

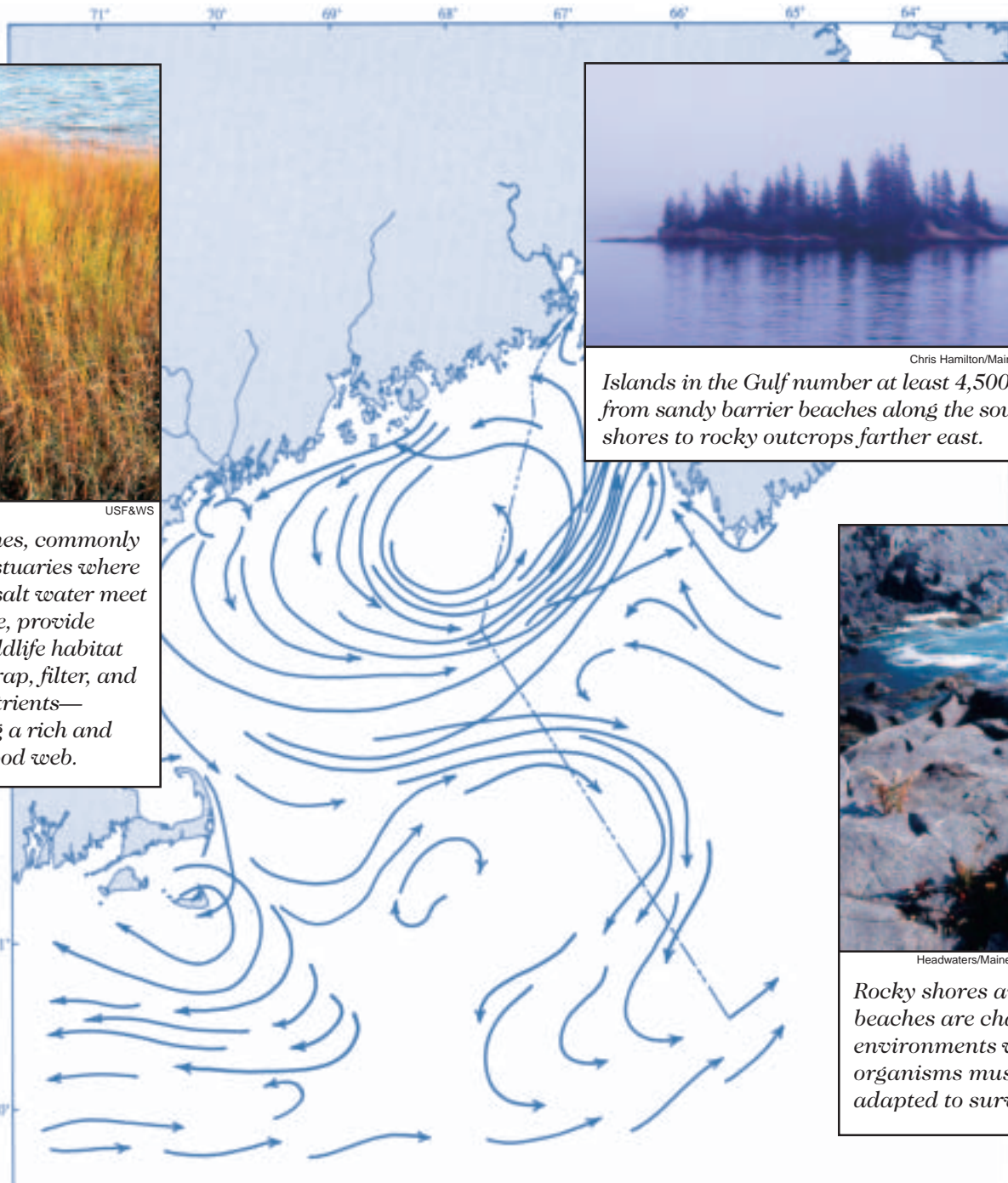
Gulf of Maine Council

on the Marine Environment



ACTION PLAN 2001-2006

Predominant Water Circulation Patterns in the Gulf of Maine



USF&WS

Salt marshes, commonly found in estuaries where fresh and salt water meet and mingle, provide critical wildlife habitat and help trap, filter, and recycle nutrients—supporting a rich and complex food web.



Chris Hamilton/Maine Coast Heritage Trust

Islands in the Gulf number at least 4,500—ranging from sandy barrier beaches along the southwestern shores to rocky outcrops farther east.



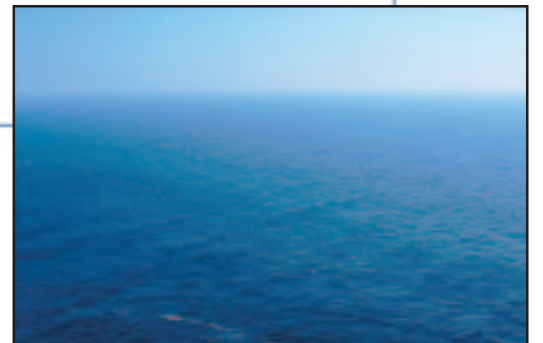
Headwaters/Maine State Planning Office

Rocky shores and cobble beaches are challenging environments where organisms must be well adapted to survive.



Headwaters/Maine State Planning Office

Sand beaches, found primarily along the Gulf's southwestern shores, provide feeding grounds for migratory shorebirds.



Headwaters/Maine State Planning Office

Gulf waters, spanning 36,000 square miles, are home to a variety of finfish, shellfish, seabirds, and marine mammals.

Gulf of Maine Council

on the Marine Environment

ACTION PLAN 2001-2006

To maintain and enhance environmental quality
in the Gulf of Maine and to allow for sustainable
resource use by existing and future generations...

—Gulf of Maine Council Mission



**Gulf of Maine
Council on the
Marine Environment**

About the Artist:

Artist Peter Gough, of Glen Margaret, Nova Scotia, cares passionately about the Gulf of Maine. Gough generously donated the use of his painting for the cover of this report and committed 40 percent of the sale price from paintings in his Gulf of Maine exhibit "The Ark" to the Gulf of Maine Council.

Gough hopes that his artwork will inspire a greater appreciation for the region's shared natural heritage: "I see the Ark as a vessel, which carries a message from one generation to the next. Its message is that we must sustain the natural environment to ensure the survival of its resources."

For more information on his paintings, contact Gough at 902-823-1917, or visit his studio at 9 Marvin Lane, Glen Margaret, Nova Scotia.

*Front Cover: Dawn, acrylic on canvas, detail, 36" x 36", Bass Harbor Light, Maine
Inside Back Cover: Atlantic Salmon, acrylic on canvas, 30" x 28"*

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Gale Zucker/www.gzucker.com

Standing (left to right): Governor Jeanne Shaheen (New Hampshire); Premier Bernard Lord (New Brunswick); Governor Jane Swift, (Massachusetts). Seated (l to r): Premier John F. Hamm (Nova Scotia); Governor Angus King (Maine).

Agreement on Conservation of the Marine Environment of the Gulf of Maine between the Bordering States and Provinces

We reaffirm the commitment of our governments to the wise management of the Gulf of Maine and its watershed as initially articulated in the historic Governors' and Premiers' 1989 Agreement on Conservation of the Marine Environment of the Gulf of Maine between the Bordering States and Provinces.


WHEREAS, we recognize a continuing shared duty to protect and conserve the renewable and nonrenewable resources of the Gulf for the use, benefit, and enjoyment of all citizens, including future generations;

WHEREAS, the long-term conservation and thoughtful development of the Gulf's resources and habitats require transboundary collaboration;

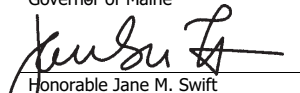
WHEREAS, the Gulf of Maine Council on the Marine Environment 2001-2006 Action Plan establishes priorities identified through an 18-month period of consultation and interaction;


WHEREAS, the proposed actions to address these priorities are measurable, clear and beneficial to the region's residents and the ecosystem, we hereby pledge that:

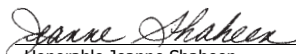
NOW THEREFORE, our state and provincial agencies with coastal and marine responsibilities will address the 2001-2006 Action Plan priorities through their annual work plans and budgets. They will work cooperatively with the region's First Nations and tribal authorities, federal agencies, nongovernmental organizations, businesses and individuals to implement this Action Plan. Further, they will periodically report to the Gulf of Maine Council so that the region's residents can be kept informed of progress.


Honorable Angus S. King, Jr.
Governor of Maine


Honorable Bernard Lord
Premier of New Brunswick


Honorable Jane M. Swift
Governor of Massachusetts


Honorable John F. Hamm
Premier of Nova Scotia


Honorable Jeanne Shaheen
Governor of New Hampshire

RESOLUTION OF SUPPORT

by the Federal Partners to the Gulf of Maine Council on the Marine Environment



THE FEDERAL PARTNERS

of the Gulf of Maine Council on the Marine Environment, having worked collaboratively with the Council during its first decade of operation toward the long-term sustainability of this shared ecosystem:

- Recognizing the shared responsibility to maintain and enhance environmental quality in the Gulf of Maine and to allow for sustainable resource use by existing and future generations;
- *Wishing* to respond to the encouragement by the Governors and Premiers in their Year of the Gulf of Maine Proclamation for the Federal Partners to reaffirm their commitment to the Gulf of Maine Council and to work with the States and Provinces in their efforts to protect the ecosystems of the Gulf of Maine;

INTEND AS FOLLOWS:

- To continue to support the goals, measurable objectives and priority actions articulated in the Gulf of Maine Council Action Plan provided that they are consistent with domestic law and policies, and can be executed within available appropriations;
- To continue to participate on the Council and, where possible and appropriate, to provide staff members to participate on the Council's Working Group and Committees;
- To continue collaborative work with the Gulf of Maine Council to set and deliver on annual and long-term priorities for action;
- To report annually to the Council, in a format consistent with State and Provincial reports, on activities and actions that the federal Partners have pursued to achieve the Council's priority objectives;
- To actively explore and advise the Council of opportunities for federal support;
- To develop scientific initiatives and projects undertaken by the signatory agencies in cooperation with the Council, consistent with domestic authorities for the respective agencies.

This Resolution of Support neither commits the federal Agencies to specific investments, modifies the existing Provincial-State Agreement, nor signifies an intent to alter the existing working relationship.

NANCY LURIE
Acting Assistant Administrator
U.S. ENVIRONMENTAL PROTECTION AGENCY

MARGARET A. DAVIDSON
Acting Assistant Administrator for Coastal Science and Coastal Area Management
U.S. NATURAL OCEANOGRAPHY AND FISHWATER ADMINISTRATION

ANNE A. PARKER
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GARETH SAWDAY
Regional Director, Canada
ENVIRONMENT CANADA, Atlantic Region

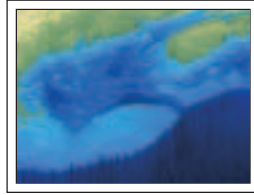
PENLOPE D. DALTON
Acting Administrator of Region 1
U.S. NATURAL OCEANOGRAPHY AND FISHWATER ADMINISTRATION

NEIL BELLFONTAINE
Regional Director, Canada
FISH AND OCEANS CANADA, Atlantic Region

JANUARY 2001

ABOUT THE GULF OF MAINE COUNCIL

2001-2006 ACTION PLAN



The Gulf of Maine is among the most biologically productive environments on earth: the nutrient-rich waters of this distinct marine ecosystem host approximately 2,000 species of plants and animals. The Gulf's bountiful resources support a vital maritime heritage and economy shared by the three American states and two Canadian provinces that border its shores.

Through 12 years of collaborative work, the Gulf of Maine Council on the Marine Environment (the Council) has experienced the rewards and challenges of managing the Gulf as a single ecosystem. Agencies and organizations around the Gulf have made significant progress, but increasing development pressures are straining coastal and marine resources—altering vulnerable habitats, contributing to runoff pollution, and releasing additional sewage and industrial discharges.


New signs of ecological stress are appearing in many communities along the Gulf's shores. Wild Atlantic salmon are in danger of extinction, and invasive species have begun out-competing native species. Fish consumption advisories and beach closings diminish the appeal of fishing and swimming. Animal tissue taken from marine organisms around the Gulf of Maine registers some of North America's highest levels of mercury—threatening the entire food chain.

Fortunately, evidence of ecological decline is counter-balanced by stories of positive environmental change. On Gulf of Maine islands, for example, populations of nesting coastal seabirds

are rebounding. Analysis of blue mussel tissues, through the Council's Gulfwatch program, indicates declines in some toxic contaminants. These encouraging trends underscore the importance of the Council's work to demonstrate links between land uses and marine ecosystems and to bring people together in devising constructive solutions.

The following pages outline critical actions to be taken in the coming five years, focusing on three primary goals: protecting and restoring coastal and marine habitats; protecting human health and ecosystem integrity from toxic contaminants in the marine environment; and encouraging sustainable maritime activities. The Council concentrates on issues where collaborative action among all the Gulf jurisdictions is required to successfully solve or improve a situation (*e.g.*, habitat protection for mobile or migratory species, control of invasive species, and water-quality issues).

To accomplish most effectively its stated goals, objectives and more than fifty specific actions, the Council is creating partnerships and linking with other regional networks such as the National Estuarine Research Reserves and the National Estuary Program (in the U.S.) and Atlantic Coastal Action Program communities (in Canada). The Council also relies on the substantial efforts of local, state, provincial, and federal agencies; nongovernmental and community-based organizations; businesses and industries; volunteers; First Nations and tribal authorities; and research organizations to pursue specific actions in support of this plan.



In drafting the Action Plan, the Council received broad input from individuals and organizations throughout the region (see *The Region's Leading Coastal and Marine Management Issues and their Publications*, Haskell, 2001 at http://www.gulfofmaine.org/council/rtf/synthesis8_01.rtf). The Council gathered feedback at public forums and focused workshops, as well as through an online survey that drew more than 200 responses (results available at http://www.gulfofmaine.org/council/action_plan_survey_results.html). This plan complements the work of many local and regional projects and seeks to inspire new initiatives that support habitat protection and improved marine health. The web links and educational resources for many regional organizations are included in Appendix D, pages 30-31.

The 2001-2006 Action Plan has a companion Web site covering the progress of specific Council projects that support this plan. It can be viewed at http://www.gulfofmaine.org/action_plan2001-06.html.

BUILDING ON TWELVE YEARS OF TRANSBOUNDARY COLLABORATION

The governors and premiers of the states and provinces bordering the Gulf of Maine created the Council in 1989 as a regional entity to help “protect the Gulf’s ecological integrity and the many uses that depend upon its continued good health.” From the outset, the Council has fostered consensual decision-making and collaboration among a wide range of parties concerned with the Gulf. The Council’s meetings are open to the public and its action plans incorporate diverse public input.

The Gulf of Maine Council provides opportunities for representatives of government, the public, nonprofits, and businesses to exchange information and strategize about the Gulf’s future (see Appendix A for more detail). Since its formation, the Council has hosted more than 40 conferences, workshops and symposia on research, education, and policy topics. Additional conferences have been funded through the Council’s grants programs.

A SAMPLING OF GATHERINGS SPONSORED OR SUPPORTED BY THE COUNCIL

Shellfish Habitat Restoration Workshop, 1996,
Saint John, NB

Bridging the Gulf—Conference on Environmen-
tal Monitoring in the Gulf, 1996, Portland, ME

Natural Gas Forum, 1997, Boston, MA

Impacts of Fishing Gear on the Sea Floor of New
England, 1997, Ashland, MA

Marine Shipping Environmental Forum, 1998,
Salem, MA

Georges Bank Environmental Forum, 1998,
Halifax, NS

Nongovernmental Organization Fair, 1999,
Yarmouth, NS

Forum on the Health of the Gulf of Maine:
Current Conditions, Future Needs, 1999, Ports-
mouth, NH

National Oceanic and Atmospheric Administra-
tion and Gulf of Maine Council Regional Coordi-
nation Meeting, 2000, Durham, NH

Gulf of Maine Environmental Information
Exchange Out of the Fog 2 Workshop, 2000,
Saint John, NB

Habitat Restoration Workshop, 2001, Wells, ME

Environmental Quality Monitoring Workshop,
2001, Portsmouth, NH

GULF OF MAINE COUNCIL ACTIVITIES

To support Action Plan goals and advance the work of allied organizations, the Council funds and conducts the following activities:

Gulf of Maine Times, launched by the Council in 1997, is a free quarterly newspaper reaching a circulation of 10,000 government officials, nonprofit staff, educators, business people, press and other interested readers. Each issue includes articles on Gulf-related policy, resource management and scientific matters; a column that



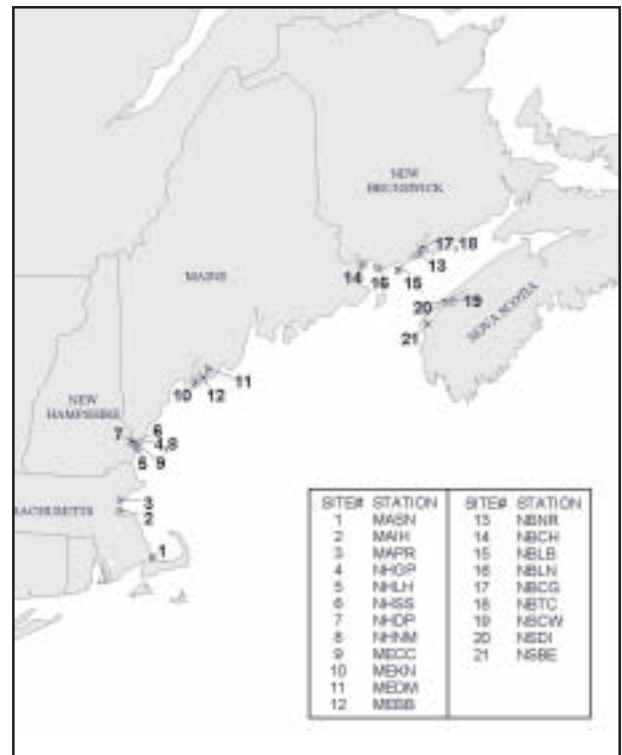
introduces new ideas and projects; a “Q&A” with noted experts; personality profiles and book reviews. To subscribe, see Appendix D or visit <http://www.gulfofmaine.org/times/>.

The *Gulfwatch Monitoring Program*, successfully run by the Council since 1991, helps to assess the fate and impacts of toxic contaminants in the Gulf of Maine. By measuring contaminant concentrations in blue mussels, researchers are gaining insights into the distribution and concentration of heavy metals, pesticides and organic contaminants (see page 20). Annual results appear on the Council’s Web site: <http://www.gulfofmaine.org/library/gulfwatch/index.html>.

Gulf of Maine Council Action Plan Grants fund local and regional stewardship projects that implement the Council’s priority goals. Additional information about the competitive grants program can be found in Appendix C and at http://www.gulfofmaine.org/ap_grants.html.

The Council is preparing a *Regional Habitat Restoration Plan* to help prioritize restoration activities in the Gulf. Local restoration work will be supported through a grant program funded by the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service. For more information, visit http://www.gulfofmaine.org/habitat_restoration_grants.html.

The Council’s *Web site* (<http://www.gulfofmaine.org>) offers a broad range of Gulf-related information and tools for interested citizens. Resources include “People Finder” (a database of contact information for thousands of regional organizations and individuals); an “NGO Directory” (interactive database with over 650 nongovernmental organizations pursuing the Council’s priority issues in the Gulf); a calendar of events; a library of reports; the *Gulf of Maine Times*; and application information for Council grants and annual awards.



Gulfwatch Site Locations 1998

GUIDING PRINCIPLES OF THE GULF OF MAINE COUNCIL

MISSION

To maintain and enhance environmental quality in the Gulf of Maine and to allow for sustainable resource use by existing and future generations.

GUIDING PRINCIPLES

These principles help guide the Council and participating agencies in their decisions involving the Gulf of Maine ecosystem. Each principle is congruent with other international protocols, as well as state, provincial and national legislation in Canada and the United States.

1. Ecologically Sustainable Development

The Council seeks to meet the region's current social, cultural and environmental needs without compromising the needs of future generations. Working in partnership with others, it strives to sustain ecological processes and enhance the region's quality of life.

2. Ecosystem-based Planning and Management

The Council supports collaborative management that integrates economic and ecological values and objectives, emphasizing natural rather than political boundaries.

3. Environmental Protection through Precaution

The Council supports conservation of the coastal and marine environment, and urges its members to proceed with caution when scientific information is incomplete to avoid environmental degradation.

4. Public Information and Participation

The Council is committed to a participatory process that informs and engages the public in setting priorities, forming policies and pursuing efforts to conserve the Gulf's environment.



ACTION PLAN AT A GLANCE: A SUMMARY OF THE 2001-2006 GOALS AND OBJECTIVES

GOAL 1: PROTECT AND RESTORE COASTAL AND MARINE HABITATS

Coastal and marine habitats throughout the Gulf of Maine are healthy and support the Gulf's diversity of plant and animal species.

Objectives

- a. *Increase awareness and improve management of regionally significant habitats*
- b. *Increase habitat protection*
- c. *Increase habitat restoration*
- d. *Increase awareness and improve management of aquatic nuisance species*
- e. *Enhance citizen stewardship*

GOAL 2: PROTECT HUMAN HEALTH AND ECOSYSTEM INTEGRITY

Contaminants in the Gulf of Maine are at sufficiently low levels to ensure human health and ecosystem integrity.

Objectives

- a. *Increase awareness and improve management of priority contaminants*
- b. *Identify reduction strategies for priority contaminants*
- c. *Enhance citizen stewardship*

GOAL 3: ENCOURAGE SUSTAINABLE MARITIME ACTIVITIES

The Council's vision for 2025 is that marine research and nature-based tourism provide unique and significant economic opportunities for the region. During the next five years, the Council will create strategies to achieve these new objectives.

Objectives

- a. *Create and implement a marine research and monitoring strategy that responds to pressing management issues and supports regional economic development*
- b. *Develop and implement a nature-based tourism strategy that sustains the environment and the well-being of local people*



Headwaters/Maine State Planning Office

GOAL I: PROTECT AND RESTORE COASTAL AND MARINE HABITATS

Coastal and marine habitats throughout the Gulf of Maine are healthy and support the Gulf's diversity of plant and animal species.

Since its formation in 1989, the Council has worked consistently to improve the health of coastal and marine habitats around the Gulf. Some of the region's habitats are moderately to severely degraded through centuries of human use and the impact of growing coastal populations. More than half the Gulf's tidal marshes and wetlands have been filled or converted to agricultural lands. Roads and coastal development often disrupt and fragment sensitive natural habitats while dams and tidal restrictions alter the natural flow of water and block the migration of anadromous fish.



Other threats to habitat are less direct but no less potent: overharvesting of certain species; fishing gear impacts on the sea floor; introduction of invasive species; and effects of untreated sewage and polluted runoff.

Addressing these diverse threats requires comprehensive land-use planning and concerted efforts to reduce pollution. Actions to protect remaining habitats must be matched by successful restoration (in which people work to reverse the cumulative or historical damage done to a habitat).

The Council laid the groundwork for habitat restoration in its previous Action Plan (see http://www.gulfofmaine.org/library/action_plan/index.html) by identifying three regionally significant habitat types. Terrestrial systems extend upland from the high-tide mark and include islands, bluffs and sand dunes. Estuarine systems occur where fresh and salt water mix, and include tidal marshes, mudflats, salt marshes and eelgrass beds. Marine systems extend from the high water to the 60-meter depth contour and include rocky intertidal areas, kelp beds and sand and cobble beaches. For the 1996-2001 period, the Council focused on estuarine and coastal habitats.

Through 2006, the Council will maintain its focus on these regionally significant coastal habitats, and will extend its activities farther up the watershed and into the marine environment. For example, it may fund restoration projects within the watershed to restore freshwater marshes or remove dams. It will begin marine habitat mapping and characterization to better understand and manage subtidal habitats. Since mobile and migratory species require transboundary collaboration, the Council will concentrate on their habitats.

Objectives

a. Increase Awareness and Improve Management of Regionally Significant Habitats

Ensure that 50 percent of professionals involved in coastal/marine habitat science, policy and management are aware of the Gulf's regionally significant habitats and are working to improve their management.

Managing human impacts on coastal and marine habitats requires sound science, thoughtful policy-making and capable management—all of which depend on familiarity with key habitats and resources. Yet according to a 1999 survey, only 36 percent of the region's decision-makers were aware of the Gulf's critical habitats and were trying actively to improve their management.

The Council will work to increase that figure to 50 percent by implementing specific strategies designed to foster greater awareness and management of coastal habitats among scientists, policy-makers, and natural resource managers.

Strategies

Increase Awareness

Publish information for federal, state, provincial and local policy-makers, business leaders, regional organizations and interested citizens on the status and health of significant Gulf habitats (particularly those used by mobile and migratory species).

Actions

- (1) *Publicize in the Council's quarterly newspaper, Gulf of Maine Times, habitat issues such as population growth impacts, aquatic nuisance species, aquaculture, land protection, habitat restoration and marine conservation initiatives.*
- (2) *Identify and help distribute existing habitat publications and new fact sheets about regionally significant habitats; and feature the Council's educational display and publications at regional events and conferences.*
- (3) *Maintain a high-quality habitat page on the Council's Web site that provides useful information, promotes networking, and supports protection and restoration activities (<http://www.gulfofmaine.org/council/habitat.html>).*

Improve Management

Provide resource managers with relevant habitat information and encourage them to consider their decisions within a larger ecosystem context.

Actions

- (4) *Document the research and educational tools most needed for managers to improve habitats.*
- (5) *Expand coastal training initiatives in the U.S. and create a parallel program in Canada that provides science-based information and training to coastal decision-makers.*
- (6) *Translate research on Gulf habitats into accessible language and distribute the findings to resource managers through brochures, manuals, guides and Web-based products.*
- (7) *Disseminate information to resource managers on best management practices (BMPs) that minimize land-use impacts on the marine environment.*
- (8) *Convene state, provincial, federal, and*

RE-TERNING: RESTORING PRIME SEABIRD-NESTING HABITAT

The Isles of Shoals once supported New Hampshire's most significant tern colony. Thousands of common terns, along with roseate and arctic terns, made their home on these sparsely vegetated islands. Over the 20th century, the colony dwindled - decimated first by the millinery trade and then by the explosive growth of competing herring and black-backed gulls. Terns resorted to nesting along tidal marshes and on mainland sites where human disturbance and predation proved problematic. Common terns became a state endangered species, and roseate terns a federally listed one.

In 1997, the Audubon Society of New Hampshire (ASNH) and New Hampshire Fish and Game Department launched an effort to lure common terns back to the Isles of Shoals. With support from the Gulf of Maine Council and several other organizations and foundations, they began a tern restoration project on White and Seavey islands. Ornithologists discouraged gull settlement through non-chemical means and attracted terns using decoys and solar-powered speakers broadcasting tern colony sounds.

"The techniques worked—even more quickly than we'd expected," reports Diane DeLuca, the project's coordinator for ASNH. "In the initial season, six pairs of common terns nested there—the first documented breeding on the Isles of Shoals since the 1950s. Since then, the colony has grown geometrically, with 809 pairs of terns and around 1,200 chicks recorded in 2001."

Now that the common tern colony is established, the rare roseate tern may return. About 85 roseate terns visited the colony in 2001 and one pair nested and successfully raised a chick—a promising sign that more may nest there in the future.

To raise awareness about seabird restoration, the tern project has created a traveling slide presentation and display. "We're also broadcasting video footage of the tern colonies to New Hampshire's Seacoast Science Center" DeLuca says. "With so much discouraging environmental news these days, it helps people to learn that - with hard work and persistence—we can bring species back."

international organizations working on climate change impacts to begin developing regional and local adaptation strategies, encourage cooperative research, and disseminate needed information to resource managers.

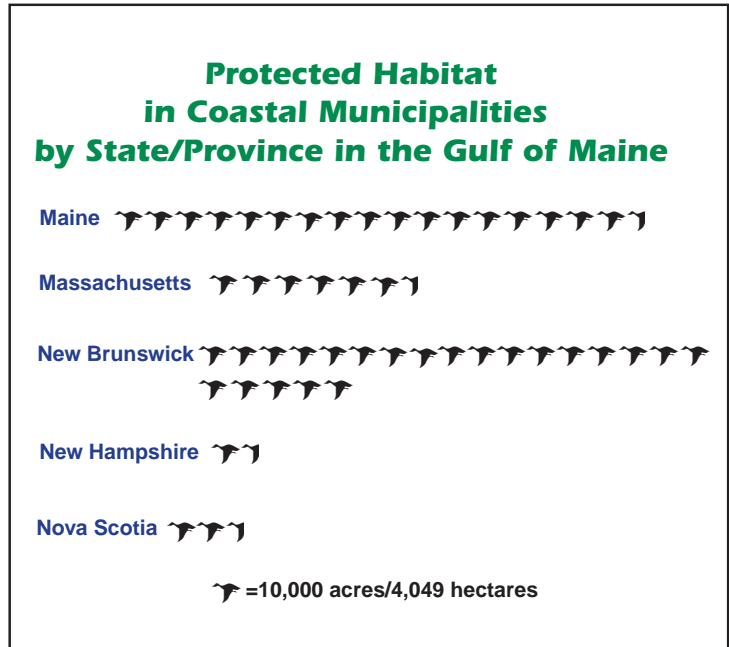
b. Increase Habitat Protection

Protect an additional 5,000 acres of habitat within coastal communities by 2006.

In 1999, the Council compiled baseline data of existing protected coastal lands, a time-consuming and imperfect process due to different database formats and definitions of “protected.” Protected coastal areas, by the Council’s definition, have a resource management agreement, easement or other permanent title encumbrance to ensure their long-term integrity. Commonly, government agencies or nonprofit entities hold the easement or title to these lands, managing them as parks, refuges, reserves, historical sites or sanctuaries.

Collectively, the region’s organizations and agencies have protected more than 500,000 acres (200,000 hectares) in coastal municipalities that border salt water. Over the next five years, the Council seeks a one percent increase over the protected acreage identified through its baseline assessment.

The baseline does not include protected marine habitat areas, although the Council recognizes the importance of these habitats and supports their increased protection. The Council will create a marine mapping strategy to better understand the location, type, and sensitivity of marine habitats, which is critical to achieving their sustainable management.



Strategies

Increase Land Acquisition

Promote coastal habitat protection through increased land acquisition efforts.

Actions

- (9) *Survey regional land acquisition programs to determine their alignment with the Council’s habitat protection objectives and, where appropriate, advocate for these programs to acquire significant Gulf habitats.*
- (10) *Advocate for increased land acquisition funding from new and existing sources.*

Develop a Marine Mapping Strategy

Create a five-year strategy that will increase the rate of marine mapping, make mapping information more accessible and useful, and encourage the development of new mapping technologies.

Actions

- (11) *Develop and implement a Gulf-wide strategy for mapping bathymetry, sediment, and habitats.*
- (12) *Establish, maintain and enhance a clearinghouse that identifies available ocean mapping data.*
- (13) *Develop a classification framework for mapping that describes habitats, species complexes and interactions in uniform terms to enhance regional coordination.*

- (14) *Assess the needs of those who might use maps (e.g., coastal managers, educators, consultants and researchers) to determine which mapping products they require and how those might be created.*
- (15) *Establish a public-private partnership to promote development of emerging marine mapping technologies, educate the public about them, and foster their adoption in the public sector.*

c. Increase Habitat Restoration

Restore 3,000 acres of coastal and marine habitats by 2006, maintaining the rate of restoration achieved between 1996 and 2001.

Coastal habitats may be restored through a variety of means, such as increasing water flow to tidally restricted areas, controlling predators on seabird-nesting islands, planting dune or eel grass, installing anadromous fish ladders and removing combined sewer overflows. Successfully restored habitats closely approximate their condition prior to disturbance.

In its last Action Plan, the Council set an ambitious objective for 1996-2001 of helping to restore 10,000 acres. Various factors prevented reaching this target—such as inadequate restoration funding, insufficient information on restoration techniques and the extended times required to successfully complete projects. However, the Council documented the restoration of nearly 3,000 acres, with several significant achievements such as the Edwards Dam removal in Augusta, Maine. That removal in July 1999 restored 17 miles of prime spawning and rearing habitat for migratory fish, reinvigorating the region’s economy and ecosystem.

The chart at right, while not a comprehensive account, offers preliminary figures on habitat restoration (collecting data proved difficult due to different criteria, database formats and types of projects tracked). For more information, see the 1998 report *Restoration of Coastal Habitats and Species in the Gulf of Maine* at <http://www.gulfofmaine.org/library/habitat/index.html>.

Rates of Habitat Restoration in the Gulf of Maine

Prior to 1996:	18,019 acres/7,292 hectares
1996-1998:	1,978 acres/800 hectares
1998-2000:	861 acres/348 hectares
Total:	20,858 acres/8,441 hectares

In recent years, numerous state, provincial and federal agencies—as well as nongovernmental organizations—have identified habitat restoration as a high priority. This collective commitment should help the Council and partner groups restore another 3,000 acres during the next five years.

Strategies

Increase Rate and Improve Effectiveness of Habitat Restoration

Promote habitat restoration by creating a regional restoration plan, funding restoration activities and pursuing additional funds for restoration projects throughout the Gulf.

Actions

- (16) *Create and distribute a regional restoration plan that prioritizes sites for habitat restoration.*
- (17) *Fund habitat restoration development activities, restoration, and post-restoration monitoring activities in the Gulf.*
- (18) *Seek increased funding from government, foundations and businesses for planning, habitat restoration and post-restoration monitoring.*
- (19) *Maintain a Gulf-wide database that documents coastal and marine habitat restora-*

tion projects and facilitates sharing of successful techniques.

- (20) *Implement restoration protocols developed by the Global Programme of Action Coalition at selected sites by collecting, synthesizing and analyzing restoration data; summarizing the results; and evaluating the effectiveness of various restoration techniques.*

d. Increase Awareness and Improve Management of Aquatic Nuisance Species

Foster a coordinated regional response to managing Aquatic Nuisance Species (ANS) that emphasizes heightened public awareness.

To help realize this objective the Gulf of Maine Council is hosting the Northeast Regional Aquatic Nuisance Species panel, part of the U.S. intergovernmental ANS Task Force. The new panel, with representatives from the New England states and some eastern Canadian provinces is working cooperatively to protect the region's marine and freshwater resources in the face of greater ANS threats due to increased international trade and travel.

Strategies

Increase Awareness

Raise awareness of the threats that ANS pose for the Gulf region.

Actions

- (21) *Convene a conference to raise awareness and build support for measures to reduce the introduction and spread of ANS.*
- (22) *Create an informative Web page to improve coordination among regional panel participants and interested members of the public.*
- (23) *Cover ANS threats in the Council's quarterly newspaper, the Gulf of Maine Times.*
- (24) *Identify and help distribute existing ANS publications and create new fact sheets as needed.*

Improve Management

Provide resource managers with the information and tools needed to limit ANS.

Actions

- (25) *Assess selected coastal, marine and freshwater habitat areas to establish initial baseline data on ANS.*
- (26) *Identify species of concern to the region and potential modes of introduction, developing management strategies to minimize their spread.*
- (27) *Create a regional database to track the distribution and spread of ANS.*

e. Enhance Citizen Stewardship

The Gulf's 650 coastal and marine stewardship programs will remain active and will serve as local leaders in habitat conservation.

Volunteers working to protect and restore the Gulf's coastal and marine habitats are making essential contributions to the Council's habitat objectives. With the support of citizen contributions and grants from the Council, government agencies and private sources, volunteer organizations surpassed the objective set in the previous Action Plan (1996-2001) of a 20 percent



Cathryn Field

increase in the number of volunteer programs active in the Gulf. The Council now seeks to solidify its gains rather than continuing to expand at a rapid rate. In the coming five years, the Council will focus on strengthening existing programs by identifying additional funding sources, providing training opportunities and enhancing networking.

Strategies

Enhance Local and Regional Capacity for Citizen Stewardship

Build the capacity of volunteer stewardship programs to protect and restore coastal and marine habitats.

Actions

- (28) *Administer a competitive grants program to support local and regional initiatives that advance Action Plan goals.*
- (29) *Support training opportunities for regional stewards in each jurisdiction.*
- (30) *Enhance links among nongovernmental organizations using the Council's online NGO Directory as a communication and research tool.*

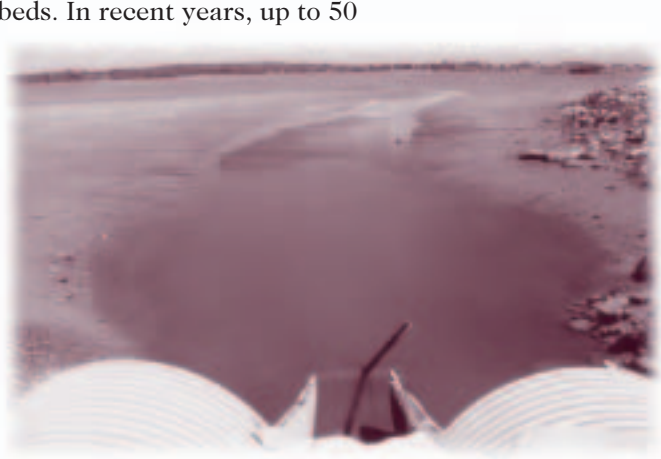


GOAL 2: PROTECT HUMAN HEALTH AND ECOSYSTEM INTEGRITY

Contaminants in the Gulf of Maine are at sufficiently low levels to ensure human health and ecosystem integrity.

Growing populations along the Gulf of Maine coast are taxing antiquated sewage treatment systems, which can release untreated sewage into local waters during storm events—prompting closures of beaches and shellfish beds. In recent years, up to 50 percent of beaches in the coastal counties of Southern Maine, New Hampshire and Massachusetts were closed periodically due to elevated bacteria levels. Fecal bacterial contamination kept nearly 35 percent of Atlantic Canada’s total classified shellfish growing areas closed to harvesting in 2001.

Runoff from urban storm water, failing septic systems, agricultural operations, and lawn fertilizers contributes further excess nutrients to the Gulf. A Council study in 1995 found that these diffuse (or nonpoint) sources of pollution account for more than 80 percent of the land-based pollution entering the Gulf.



Casco Bay Estuary Project

One of the greatest threats may come from persistent toxic chemicals introduced into Gulf waters. Many of these contaminants reach the Gulf through atmospheric deposition from nearby or distant vehicles, incinerators and power plants. They degrade the benthic habitats that support fish and shellfish and accumulate in biological tissue, disrupting metabolic, endocrine and immune systems. In 1999, Maine, Massachusetts, and New Hampshire each had statewide fish consumption advisories in place for *all* their coastal and estuarine areas.

When the Council first formed, members launched the Gulfwatch Program to gain a better understanding of the types and levels of various contaminants in the Gulf. By analyzing the tissues of blue mussels (*Mytilus edulis*) for ten years, researchers have gained a better sense for the distribution and concentration of trace metals and toxic organic compounds. Several contaminants—such as silver, lead, chromium, and chlorinated pesticides—appear to be most concentrated in southern waters, closest to urban centers and rivers (see data online at <http://www.gulfofmaine.org/library/gulfwatch/index.html>). The Council plans to expand Gulfwatch, sampling for additional chemicals, testing for contaminant levels in other organisms, conducting toxicity tests, and sampling sediments.

Through 2006, the Council will focus on three contaminants—sewage, nitrogen and mercury—that regional organizations and agencies have identified as significant threats to human health and ecosystem integrity.

***Sewage:** Sewage currently discharges into the Gulf from more than 375 wastewater treatment plants, as well as contaminated groundwater sources, septic systems, and combined sewer overflows (antiquated sewage systems that release untreated sewage, industrial waste and storm water during periods of heavy rain). Sewage typically contains microbial pathogens, toxic chemicals and excess nutrients. These nutrients can deplete oxygen in receiving waters, harming fish and other aquatic life. The Council will gather further information about the health effects of sewage, create a regional plan and begin its implementation.*

***Nitrogen:** Algal blooms and eutrophication can result when excess nitrogen enters coastal waters from wastewater treatment plants, septic systems, storm water runoff, aquaculture, agricultural operations and residential landscaping. Air*

INNOVATIVE MONITORING APPROACHES

Saint John, New Brunswick, a large city on the banks of the Saint John estuary, supports eastern North America's largest oil refinery and hundreds of smaller industries. This concentration of heavy industry makes Saint John one of the largest contributors of organic and inorganic contaminants to the Bay of Fundy.

For Atlantic Coastal Action Program Saint John (ACAP-SJ), a nonprofit organization that works to find community solutions to local problems, high pollution loads give volunteers more impetus to conduct water-quality monitoring. "We're committed to improving the environmental health of the Saint John estuary," says ACAP-SJ Executive Director Sean Brilliant. "When local citizens get involved in sampling waters and finding the sources of hydrocarbon contamination, they become much more active in environmental decision-making."

ACAP-SJ has run a surface water-sampling program for ten years, coordinating 30 to 50 volunteers each year. They monitor polycyclic aromatic hydrocarbons (PAHs), which enter the Harbour from oil-related industries and a decommissioned and buried creosote treatment plant.

One of the biggest challenges for ACAP-SJ monitors involves the expense of measuring chemical contaminants. That cost limits the amount of monitoring they can do. "With a nonprofit budget and volunteer crew," Brilliant notes, "we needed to devise a less expensive technique for sampling and pre-screening water samples for PAHs."

A grant from the Gulf of Maine Council helped ACAP-SJ do just that—creating semipermeable membrane devices (SPMDs) that, after a set exposure time in a water body, can be analyzed with UV spectrophotometry to reveal the presence or absence of hydrocarbon contaminants. With further research, SPMDs may even reveal the actual level of contamination.

"This invention has enhanced our local efforts," Brilliant says, "and it may provide a valuable tool for other communities around the Gulf that need to monitor chemical contaminants in an inexpensive but effective manner." For more information contact Sean Brilliant at 506-652-2227 or acapsj@fundy.net.

transport can also add nitrogen from power generators and industrial emissions. Since nitrogen's impact on Gulf waters is not well understood, the Council will assess nitrogen sources, impacts and locations of concern, and will design and implement monitoring programs to document nutrient-related problems.

***Mercury:** Mercury enters Gulf waters from atmospheric deposition, waste combustion, manufacturing processes and fuel combustion (particularly from coal-fired utility boilers grandfathered under the U.S. Clean Air Act). The Council will review existing findings on mercury threats in marine and estuarine ecosystems and then formulate a reduction strategy. The Council will collaborate with the New England Governors and Eastern Canadian Premiers and the North American Commission for Environmental Cooperation to lend support to their action plans (see Appendix D).*

Objectives

a. Increase Awareness and Improve Management of Priority Contaminants

Increase to 30 percent the number of people in the region's coastal resource management community that are aware of the human and environmental health threats posed by priority contaminants and are working actively to address them.

Since reducing contaminant loads entering the Gulf will take concerted action on the part of resource managers, they need to understand the current risks and reasons for action. A recent poll indicates that fewer than 21 percent of resource managers in each jurisdiction understand Gulf contaminant threats and are working actively to address them. The Council seeks to raise the number of informed and active resource managers to at least 30 percent by 2006.

Strategies

Increase Awareness

Publish information for local, state, provincial and federal resource managers, business leaders, regional organizations

and interested citizens about how contaminants affect human health and the Gulf of Maine ecosystem and encourage the exchange of information among those involved in contaminant monitoring.

Actions

- (31) *Publicize Gulfwatch findings and priority contaminant issues in the Council's Gulf of Maine Times newspaper and disseminate these articles to other publications.*
- (32) *Create and distribute fact sheets about Gulfwatch findings and priority contaminant issues.*
- (33) *Maintain a contaminants page on the Council's Web site to provide information for managers and others (<http://www.gulfofmaine.org/council/monitoring.html>).*
- (34) *Analyze, interpret and distribute data and information from the Gulfwatch Program and related contaminant monitoring programs in the Gulf of Maine.*
- (35) *Engage the region's residents in preparing a State of the Gulf report that summarizes the current status of resources and contaminants.*

Increase Understanding

In many instances, resource managers need to better understand contaminant effects before identifying and taking appropriate management actions.



Actions

- (36) *Help to develop and implement a regional marine research plan (being created by the Regional Association for Research on the Gulf of Maine, see Appendix D) that seeks to answer the region's leading coastal and marine research questions.*
- (37) *Create an expanded environmental quality monitoring strategy that integrates and builds on existing programs such as Gulfwatch.*
- (38) *Establish and maintain a Gulfwatch "tissue bank" to allow for long-term storage of tissue samples and future analysis of newly identified contaminants.*
- (39) *Synthesize information on sewage, nitrogen and mercury and provide that information to managers and others.*
- (40) *Gather additional information about contaminants in invertebrate tissue and their implications for coastal environmental health.*
- (41) *Compile information on contaminant sources and loading rates.*

Improve Management

Disseminate information on contaminants and their effects that will help resource managers reduce damage caused by sewage, nitrogen and mercury.

Actions

- (42) *Support expansion of coastal training initiatives in the U.S. and creation of a parallel program in Canada that provides science-based information and training to coastal decision-makers.*
- (43) *Translate research findings about priority contaminants into accessible language and distribute the findings (in the form of brochures, manuals, guides, and Web-based products) to resource managers.*

- (44) Review current knowledge of how Gulf contaminants affect public health and disseminate that information to managers and others.
- (45) Begin formulating a set of environmental health indicators that describe the current conditions, threats and management challenges facing selected Gulf resources.

b. Identify Reduction Strategies for Priority Contaminants

Working with local, state, provincial and federal agencies and stakeholders, strategize ways to reduce priority contaminants.

The Gulf of Maine Council will collaborate with existing agencies and groups to develop reduction strategies for sewage, nitrogen and mercury. These approaches may include publicizing citizen actions to reduce contamination; encouraging a regional information exchange about successful contaminant reduction activities; and supporting research involving new approaches to identifying contaminant sources and reduction techniques.

Strategies

Implement reduction strategies for priority contaminants. Enact strategies to reduce sewage, nitrogen and mercury based on available scientific data and broad input from regional workshops.

Actions

- (46) Convene a workshop to consider the impacts of sewage within the Gulf watershed and formulate sewage reduction strategies.
- (47) Use the results and recommendations of a 2001 nitrogen workshop to address nutrient assessment, monitoring and prediction; nutrient control strategies; and policy, regulatory and implementation issues.
- (48) Continue tracking mercury through the Gulfwatch Program and prepare a regional mercury reduction strategy that supports existing programs.

c. Enhance Citizen Stewardship

The Gulf's 650 coastal and marine stewardship programs will continue serving as local leaders in protecting human health and ecosystem integrity from contaminants.

Volunteers working to sustain the health of coastal lands and waters help the Council realize its objectives to reduce contaminants. The number of volunteer programs active in the Gulf rose by 20 percent in the five years preceding 2001, surpassing the Council's previous objective. Through 2006, the Council plans to strengthen existing stewardship programs by identifying funding sources, providing training opportunities, and enhancing networking.

Strategies

Enhance Local and Regional Capacity for Citizen Stewardship

Build the capacity of volunteer stewardship programs to protect human health and ecosystem integrity.

Actions

- (49) Administer the Council's competitive grants program, which supports local and regional initiatives that advance the Action Plan's goals of human health and ecosystem integrity.
- (50) Support additional stewardship training that addresses contaminant issues for volunteers in each jurisdiction.
- (51) Enhance links among nongovernmental organizations that focus on contaminants using the Council's online Non-governmental Organization Directory as a communication and research tool.

GOAL 3: ENCOURAGE SUSTAINABLE MARITIME ACTIVITIES

The Council, which has focused historically on the Gulf's environmental quality, is beginning to address the other key part of its mission—allowing for “sustainable resource use by existing and future generations.” It will work to strengthen maritime activities that do not involve resource extraction, particularly marine research and nature-based tourism—two potential activities identified through the Action Plan survey and a 2001 Council Forum. The Council will help ensure that these two activities provide significant economic opportunities for the region.

Objectives

a. Create and implement a marine research and monitoring strategy that responds to pressing management issues and supports regional economic development

Marine research and monitoring help managers and policy-makers solve problems and better manage the marine environment, improving the Gulf of Maine's health. Research jobs also benefit the regional economy, paying wages 50 percent higher than average—both for short-term projects and long-term commercial enterprises (such as genetic prospecting; discovery and production of natural products; discovery and mimicking of natural processes for commercial services; biotechnology; and marine *in-situ* sensor technology development). The economic value of this work is documented in several recent studies (see *The Value of Maine's Marine Research Enterprise: An Initial Characterization*, Maine State Planning Office, 2000; *Marine Science and Ocean Engineering Research at the University of New Hampshire*, Langan, 2001; *The Economic Value of Marine-Related Resources in New Brunswick*, Mandale, 2000; and *Estimating the Economic Value of Coastal and Ocean Resources: The Case of Nova Scotia*, Mandale, 1998).

In 2002 and beyond, the Council will collaborate with others to produce and implement a marine research and monitoring strategy that can respond to pressing environmental management issues and enhance the region's knowledge-based economy. Toward this end, the Council will enter into a cooperative agreement with the Regional Association for Research on the Gulf of Maine and the Gulf of Maine Ocean Observing System (see Appendix D) that articulates how these three organizations will collectively pursue this strategy.

b. Develop and implement a nature-based tourism strategy that sustains the environment and the well-being of local people

Nature-based tourism that is ecologically sustainable and energy sensitive can provide great economic and environmental benefits to communities within the Gulf watershed. Forms of this tourism might include visits to natural and cultural areas, recreation or adventure travel in natural settings, ecotourism, rural vacations and sightseeing. Responsible nature-based tourism can link people with the Gulf's cultural and natural resources; foster local economies; help unite the interests of tourism and conservation communities; foster environmental education; and produce investments that improve the health of marine ecosystems.

The Council, in collaboration with tourism agencies, industry providers and conservation interests, will develop and implement a nature-based tourism strategy for the Gulf of Maine. A 2003 cross-border workshop will review possible core elements (including voluntary guidelines for tourism providers, a nature-based accreditation system and an alliance that could serve as an organizational voice promoting responsible tourism practices).



APPENDICES

APPENDIX A

ABOUT THE GULF OF MAINE COUNCIL

THE COUNCIL

Unlike other marine management programs, the Gulf of Maine Council has no independent authority or central office. Instead it offers a regional forum for representatives of government, nonprofits and business to exchange information and engage in long-term planning.

When the governors and premiers of the five Gulf jurisdictions first created the Council, it included two government representatives from each state and province. The state and provincial Councilors are generally agency commissioners, directors or ministers. The Council expanded its membership in 1992 to include representatives from federal agencies and one nongovernmental or private sector representative from each jurisdiction (appointed by the governors and premiers).

Each of the participating state, provincial and federal agencies contributes both annual financial contributions and in-kind support for Council activities. Additional support comes from corporate and individual donations, foundation grants and government agency contracts. The Council operates as a nonprofit organization through associations established in Canada and the U.S. The U.S. Congress has provided consistent project support that helps programs around the Gulf work with federal agencies to fulfill their regional mandates. Several Canadian and U.S. federal agencies, recognizing their shared goals with the Council, will be making financial contributions to directly support the Council's work during this Action Plan period.

SECRETARIAT

The Council operates through the leadership of an annual Secretariat, which rotates among the jurisdictions according to the schedule listed below. The Secretariat jurisdiction is responsible for convening meetings and maintaining the Council's daily operations. Contributions from each jurisdiction and some federal agencies pay for the Secretariat's annual operating costs (e.g., meeting expenses, coordinator and annual awards).

2001-2002: New Brunswick

2002-2003: Massachusetts

2003-2004: Nova Scotia

2004-2005: New Hampshire

2005-2006: Maine

WORKING GROUP

The Council's Working Group includes one representative for each state, provincial and federal Council member, as well as the Canadian and U.S. co-chairs from the Council's committees. The Working Group meets four times a year—during Council meetings in June and December, and in March and September.

MANAGEMENT COMMITTEE

The Management Committee includes one Working Group representative from each jurisdiction. Management Committee members serve as the key jurisdictional contacts for public inquiry and work closely with the Secretariat and Council coordinator to conduct the Council's day-to-day business.

COUNCIL COORDINATOR

Most of the Council's work is accomplished through its member agencies, groups and committees. The Council's coordinator, hosted by a Council member agency, facilitates this process by arranging, attending and recording meetings; providing policy and administrative support; helping to develop and implement the Gulf of Maine Action Plan; and serving as managing editor for the *Gulf of Maine Times*.

COMMITTEES

The Council's committees operate under work plans reviewed and approved by the Working Group. They report to the Working Group quarterly, meeting and holding conference calls as needed. Presently, committees are established to address habitat and contaminant issues as well as to promote public education and information exchange. To learn how you can become involved in a committee, contact a committee co-chair listed at <http://www.gulfofmaine.org>, or the Council coordinator at info@gulfofmaine.org.

CONTACTING THE COUNCIL

General inquiries about Council activities can be directed to:

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Gulf of Maine Council on the Marine Environment
c/o NH Department of Environmental Services
PO Box 95
Concord, NH 03302-0095

phone: 603-225-5544

e-mail: info@gulfofmaine.org OR lmarron@des.state.nh.us

The Council's Web site lists current members and representatives of the Council, Working Group and Committees. Web links to Council-member agencies are available at <http://www.gulfofmaine.org/links/>. In addition, the People Finder and NGO Directory (searchable databases) can help locate contact information for those affiliated with the Gulf of Maine Council and others working on Gulf concerns. These tools contain thousands of individuals and more than 650 nonprofit organizations throughout the Gulf (<http://www.gulfofmaine.org/cdb/index.html>).

APPENDIX B

GULF OF MAINE COUNCILORS, 2001-2002

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APPENDIX C

OPPORTUNITIES FOR TAKING ACTION

To accomplish the actions in this plan, the Council will work in partnership with numerous organizations. Individuals and organizations can also work directly with the Council in a variety of ways. The Council operates committees, offers grants, and annually seeks nominations for outstanding Gulf of Maine visionaries and volunteers. All of the Council's meetings are open to public participation (see the "calendar" listing at <http://www.gulfofmaine.org>, or contact the Council coordinator).

GULF OF MAINE COUNCIL - COMMITTEE PARTICIPATION

Those who serve on committees, where much of the Council's work is done, gain the chance to interact with others working on similar issues throughout the region. Presently, committees are established to address habitat and contaminant issues as well as to promote public education and information exchange. Every committee has both a Canadian and U.S. co-chair and members from government and nongovernmental. The committees meet as needed (usually three to four times a year) and often conduct business through conference calls. To learn how you can become involved, contact a committee co-chair listed at <http://www.gulfofmaine.org>, or the Council coordinator at info@gulfofmaine.org.

GULF OF MAINE COUNCIL ACTION PLAN GRANTS PROGRAM

The Council offers grants for citizen groups and community organizations to pursue projects that support its priority goals. Through a competitive grant process, the Council awards grants of up to \$10,000 US (\$15,800 CA) annually. It has awarded approximately \$470,000 US (\$745,000 CA) to several dozen organizations since the grants program began in 1996. For more information, see http://www.gulfofmaine.org/ap_grants.html.

GULF OF MAINE HABITAT RESTORATION GRANTS PROGRAM

In 2001, the Gulf of Maine Council received a grant from the National Oceanic and Atmospheric Administration's National Marine Fisheries Service for \$430,000 to fund habitat restoration work in Massachusetts, New Hampshire and Maine. Funded activities, which must be matched 1:1, include engineering studies, restoration work and post-restoration monitoring. This grants program is expected to run for three years. See http://www.gulfofmaine.org/council/habitat_restoration_grants.html for more information.

GULF OF MAINE VISIONARY AWARDS

Each year, the Gulf of Maine Council gives Visionary Awards—recognizing innovation, creativity, and commitment to protecting the marine environment—to two individuals, businesses or organizations within each state and province bordering the Gulf. Recipients may work in scientific, educational, conservation, or policy realms, engaged in projects that involve public awareness, grassroots action, or business/manufacturing practices. Nominations are due to the Council each October. For more information, including nomination forms and a list of past Visionary Award recipients, refer to the Council's Web site at <http://www.gulfofmaine.org/council/awards.htm>.

LONGARD VOLUNTEER AWARD

The Council presents this annual award to an outstanding citizen volunteer within the Gulf watershed who has made significant contributions to conserving or managing the Gulf's resources. Past recipients have been involved in stewardship projects, educational programs, volunteer monitoring and scientific research. The award is named in memory of Art Longard, a Nova Scotia resident and devoted conservationist who helped to conceive and launch the Gulf of Maine Council. For more information, including nomination forms and a list of past Longard Award recipients, visit the Council's Web site at <http://www.gulfofmaine.org/council/awards.htm>.

APPENDIX D

EDUCATIONAL RESOURCES

To help people understand the Gulf ecosystem and their impact on it, the Council produces and distributes a variety of educational resources. In addition to its own publications, it often funds other organizations to produce materials and organize informative workshops. The following list includes some of the publications produced during the past five years:

GULF OF MAINE TIMES

The Council's ongoing news source is its quarterly newspaper, *Gulf of Maine Times* (available online at <http://www.gulfofmaine.org/times>). To subscribe to receive a hard copy of the Times, register through the Council's People Finder at: http://www.gulfofmaine.org/cdb/user_add.html, or contact the editor:

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MAPS AND BROCHURES

To receive copies of the maps listed below, contact the Council representative in your jurisdiction (for the most current contact information, visit www.gulfofmaine.org):

Nova Scotia—902-424-6345

New Brunswick—506-457-4846

Maine—207-287-1486

New Hampshire—603-271-2155

Massachusetts—617-626-1212

Council Coordinator—603-225-5544

Gulf of Maine watershed map—a map showing the Gulf of Maine without jurisdictional boundaries (as shown on the back cover of this publication). It can also be viewed online at <http://www.gulfofmaine.org/watershed/index.html>. Click on “high resolution detailed watershed map”.

Undersea Landscapes map—an award-winning map and poster of the Gulf's landscapes, geology and biology. The Gulf of Maine Aquarium, with the sponsorship of several Council-member agencies, created a Web site that complements this map. It can be viewed at http://www.gma.org/undersea_landscapes/.

PUBLICATIONS

The following publications can be downloaded from the Council's Web site at the links provided. They were created by or for the Gulf of Maine Council.

“Aquaculture in the Gulf of Maine: A Compendium of Federal, Provincial and State Regulatory Controls, Policies and Issues” (William J. Brennan, W.J. Brennan Associates, June 1, 1999)

http://www.gulfofmaine.org/library/aquaculture_compendium.htm

“Background and Issues Paper on the Current Status of Shellfish and Broodstock Movement and Disease Transfer Risks in the Gulf of Maine Region” (Bruce J. Barber, Ph.D., Associate Professor of Marine Sciences, University of Maine Orono, January 2001)

http://www.gulfofmaine.org/council/pdf/aquac_shellfpaper.pdf

“Characterization and Mitigation of Marine Debris in the Gulf of Maine” (Peter Hoagland and Hauke L. Kite-Powell, Woods Hole Research Consortium, October 1997)

<http://www.gulfofmaine.org/library/debris/gomdeb.htm>

Gulf of Maine Information Exchange (GOMINFOEX) document archives, and information about the GOMINFOEX digital library project

<http://www.gulfofmaine.org/gominfoex/>

“Gulfwatch—Reports of the Gulfwatch Environmental Quality Monitoring Program”
<http://www.gulfofmaine.org/library/gulfwatch/index.html>

“Identification of Important Coastal Habitats in Coastal New Hampshire” (Arnold Banner and Gerald Hayes, U.S. Fish & Wildlife Service)
<http://www.gulfofmaine.org/library/gbay/gbay.htm>

“Marine Monitoring Programs in the Gulf of Maine, An Inventory” (H. Chandler for the Gulf of Maine Council and Maine State Planning Office, 2001)
http://www.gulfofmaine.org/library/monitoring_inventory.html

“Marine Protected Areas”—a series of publications by Samuel D. Brody:

“An Evaluation of Legal and Institutional Mechanisms for Establishing Marine Protected Areas in the Gulf of Maine,” March 1998

“Evaluating the Role of Site Selection Criteria for Marine Protected Areas in the Gulf of Maine,” July 1998

“An Evaluation of the Establishment Processes for Marine Protected Areas in the Gulf of Maine: Understanding the Role of Community Involvement and Public Participation,” July 1998

“A GIS Database of Existing Coastal and Marine Protected Areas, Conservation Zones, and Restricted Fishing Areas in the Gulf of Maine,” August 1998
<http://www.gulfofmaine.org/library/mpas/mpa.htm>

“Restoration of Coastal Habitats and Species in the Gulf of Maine” (Christopher D. Cornelisen, NOAA Coastal Services Center Coastal Management Fellow, August 1998)
<http://www.gulfofmaine.org/library/habitat/index.html>

“Work in Progress: Five-Year Review of the Gulf of Maine Council on the Marine Environment, 1990-1995” (1996), available through the Council coordinator, info@gulfofmaine.org or 603-225-5544.

LIBRARY RESOURCES

The Council’s online library lists more than 200 documents. Some can be viewed and downloaded from the library Web page at <http://www.gulfofmaine.org/library/spolibrary/index.html>. Others are available at the Council’s library, located at the Maine State Planning Office. To view or borrow library documents, contact the Maine State Planning Office at 207-287-1486.

WEB LINKS TO OTHER REGIONAL ORGANIZATIONS

This list provides links with many allied organizations that are working to support the long-term health of the Gulf. While not comprehensive, it depicts the breadth of groups active in the region.

Aquatic Nuisance Species (ANS) Task Force - <http://www.anstaskforce.gov/>
Atlantic Coastal Action Program (ACAP) - http://www.ns.ec.gc.ca/community/acap/index_e.html
Atlantic Coastal Zone Information Steering Committee (ACZISC) - <http://www.dal.ca/aczisc/aczisc>
Bay of Fundy Ecosystem Partnership (BoFEP) - <http://www.auracom.com/~bofep/>
Bay of Fundy Marine Resource Centre - <http://www.bfmrc.ns.ca/>
Chewonki Foundation - <http://www.chewonki.org/>
Conference of New England Governors and Eastern Canadian Premiers - <http://www.cmp.ca/neg.htm>
Conservation Law Foundation (CLF) - <http://www.clf.org/>
Global Programme of Action Coalition (GPAC) - <http://www.gpac-gom.org>
Gulf of Maine Aquarium - <http://octopus.gma.org/>
Gulf of Maine Information Exchange (GOMINFOEX) - <http://www.gominfoex.org>
Gulf of Maine Marine Education Association - <http://www.gommea.org/>
Gulf of Maine Ocean Observing System (GoMOOS) - <http://www.gomoos.org/>
Island Institute - <http://www.islandinstitute.org>
Marine Environmental Research Institute (MERI) - <http://www.meriresearch.org/index.html>
North American Commission for Environmental Cooperation - <http://www.cec.org/>
Regional Association for Research on the Gulf of Maine (RARGOM) - <http://www.rargom.org>

NOTES







Map by Richard D. Kelly, Jr., Maine State Planning Office, 1991; revised 1999

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