and make available timely environmental information required by resource managers to allow efficient and effective management action and evaluation to sustain the Gulf of Maine ecosystem

● Protection:

- foster an integrated approach to protection and sustainable use of Gulf of Maine habitats
- support protection, restoration, and enhancement of fish and wildlife habitats
- support a systematic approach to identification, classification, and protection of regionally significant habitats
- improve assessment of harvesting method effects of Gulf of Maine productivity

● Coastal and Marine Pollution:

- assess existing levels, trends, sources, and economic impacts of acute and chronic risks to human health from toxic compounds transmitted through marine foods and water contact
- minimize public health risks from use of Gulf of Maine natural resources
- assist in the reduction of impacts of point source pollution in the Gulf
- facilitate regional efforts to assure proper disposal of marine debris and vessel wastes within the Gulf
- assist in the reduction of the impacts of non-point source pollution in the Gulf
- ensure better prevention of and prompt response to the impacts of environmental catastrophes
- support development of a regional strategy to minimize impact from disposal of materials at sea

SYNTHESIS OF PUBLICATIONS AND WORKSHOP:

● Research:

- adopt formal standards for habitat assessment and mitigation; increase efforts by provincial, state, and federal agencies to monitor habitat mitigation projects and to enforce habitat conservation laws (IA.1)

- develop habitat-mediated models of populations, species, and communities that could be used to predict changes in the abundance and/or distribution of living marine resources in the Gulf (IA.4) (IA.5)
- link scientific research and environmental monitoring; monitoring systems should be developed iteratively and be based on an understanding of critical processes determined through a succession of studies; define a common monitoring/research strategy including remote sensing; moored and mobile physical, chemical, and biological measurements; and baseline geological mapping of the seafloor (IA.2) (IA.7)
- inventory existing databases as a step in preparing a database management system; include GIS and a telecommunication network; expand data relating to Gulf's response to global climate change and include in database management system development; include modeling as part of future research and monitoring activities (IA.2)
- develop ecosystem-wide numerical modeling to understand natural variability in fish, marine mammals, and seabird populations in order to distinguish those changes in abundance and distribution due to impacts of human activity, and to understand the relative importance of harvesting, habitat loss, and pollution—including the impact of nutrient loading on marine mammal species and their food resources (IA.2) (IA.3) (IA.7)
- expand information base about location, size, and distribution of Gulf of Maine benthic habitat types; conduct further research on the physical and biological system of Georges Bank; protect and restore habitats essential for fish populations to survive (specific research needs include predictive capability for fisheries recruitment (IA.4) (IA.5) (IA.2)

● **Protection:**

- monitor and manage the Gulf as a regional ecosystem; concentrate intensified multidisciplinary studies in a few selected "model" estuaries (IA.2)
- assess key biological responses to establish a biodiversity benchmark (a basic attribute of the Gulf of Maine ecosystem); expand habitat protection charge to government agencies to include preservation of biodiversity and ecosystem management; determine role of biodiversity in maintaining ecosystem health and appropriate scale for habitat management (IA.4) (IA.5) (IA.2)

- assess nature and magnitude of marine mammal incidental take and entanglement by species and by fishery and reduce levels of incidental take and entanglement by coordinating research, management, and regulation between the U.S. and Canada; identify existing gaps in knowledge of marine mammal habitat requirements; develop marine mammal occurrence map of the Gulf of Maine; conduct coordinated, long-term correlational sampling of overlap between distribution of marine mammals and commercial fisheries (IA.3) (IA.5)
- implement systematic approach to identification, classification, and mapping of regionally significant habitat; quantify effects of individual and multiple human impacts on specific habitats and ecosystems; (IA.8) (IA.4) (IA.5) (IA.7)
- understand functions and values of individual habitat types in sustaining selected Gulf of Maine living resources, biodiversity, and ecosystem structure and function; including identification of the nature and extent of wetland losses and gains in the watershed (IA.4) (IA.5) (IA.6)

● **Coastal and Marine Pollution:**

- develop an international nonpoint pollution control network and support legislation to establish state/provincial nonpoint programs (IB.1)
- promote the cooperative development of enforceable BMP standards and the legislative action to their implementation (IB.1)
- federal and state/provincial resource agencies should expand their habitat conservation and mitigation policies to include chemical impacts to the marine environment (IA.1)
- the watershed, nearshore, and offshore segments of the Gulf marine environment and ecosystem are linked: there is a strong need for increased multidisciplinary studies focusing on freshwater runoff and waterborne pollutants to the nearshore from the watershed; separate relative effects of gross pollution from growth-stimulating nutrients and toxic contaminants; assess impact of point and non-point pollution sources upon shellfish habitat; and aquaculture-environment interaction (IA.2) (IA.7) (IB.2) (IB.3)
- develop a regional nonpoint enforcement strategy (IB.1)

- develop a list of coastal waterbody priorities based on consistent water quality standards; make progress toward all water suitable for fishing and swimming; no toxic effects (IA.4) (IB.1)
- expand annual pollutant discharge inventory by major point source category in the Gulf of Maine watershed to include Canada; improve spatial resolution (IB.4)
- increase access to point source inventory results among a broader group of managers and analysts (IB.4)

II. Public Outreach, Education, and Communication

1989 GOVERNORS AND PREMIERS AGREEMENT: PERTINENT TEXT

...cooperative programs to better protect and conserve the Gulf's natural resources..

1991 ACTION PLAN: SUMMARY OF GOALS AND OBJECTIVES

- cultivate a sense of stewardship among the citizens of the Gulf region and to enable them to make responsible decisions regarding Gulf of Maine resource use
- develop and implement a regional citizens' education and participation program with the intent of involving citizens in local resource management issues and actively support public participation in coastal resource management issues at the local level
- promote public awareness of environmental information obtained by resource managers to allow efficient and effective management action and evaluation to sustain the Gulf of Maine ecosystem
- create educational materials on the Gulf of Maine for a variety of user groups, including the general public, elected officials, and the media and to foster communication among the scientific community, the media, and elected officials
- improve communication among state, provincial, and federal agencies, marine interest groups, and environmental organizations about existing management strategies for specific marine resources
- improve understanding of Gulf issues by specific sectors of the public

SYNTHESIS OF PUBLICATIONS AND WORKSHOPS

- coordinated ecosystem management will depend heavily on clear commitment by local communities toward sustaining the Gulf; enhance public education about the Gulf as an ecological system; with sustainability issues as the central unifying theme; provide information about the Gulf through publications, videos, educational materials, clipping service, on-line bibliography and abstracts (II.1) (II.2) (IA.1)
- develop and implement a public education campaign about the Gulf of Maine, including nonpoint source pollution information, develop Gulf of Maine Trail

(including signage, logbook, etc.) and Gulf of Maine "traveling roadshow" (II.1) (II.4) (II.5) (II.3) (IB.1)

- promote identity of Gulf of Maine at the community level; support work of existing groups (community foundations, nongovernmental organizations) which have Gulf ecosystem and resource issue focus (II.2) (II.1)
- develop broad-based educational program for fishermen about reducing marine mammal incidental take and entanglement; establish whale rescue centers that can be called by fishermen seeking disentanglement assistance; sponsor experiments on gear modification and/or fishing methods aimed at reducing incidental take; broaden observer programs to include live sightings of marine mammals as well as interactions between marine mammals and fisheries; (IA.3) (II.5)
- provide users of marine resources with information and skills to identify accurately the marine mammals they encounter in the Gulf of Maine; develop field guides (IA.3) (II.5)
- federal and state/provincial resource agencies should develop public affairs programs to teach residents of Gulf communities about sound resource management practices; community group involvement in all aspects of shellfish habitat restoration and stewardship, including development of public education and school programs (IA.7) (IA.1)
- survey existing public knowledge and attitudes of marine ecosystems; foster a broader understanding of the status, role, and interactions of marine mammal populations within the Gulf of Maine ecosystem and extend this positive attention to other coastal issues (IA.3)
- future scientific research and monitoring programs should encourage the further development of multidisciplinary collaborations and improved communication among state, provincial, and federal agencies, and non-governmental organization about management strategies for living resources of the Gulf of Maine watershed, including programs that integrate public and private efforts and incorporate the extensive information possessed by fishermen, tour boat operators, and others; scientists representing all disciplines, need to improve communication between themselves, at both the institutional and individual levels (IA.2) (IA.7) (IB.2) (IB.3) (II.3) (II.5) (IA.8)

- make results of research available in usable form to various audiences including decision makers, agency manager, resource users, the general public, educators, and citizen volunteers (IA.4)
- develop new cooperative funding mechanisms (IB.1) (II.3)
- support citizen based water quality monitoring and promote the establishment of new monitoring sites in each jurisdiction (III.7)
- make special efforts to involve aboriginal communities in a meaningful way (III.4)
- build understanding among all stakeholders in the coastal zone through regular exchange of information, public education, and communication (III.4)

III. Organizational Infrastructure and Management

1989 GOVERNORS AND PREMIERS AGREEMENT: PERTINENT TEXT

...successful conservation of Gulf resources will require the development of additional agreements or protocols on specific issues or concerns...

1991 ACTION PLAN: SUMMARY OF GOALS AND OBJECTIVES

- *provide for effective transfer of environmental data and information to managers*
- *establish protocols to standardize methodologies and create compatible quality assurance/quality control agreements for monitoring of Gulf environmental quality*
- *coordinate approaches to marine research by federal, state, and provincial agencies and among private laboratories*
- *encourage federal agency involvement in state and provincial pollution control actions*
- *encourage evaluation of existing laws and regulations relating to Gulf natural resources to reduce disparity and improve performance among states and provinces*
- *support development of an integrated public health protection strategy related to human users of the Gulf of Maine*

SYNTHESIS OF PUBLICATIONS AND WORKSHOP:

- coordinated ecosystem management will depend heavily on consistent policies and improved communication between political jurisdictions (IA.1)
- a regional consortium of institutions should be formed to help focus, coordinate, and promote the long-term scientific study of the Gulf of Maine marine ecosystem; establish a Science and Technical Advisory Committee and periodically convene a Gulf of Maine Scientific Workshop (IA.2)
- each state and province should adopt an explicit definition of mitigation as a guide for resource managers and developers alike (IA.1)

- develop linkages between coastal zone management systems, including planning and pilot projects, to foster cooperative interaction (IA.7)
- jurisdictions bordering the Gulf should work cooperatively to ensure consistency in their resource management objectives, if not actual policies (IA.1)
- develop a regional Gulf of Maine information management system, using a distributed, networked system (INTERNET) instead of a centralized system, making information accessible to as many users as possible, building upon and complementing existing specific systems (III.3) (III.7a)
- establish a framework for the exchange of data and information essential to the restoration, protection and enhancement of the quality of the marine environment of the Gulf of Maine in order to sustain the ecological and economic health of the region (III.7a) (III.7b)
- support production of directories of existing data and information about the Gulf of Maine region (III.7a)
- establish an Information and Management System Oversight Group to ensure that needs of users are included in the system and a Technical Start-Up Committee to address issues of connectivity, compatibility and data exchange procedures (III.3)
- establish long and short-term information management system goals (III.3)
- manage coastal zone in an integrated fashion so that resource and land use conflicts and environmental impacts are minimized, multiple uses are optimized, and resources are cared for in a sustainable manner (III.4)
- hold a workshop on integrated coastal zone management during 1995 (III.7b)
- incorporate long range planning as an essential element in the integrated management of the coastal zone (III.7b)
- promote competence and capacity for integrated management of the coastal zone in both government and the private sector (III.7b)
- plan and manage coastal areas on the basis of ecosystems, protecting ecological functions to allow for sustainable economic activity (III.4)

- integrate and coordinate local, sub-regional, provincial, regional, and national coastal and marine-related policies, programs, and activities (III.4)
- provide for open communication and close cooperation among department and agencies of all participating governments in all matters concerning the coastal zone; ensure inter-jurisdictional and multi-sectoral cooperation (III.4) (III.7b)
- create a mechanism for balancing competing interests in the use of coastal zone resources (III.7b)
- promote sharing of knowledge and expertise in coastal zone management through personnel exchanges between members of the Gulf of Maine Council (III.7b)

CONCLUSION

The recommendations that have resulted from over three years of intense activity by individuals, agencies, and non-governmental groups throughout the Gulf of Maine watershed are particularly significant in view of the Gulf of Maine Council's 1994 retreat and reevaluation of priorities. The Council's own "mission concept"—as it emerged from this retreat—included the creation of a common "voice" for the Gulf of Maine environment, becoming a conduit for information, recognition of the interdependence among Gulf of Maine jurisdictions, and prevention of further degradation of the marine environment. These principles can be found throughout this report. It is a good indication that the Council in 1995 and the recommendations derived from *Action Plan* implementation to date are in step with one another.

The Council's mission statement—to work in harmony to protect, sustain, and improve the Gulf's resources—is itself in harmony with the results of over thirty workshops and scores of participants. The coming years of Council activity offer an opportunity to pursue these recommendations on behalf of the marine environment and the Gulf of Maine watershed.