# Marine Protected Areas In the Gulf of Maine: A Survey of Marine Users & Other Interested Parties

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**Written By:**

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# Executive Summary

**A marine protected area (MPA) is generally defined as:**

Any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment.

Marine Protected Areas (MPAs) are becoming important tools for encouraging the sustainable use and conservation of marine resources around the world. MPAs are established for numerous reasons, and as a result, take a variety of forms and approaches. There is strong evidence that MPAs can help respond to many of the growing environmental and socio-economic problems in the Gulf of Maine.

This report summarizes and evaluates the results of a survey conducted on the potential of a MPAs program for the Gulf of Maine. By cataloging and interpreting the comments of those interviewed, this document takes initial steps in identifying some of the key aspects in the development of a possible marine protection initiative.

Sixty-six individuals, representing a wide range of interests in the Gulf of Maine, were interviewed to obtain their comments and ideas regarding the need for and value of a MPAs program for the Gulf of Maine. The survey was conducted to: 1) build a policy based on the views of a variety of people; 2) establish a process based on representation and participation that would carry over to any future initiatives regarding MPAs; and 3) disseminate the concept of a MPAs program to Gulf of Maine stakeholders.

The most frequently mentioned responses are grouped by question and are presented in a descriptive fashion. Information accumulated and analyzed through the interview process was qualitative; statistical information is provided only to augment the anecdotal nature of the study. Survey results indicate the following:

1. **Special or Unique Marine Areas In Need of Protection**

- There exist critical marine habitats, particularly fish spawning and nursing areas, that deserve special protection in the Gulf of Maine.

2. **Major Issues in the Gulf of Maine That Could Be Addressed Through A MPAs Program**

*A marine protection initiative needs to address:*
- An Unsustainable Commercial Fishing Industry;
- Critical Habitat Fragmentation and Destruction; and
- Existing and Future User Conflicts In Areas Where Different Activities Occur.

3. **Objectives for a MPAs Program**

*A MPAs program should focus on:*
- Balancing Development With Conservation;
- Public Education on the Value of the Marine Environment, and
- The Protection of Habitat Versus Single Species.

4. **Obstacles to Designing and Implementing a MPAs Program**

*Major constraints to the establishment of a MPAs program are:*
- The Political Controversy Created By MPAs;
- Cooperation Among Multiple Jurisdictions and Political Boundaries; and
- Lack of Sufficient Baseline Data and Ecological Knowledge.

5. **Opportunities to Designing and Implementing a MPAs Program**

*The most compelling reasons to consider the development of a MPAs program at this time are:*
- The Gulf of Maine Is A Unique and Relatively Pristine Ecosystem; and
- The Timing Is Appropriate Due To A Perceived Crisis Regarding the Health of Marine Resources.

6. **Management Issues for a MPAs Program**

*A MPAs program should entail:*
- A Consensus-Based, Participatory Approach;
- A Decentralized Management Structure With A High Level of Community Involvement; and
- Strong Lines of Communication Between Managers, Scientists and Marine Users.

7. **General Comments**

*In general, the design and implementation of a MPAs program should involve:*
- A Proactive Approach to Protecting Marine Resources; and
- An Incremental Approach to the Establishment of MPAs, Where Decisions Are Made Over the Long-Term Based On One Success At A Time.

The survey results provide strong evidence that in light of the growing environmental and socio-economic problems in the Gulf of Maine, a program involving a series of MPAs can help protect one of the world's most unique and productive marine resources for the long-term. A coherent network of MPAs can be a framework for effective ecosystem management and fulfill many of the habitat-related goals established by the Gulf of Maine Council on the Marine Environment (GOMC-ME).

The appendix of this report includes a set important next steps for a MPAs program in the Gulf of Maine. These conclusions represent the viewpoints of many interested parties and do not indicate any formal decisions or recommendations made by the Gulf of Maine Council on the Marine Environment. A more detailed discussion on the specific design and implementation of a MPAs program will follow in a second report presented to the Gulf of Maine Council.

## Introduction and Background

As the marine environment faces increasing threats from human activities on land and sea (Norse, 1993), marine protected areas (MPAs) are becoming important tools for promoting the sustainable use and conservation of natural resources. The following definition of a marine protected area (MPA) was developed at the 4th World Congress and adopted by the International Union for the Conservation of Nature (IUCN):

> Any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment.

There are currently over 1,000 MPAs around the world (Kelleher et al., 1995) ranging from small, highly protected reserves that sustain a particular resource or habitat type to larger, multiple-use areas in which conservation is balanced with various socio-economic activities.

Recently established MPAs represent a decided departure from the limited marine management tools of the past and their strong links to terrestrial park planning (Agardy, 1994). They no longer are considered to be merely exclusive amusement parks set aside for an elite group of users. Instead, this new generation of MPAs are being implemented to address a wide range of marine resources and management dilemmas. Well-planned MPAs can not only protect critical habitats and general ecosystem functions, but can also meet the needs and even enhance the opportunities of many different stakeholders living in the region (Eichbaum, et. al., 1996). As a result of this expanded focus, MPAs serve a variety of purposes. Typical objectives include the following:

- conserving habitats on which priority species depend;
- enhancing commercially important fish stocks;
- supporting marine research;
- promoting marine interpretation and education;
- creating areas for tourism and recreation; and
- reducing existing and future user conflicts

## Summary and Interpretation of Survey Responses

This study relies on the viewpoints and comments of the major users and interested parties in the Gulf region to obtain input on the need for and value of a MPAs program. In-depth interviews were conducted with 66 individuals including: commercial harvesters, scientists, educators, government and marine business leaders, advocacy groups, recreationists and members of the general public (see Table 1). Survey results and conclusions presented in this report are therefore based on the specific comments and interests of the people who depend on the Gulf of Maine as a place to live, work and play.

| Table 1: Survey Participants | |
|---|---|
| **Survey Category** | **# of Respondents** |
| Federal Government | 9 |
| State/Provincial Government | 16 |
| Non-Government Organizations | 6 |
| Commercial Harvest & Trade Interests | 11 |
| Protected Areas | 5 |
| Educational Programs & Institutions | 6 |
| Aquariums & Museums | 3 |
| Industry-Related Interests | 3 |
| Independent | 2 |
| **Total:** | **66** |

The following sections describe the major comments generated during the interview process in order of frequency mentioned. Table 2 provides a summary of the most frequent survey responses. Issues are presented as they were described in conversation, rather than according to pre-defined categories.

**1. Special or Unique Marine Areas In Need of Protection**

Survey participants were asked to identify marine or coastal areas that deserve special management to conserve the habitat and species that occur there. The most frequently mentioned areas were the following:

a) Habitats Supporting High Concentrations of Fish: 77% of respondents mentioned important life-history phases and habitats of various fish species, such as spawning (48%), nursery and juvenile locations.

b) Habitats Supporting High Species Diversity and Productivity: Nearly half of interview participants (44%) cited areas of exceptionally high biodiversity (high concentrations of marine biomass) as places needing special management. These marine environments include coastal areas, such as estuaries and bays, as well as highly productive off-shore locations, such as banks

## Table 2: Summary of the Most Frequent Responses

1**. Special or Unique Habitats In Need of Protection**

- Habitats Supporting High Concentrations of Fish
- Habitats Supporting High Species Diversity and Productivity
- Whale Habitats
- Sea Bird Habitats

2. **Major Issues In the Gulf of Maine That Could Be Addressed Through A MPAs Program**

- Unsustainable Commercial Fishing Industry
- Critical Marine Habitat Fragmentation & Destruction
- Point and Nonpoint Source Pollution
- User Conflicts In Areas Where Different Activities Occur

3. **Objectives for A MPAs Program**

- Balancing Development With Conservation
- Public Education On the Value of the Marine Environment
- Nature Conservation
- Restore and Enhance Commercial Fish Stocks

4. **Major Obstacles In Designing and Implementing A MPAs Program**

- Political Controversy In Creating A MPAs Program
- Multi-Jurisdictional and Transboundary Cooperation
- Lack of Sufficient Baseline Data and Ecological Knowledge
- Lack of Financial Resources

5. **Major Opportunities For Designing and Implementing A MPAs Program**

- Unique and Relatively Pristine Ecosystem
- Appropriate Timing/Perceived Crisis
- Existing Institutional Structures and Programs
- Growing Support and Awareness for the Conservation of Critical Marine Habitats

6. **Management Approaches for a MPAs Program**

- A Consensus-Based, Participatory Approach
- A Decentralized Management Structure With A High Level of Community Involvement
- Strong Lines of Communication Between Managers, Scientists and Marine Users
- Flexibility to Changing Conditions and Priorities

7. **General Comments On the Development of A MPAs Program**

- A Proactive Approach to Protecting Marine Resources
- An Incremental Approach to the Establishment of MPAs, Where Decisions Are Made Based On One .... Success At A Time

and ledges.

c) Whale Habitats: Areas that support marine mammals, especially whales was the third most frequently mentioned area.

d) Seabird Habitats: Islands and onshore coastal areas that serve as nesting and resting places for seabirds were considered to be locations needing special protection.

e) Other Unique or Special Areas Mentioned: Benthic environments; submerged aquatic vegetation; and aesthetically pleasing areas were also mentioned as special habitats.

> **Interpretation and Analysis:** Responses to this question help build consensus on "regionally significant habitats" that might provide a target for marine protected areas. Most responses were directed towards areas of high diversity or productivity. Interest in fish habitats (both pelagic and demersal) was displayed across all respondent categories. Educators and recreationists tended to focus on marine mammals, while NGOs and government agencies offered more general comments relating to biodiversity both on and offshore.

**2. Major Issues in the Gulf of Maine That Could Be Addressed Through A MPAs Program**

Participants were asked what they perceive to be the largest marine-related problems or conflicts they would like to see addressed through some sort of protective management program.

**The most frequently mentioned environmental issues were:**

a) Unsustainable Commercial Fishing Industry: Over 70% of respondents mentioned the "overharvesting of living marine resources" as the most prevalent human-induced problem in the Gulf of Maine. Comments were mostly based on an "unsustainable groundfish industry," as well as overharvesting of shellfish species.

b) Critical Marine Habitat Fragmentation and Destruction: General loss of critical marine habitat was mentioned by over half (51%) of respondents, such as right whale, bird and benthic environments. Participants cited fragmentation and destruction of habitat from extractive commercial practices (i.e. dragging and trawling) as the primary causes.

c) Point and Nonpoint Source Pollution: Pollution from coastal development and population growth throughout the Gulf of Maine watershed is perceived to be a major problem by just under one half (48%) of survey participants that needs to be addressed. Residential and industrial effluent, agriculture, and an increase in impermeable surfaces were all regarded as contributors to pollution in the Gulf.

d) Toxic Contaminants: Harmful contaminants in the environment, such as heavy metals from both onshore and offshore human activities was cited as a major environmental problem by almost a quarter of survey participants.

e) Tourism Impacts: Increasing tourism and recreation in the Gulf were considered to adversely impact fragile habitats. For example, the activities of boaters and recreational fishers disturb heavily visited coastal and marine environments.

**The most frequently mentioned social/political issues were:**

a) User Conflicts: The conflicts between commercial activities and the long-term health of marine habitats was considered to be a major problem in the Gulf by over 50% of those interviewed. Specifically, conflicts were cited between commercial or recreation vessels and threatened species, such as whales and dolphins. Gear conflicts were also specified between commercial and recreational fishers, as well as between different types of commercial harvesters (i.e. lobstermen v. trawlers).

b) Lack of Awareness: A general lack of education and awareness regarding the value of the Gulf of Maine as a resource was believed to be a serious social problem by more than a third of respondents. Public perceptions of the Gulf as a "sink" or "dumping ground" have led to destructive practices and adverse environmental impacts.

c) Coastal Access: A lack of coastal access for both commercial and recreational activities was frequently reported. Several respondents described a loss of areas that are appropriate for facilities used in the commercial fishing industry.

**Interpretation and Analysis:** Over-exploitation of commercial fish stocks, particularly related to the groundfish industry, was widely recognized across all sectors of respondents. A prevailing feeling, even among commercial fishing interests, was that some aspects of harvesting must be addressed to protect critical habitats in the Gulf of Maine. However, onshore activities were also considered to be major problems, indicating a general desire to develop a protective policy that considers human impacts on both the land and sea. Despite the immense size of the Gulf, conflicts between humans and nature and between one human use and another was consistently mentioned as a growing problem. Many participants felt that there exist focal points where users of different types congregate. These areas need to receive more directed management to reduce existing and future conflicts.

## 3. Objectives for a Marine Protected Areas Program

Survey participants were asked to indicate specific objectives for a protection program that might address some of their previously mentioned problems in the Gulf of Maine. The most frequently cited objectives were:

a) Balancing Development With Conservation: More than 70% of respondents advocated some form of "management that results in the protection of the marine habitat and the sustainability of marine-related industries." Participants described balancing the needs of various stakeholders, protecting the natural resource as well as its users, and integrating the maintenance or enhancement of resources with socio-economic development.

b) Public Education on the Value of the Marine Environment: Educating users and the general public was cited as a crucial objective of a protection program by almost half (49%) of the respondents to build a sense of awareness of the value of the Gulf of Maine.

c) Conservation of Nature: Many respondents (34%) believed that a major focus should be the conservation of the marine environment resulting in protection and restoration of important species and their habitats.

d) Restore and Enhance Commercial Fisheries: Several survey participants (24%) considered the protection of commercial fish stocks for the purpose of commercial extraction to be an important objective of a marine protected areas program. Many felt that MPAs should by no means replace existing fishery management programs in the Gulf of Maine, but they could be used to enhance commercial stocks and create a more "sustainable" harvesting industry. Small core areas that are highly protected, such as parts of spawning grounds was suggested (even among harvesters) as a way to ensure the long-term productivity of commercial fish stocks.

e) Build Consensus and Common Interests: Respondents frequently remarked that an undervalued, but important objective for a marine protection program is to build partnerships and bring people together from different backgrounds to work on common interests. In this sense, many survey participants felt that MPAs could serve as focal points for multi-jurisdictional and political collaboration.

f) Other Objectives frequently mentioned: Other repeatedly mentioned objectives include recreation and the development of ecotourism; scientific research and the establishment of baseline data; and conflict management.

**Interpretation and Analysis:** No one objective received an overwhelming majority suggesting that there exist many legitimate purposes for a marine protected areas program in the Gulf of Maine. Respondents indicated that economic development, such as commercial fishing is as important as nature conservation (and at times integrally linked) and the two should be balanced in any strategy involving the management of marine resources. Many survey participants, particularly harvesters and government officials, viewed marine protected areas as valuable to enhancing commercial fish stocks.
Regardless of the specific objective employed for a marine protected areas program, a majority of respondents emphasized that any effort: a) be driven by sound science and ecological understanding, and b) take an ecosystem approach to protection and management, even if it requires coordinating across state/provincial and international political boundaries.

## 4. Obstacles to Designing and Implementing A Marine Protected Areas Program

Survey participants were asked to name the biggest obstacles that may prevent or inhibit the development and installation of a MPAs program in the Gulf of Maine. The most frequently cited obstacles were:

a) Political Controversy Created By A MPAs Program: Approximately 83% of the respondents mentioned that the political controversy created by a marine protection initiative would prove to be a major obstacle. Respondents perceived that objections would be made by harvesters and other commercial users, making consensus extremely difficult. Several participants remarked that the controversy would be attributed to: traditional mindsets of open-access and exploitation, immediate need v. long-term planning, perceptions of a threat to one's livelihood, political turf battles, and distrust created from previous proposals.

b) Cooperation Among Multiple Jurisdictions and Political Boundaries: The second most frequently cited obstacle (64%) related to the difficulty of coordinating policies across so many jurisdictions and political boundaries. Respondents identified state/province and federal, as well as binational hurdles that must be overcome before an MPAs program can become successfully established.

c) Lack of Sufficient Baseline Data & Ecological Knowledge: Almost half (48%) of those interviewed mentioned a lack of data and ecological understanding as a constraint to successfully planning and implementing a MPAs program in the Gulf of Maine. Respondents cited a need for better understanding of habitat structures, locations of critical habitat, migratory patterns, and the impacts of harvesting and pollution. It was generally agreed that hasty initiatives without scientific basis would be a mistake. However, there may never exist complete understanding of the ecology of the Gulf and a lack of complete understanding should not prohibit the consideration of a MPAs program.

d) Lack of Financial Resources: A major obstacle (cited by more than a third of respondents) is a perceived lack of resources to develop and carry-out such a comprehensive initiative, particularly money and personnel.

e) Lack of Commitment To Protect Marine Resources: Many survey participants mentioned a general lack of commitment to protect Gulf of Maine resources on behalf of users and policy makers. This lack of commitment stems from poor education and awareness of the tremendous value of the ecosystem, as well as from a tendency to focus environmental policies more on terrestrial resources.

f) Other Frequently Mentioned Obstacles: Also mentioned was a lack of communication between stakeholders; ineffective legal frameworks for dealing with transboundary issues; enforcement troubles; equity issues; and the ability to take an ecosystem approach to management.

> **Interpretation and Analysis:** Political and economic issues are clearly the greatest obstacles to designing and implementing a marine protected areas program in the Gulf of Maine. Commercial fish and trade interests were most aware of immediate economic constraints, while government agency representatives focused their comments on the difficulties of regional cooperation. No respondent considered the general proposal to be so controversial that it would be impossible to implement. In fact, many participants felt that key aspects of marine protected areas have already been employed in the Gulf of Maine in some form. Most described their obstacles to be surmountable, and that the need for some more concentrated protection program outweighs the difficulties involved in its establishment.

## 5. Opportunities for Designing and Implementing A Marine Protected Areas Program

Survey participants were asked to name the biggest opportunities or advantages that would enable the development of a MPAs program in the Gulf of Maine as opposed to any other situation or water body around the world. The most frequently cited opportunities were:

a) A Unique and Relatively Pristine Ecosystem: The Gulf of Maine was described as “one of the most ecologically significant places in the world.” Over 50% of those interviewed considered the unique and diverse nature of the Gulf to be a driving force for establishing a marine protected areas program. Many cited the relatively pristine condition of the resource as a reason to

implement protected areas before further degradation results. The fact that the Gulf is a well-defined ecological unit was another frequently mentioned factor in support of developing a protection program.

b) Appropriate Timing/Perceived Environmental Crisis: The perceived crisis, particularly related to the collapse of the groundfish industry, was the second most regularly reported opportunity (48% of respondents) to establish a MPAs program. Survey participants felt that the timing for an innovative approach to marine management is appropriate, even compared to five years ago, and that consensus is far more easy to establish during a state of environmental and economic decline.

c) Existing Institutional Structures and Programs: Many respondents cited existing government and community organizations as an opportunity to promote regional cooperation and establish links of communication (43%). The Gulf of Maine Council on the Marine Environment was the most frequently mentioned institution that could play a vital role in carrying-out a Gulf-wide effort. Existing protection programs in the Gulf of Maine, such as National Marine Sanctuaries, National Parks (Acadia N.P., Fundy N.P.), National Estuarine Research Reserves, and offshore areas closed to commercial fishing were also considered opportunities for creating an ecosystem-wide program. Many survey participants argued that a MPAs program already exists in the Gulf of Maine, yet without any overall coordination. In this sense, it would be feasible to begin a program by networking existing programs at very little cost and political controversy.

d) Growing Support and Awareness for the Conservation of Critical Marine Habitats: Respondents consistently remarked that in the last five years there has been increasing awareness regarding the value of the Gulf of Maine and the need to conserve marine areas listed under question #1. As users begin to recognize the long-term economic benefits of conservation and sense a threat to long-standing maritime traditions, the probability for establishing a marine protected areas program increases.

e) Other Frequently Mentioned Opportunities: Other frequently mentioned opportunities included existing data and ecological knowledge; Existing expertise in the region; and the opportunity to improve international cooperation.

**Interpretation and Analysis:** All categories of respondents were aware of the unique and relatively pristine nature of the Gulf ecosystem. Many felt that a program should be established at the early stages of resource decline, rather than wait until there is an even greater crisis. There was also a strong sense of a shift in attitudes regarding conservation. Commercial and industrial interests are beginning to realize a need for more protected areas to maintain the economic value of the resource. At the same time, policy makers are beginning to think more regionally in constructing management plans. This turning tide in awareness might be the greatest opportunity to establish a MPAs program in the Gulf of Maine.

## 6. Management Issues for A Marine Protected Areas Program

Survey participants were asked to discuss their views on management for a marine protected areas program that could conceivably cross several political and jurisdictional boundaries.

**The most frequently mentioned management characteristics were:**

a) A Consensus-Based Approach: Over 65% of the respondents desired a consensus-based approach to the development and implementation of any marine protection program. This process would involve collaboration across different user groups, building partnerships based on common objectives, and compromising on some controversial issues.

b) Strong Lines of Communication Between Managers, Scientists and Marine Users: Approximately half (50%) of survey participants consistently agreed that any management approach would need to establish and promote lines of communication. This undertaking would entail sharing data between all stakeholders, particularly between harvesters and scientists.

c) Management Flexibility: A policy that involves constant review and flexibility to change was considered a major characteristic of management. Respondents advocated the principles of 'adaptive management,' where a feedback loop between science and management is maintained to be responsive to any social and environmental changes, or shifts in program objectives. In this sense, an established policy would be considered a well-planned experiment that could be continually improved upon from year to year.

d) Outreach-Based Approach: Many of those interviewed believed that managing a marine protected area should inherently involve education and outreach of those who use the resource. Several respondents suggested a permit or accreditation system for protected areas that would require the user to undergo some sort of educational or training program.

**The most frequently mentioned comments relating to management structure were:**

a) Decentralized Structure With A High Level of Community Involvement: A large majority of respondents (82%) advocated a decentralized management structure, where local communities play a critical role in all stages of decision-making. Many survey participants cited comanagement as an ideal approach, enabling different stakeholders to "work together by design." Comments were also made regarding harvester ownership and self-management, and the incorporation of local knowledge in planning and implementation.

b) Participation-Based: More than 50% of those interviewed mentioned the inclusion of all stakeholders as a separate characteristic relating to management structure. Whatever design is selected, it should be based on the complete representation of those using the Gulf of Maine resource on a regular basis.

c) Rely on Existing Structures-The Gulf of Maine Council on the Marine Environment: Nearly half (46%) of respondents believed that any management structure for a MPAs program should rely on existing programs and institutions, rather than create a new bureaucracy. Almost half of all surveyed individuals mentioned the Gulf of Maine Council on the Marine Environment as an "ideal forum for cooperation" and as a "catalyst for positive change." While the Council may not be an appropriate body for management, it could play an advisory role in developing a successful MPAs program for the Gulf of Maine. Respondents also cited management structures of existing MPAs in the Gulf region, such as Stellwagen Bank National Marine Sanctuary that could provide a foundation for a Gulf-wide program.

**Interpretation and Analysis:** A large majority of respondents advocated a decentralized structure of management, where major decisions are made through consensus and local community involvement. Commercial fish and trade interests focused on participation and the infiltration of local and traditional knowledge into management decisions. Government agency representatives were especially concerned with the negative effects of creating a new bureaucracy that would further complicate marine management in the Gulf. While it was beyond the scope of the interview questions for respondents to offer an exact description of possible management structures, many cited examples of existing programs or approaches that could be applied to a Gulf-wide MPAs program. The most frequently mentioned examples include: the Maine lobster management structure, the National Estuarine Research Reserve (NERR) model, the National Estuary Program, the St. Croix International Waterway management structure, and the United Nations Environmental Program (UNEP) Regional Seas Program

## 7. The Process of Designing and Implementing A Marine Protected Areas Program

The final question of the survey asked participants to comment on the actual process of designing and implementing a MPAs program in the Gulf of Maine. Respondents were given examples of top-down and bottom-up approaches as the most commonly used methods to provide a frame of reference. The most frequently mentioned comments were:

a) Bottom-Up Approach: Almost all of those interviewed (92%) felt strongly that any policy process involving marine protection in the Gulf take a bottom-up approach, where participation is a central element throughout all stages of planning and implementation.

b) Simultaneous Top-Down and Bottom-Up Approach: Several respondents advocated a simultaneous top-down and bottom-up approach as the most effective way to reach the goals of a Gulf-wide MPAs program. One survey participant commented that such a process would need to be "top-down to ensure the political will to implement and bottom-up to ensure buy-in and sense of ownership for MPAs from local areas at the beginning."

**Interpretation and Analysis:** Survey participants clearly believe that a process based on participation and consensus (refer to #6) is the most effective approach, despite its difficulties. There may never be 100% consensus on a single issue and a bottom-up approach tends to be a time-consuming and frustrating process. Nevertheless, respondents felt strongly that "early buy-in" would reduce the need for enforcement measures and save money and time in the long-run.

## 8. General Comments

Since the interview process was conducted in an open forum or conversational format, there were several important and frequently touched-upon comments that did not directly relate to a specific question. These included:

a) A Proactive Approach: Several survey participants promoted a proactive approach to marine protection, where areas of future degradation are protected before an ecological decline results. The relatively pristine condition of the Gulf was a major factor for many respondents; maintaining

this level of environmental quality was a compelling reason to take initiative now rather than later. Proponents of this concept believe that there may be less political controversy in a MPAs program that selects areas which are not heavily frequented. Waiting until the resource is in serious decline and user conflicts are most intense may make it more difficult to establish an effective MPAs program in the future.

b) An Incremental Approach: Many respondents recommended an "incremental approach" to the development of a MPAs program in the Gulf of Maine. This process would involve starting with an experimental MPA in one location, preferably where consensus already exists, and then building upon that success.

c) Long-Term Thinking: Many respondents cautioned that a Gulf-wide program of MPAs can not be established in the short-run. The initiative would amount to a long-term process that would evolve with the accumulation of scientific data and changing socio-economic priorities.

**Interpretation and Analysis:** The three approaches listed above are just a few of the general comments that were generated during the interviews. However, these frequently touched-upon concepts reveal an important trend in stakeholder viewpoints: that a protection program is needed now, at the early stages of environmental decline, but should proceed cautiously, as a step-by-step process over time.

## Conclusion

Based on the comments and ideas of survey participants, a program involving a series of MPAs could be of great benefit to the protecting the natural and economic value of one of the most productive marine resources in the world. While there exist several obstacles to its establishment, a coherent network of MPAs can be a framework for sound ecosystem management and fulfill many of the future goals designated by the Gulf of Maine Council on the Marine Environment. A MPAs program is one viable strategy to establish a high level of local community involvement, educate all types of marine users on the importance of the Gulf of Maine ecosystem, and help promote the sustainable use and conservation of the marine resource for future generations. Aside from protecting critical habitats and enhancing commercial fisheries, a Gulf-wide approach to marine protection will facilitate an information exchange, as well as force managers and users to think about and act upon the Gulf as a single, irreplaceable resource.

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# Appendices

## Appendix 1: Survey Objectives and Methods

Survey Objectives

The survey was conducted to attain the following goals:

1. **Gain input from a variety of different resource users and interested parties:** Although it was not possible to represent the views of every important interest in the Gulf of Maine region, a representative slice of people was effectively selected and interviewed.

2. **Set an important precedent for future initiatives relating to the design and implementation of MPAs:** A process that begins with representation and consensus will be more likely to continue in that vein during the actual stages of planning and management.

3. **Provide a way to build consensus beyond the selected group of participants:** Major stakeholders act as key informants and may spread an idea throughout their constituency.

Survey Methods

Major stakeholders were identified and then separated into the following categories: state/province and federal government, non-government organizations (NGOs), research organizations, commercial harvest and trade interests, protected areas, recreational interests, educational programs and institutions, museums and aquariums, industry related interests and independents (see Appendix 2).

At the start of every interview, participants were given a brief introduction (either in person or over the telephone) outlining the following key aspects of a MPAs program for the Gulf of Maine: 1) a program would focus on the Gulf as a single ecological entity and, therefore, likely cross multiple jurisdictions and political boundaries; and 2) any designated protected area would follow the path of the "new generation" of MPAs where conservation and socio-economic activities are thoroughly balanced. Participants were then asked a series of standardized questions. These questions were open-ended and called for a descriptive response rather than a "yes" or "no", or a number. In this sense, the interviews were meant to be informal discussions to elicit the most detailed and creative responses on the subject.

Interview comments and ideas for each question were grouped into major issues and are presented in order of frequency mentioned. A short section on interpretation and analysis follows each listing. In this manner, the most important issues regarding MPAs can be highlighted and discussed. It is important to note that the information obtained during the survey was qualitative; statistical information is provided only to support the anecdotal nature of this study.

**Appendix 2: A list of all survey participants by respondent category, with information on each individual's organization, position and location.**

| Federal Government | | | |
|---|---|---|---|
| **NAME** | **ORGANIZATION** | **POSITION** | **LOCATION** |
| Stewart Fefer | US Fish & Wildlife Service, GoM Coastal & Estuary Project | Project Leader | Falmouth, Maine |
| Chris Kellogg | New England Fisheries Management Council | Technical Coordinator | Saugus, MA |
| Chris Manzaris & Jon Kurland | National Marine Fisheries Service | Fishery Biologists | Glouster, MA |
| Jack Pearce | National Marine Fisheries Service | Scientific Editor | Woods Hole, MA |
| Jean Brochi | US EPA | Environmental Protection Assistant | Boston, MA |
| Cathy Demos | US Army Corp of Engineers | Marine Ecologist | Waltham, MA |
| Brian Nicholls | Dept. Of Fisheries & Oceans | Head of Environmental Assessment | Dartmouth, NS |
| Larry Hildebrand | Environment Canada | Head of Coastal Liaison | Dartmouth, NS |
| Francine Mercier | Parks Canada, Dept. Of Canadian Heritage | Senior Planner, Marine Studies | Hull, QC |
| Subtotal: 9 | | | |
| **State/Provincial Government** | | | |
| Linda Mercer | Dept. Of Marine Resources (DMR) | Director | West Boothbay Harbor, ME |
| Rich Langton | Dept. Of Marine Resources | Director, Ecology/Biology Division | West Boothbay Harbor, ME |
| Fran Rudoff | ME Coastal Program, State Planning Office | Director | Augusta, ME |
| Joseph Kelly | Dept. Of Conservation, Maine Geological Survey | Marine Geologist | Orono, ME |
| Kristine Cheetham | NH Coastal Program | Planner | Concord, NH |
| David Hartman | NH Coastal Program | Manager | Concord, NH |
| Susan Snow- Cotter | Mass. CZM Program | Ocean Policy Coordinator | Boston, MA |
| Leigh Bridges | Mass. Division of Marine Fisheries | Assistant Director of Research | Boston, MA |
| Megan Trites | NB Dept. Of Fisheries & Aquaculture | Secretariat Coordinator, GoM Council on the Marine Environment | Fredericton, NB |
| Barry Jones | NB Dept. Of Fisheries & Aquaculture | Sustainable Development Coordinator | Fredericton, NB |
| William Ayer | NB Dept. Of the Environment | Manager of Land & Water Planning | Fredericton, NB |

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| Gerry Hill | NB Dept. Of the Environment | Director | Fredericton, NB |
| Paul Schwartz | NS Dept. Of the Environment | Education Officer | Halifax, NS |
| Frances Martin | NS Dept. Of the Environment | Director of Policy | Halifax, NS |
| Peter Underwood | NS Dept. Of the Environment | Deputy | Halifax, NS |
| Art Longard | NS Dept. Of Fisheries | Director of Policy and Planning | Halifax, NS |
| Subtotal: 16 | | | |
| **Non-Government Organizations** | | | |
| Jennifer Atkinson | Conservation Law Foundation, Maine | | Rockland, ME |
| Dick Anderson | Coastal Conservation Association, Maine Chapter | Vice-President | Boothbay Harbor, ME |
| Barbara Vickery | The Nature Conservancy | Conservation Planner | Brunswick, ME |
| Jack Clarke | Audobon Society | Advocacy Director | Lincoln, MA |
| David Coon | Conservation Council of New Brunswick | Bay of Fundy Project Coordinator | Fredericton, NB |
| Steve Hawboldt | Clean Annapolis River Project (CARP) | Program Director | Annapolis Royal, NS |
| Subtotal: 6 | | | |
| **Research Organizations** | | | |
| Ted Ames | Island Institute | Scientist | Rockland, ME |
| Lewis Incze | Bigelow Laboratory | Scientist | West Boothbay Harbor, ME |
| Subtotal: 2 | | | |
| **Commercial Harvest & Trade Interests** | | | |
| Craig Pendleton | Independent Fisherman | | Saco, ME |
| John Marsh | Paul's Marina | Owner | Harpswell, ME |
| Pat White | ME Lobsterman's Association | Executive Director | Damariscotta, ME |
| Herman Backman | Downeast Lobsterman's Ass. | President | |
| Michael Hastings | ME Aquaculture Association | Executive Director | Brewer, ME |
| Dennis Frappier | Portland Fish Exchange, Inc. | General Manager | Portland, ME |
| John Williamson | NH Commercial Fisherman's Ass. | | Rye, NH |
| Ken Coons | New England Fisheries Development Ass. | Executive Director | Boston, MA |
| Bill Adler | MA Lobsterman's Ass. | Executive Director | Scituate, MA |
| Ishbel Munro | Maritime Fisherman's Union | Coordinator | New Glasgow, NS |
| Jon Kearny | Fundy North Fisherman's Ass. | | Millville, NB |
| Subtotal: 11 | | | |

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| **Protected Areas** | | | |
| James List | Wells National Estuarine Research Reserve (NERR) | | Wells, ME |
| David Manski | Acadia National Park | Chief Biologist | Bar Harbor, ME |
| Peter Wellenberger | Great Bay National Estuarine Research Reserve (NERR) | Manager | Durham, NH |
| Maria Burks | Cape Cod National Seashore | Superintendent | Wellfleet, MA |
| Anne Smrcina | Stellwagen Bank National Marine Sanctuary | Education Coordinator | Plymouth, MA |
| Subtotal: 5 | | | |
| **Recreational Interests** | | | |
| Brian Forist | Hyannis Whale Watch | Education Director | Barnstable, MA |
| Jamie Steele | Salty Towers Inn | Owner | St. Andrews, NB |
| Subtotal: 2 | | | |
| **Educational Program & Institutions** | | | |
| Dr. Charles Colgan | U. Of Southern Maine | Economist | Portland, ME |
| Lois Winter | Gulf of Maine Project, US Fish & Wildlife Service | Outreach Specialist | Falmouth, ME |
| Bob Wall | Center for Marine Studies, U. Of Maine at Orono | Director | Orono, ME |
| Mary Cerullo | GOM Marine Education Ass. (GOMEA) | President | S. Portland, ME |
| Bob Stenick | Darling Marine Center, U. Of Maine | Professor of Oceanography | Walpole, ME |
| Jim Wilson | U. Of Maine, Orono | Fishery Scientist | Orono, ME |
| Subtotal: 6 | | | |
| **Aquariums & Museums** | | | |
| Alan Lishness | Gulf of Maine Aquarium | Project Director | Portland, ME |
| Gregg Stone | New England Aquarium | Associate Director of Conservation | Boston, MA |
| Margarie Mooney-Seus | New England Aquarium | Policy Analyst | Boston, MA |
| Subtotal: 3 | | | |
| **Industry-Related Interests** | | | |
| John Ferland | Clean Casco Bay, Inc. | General Manager | Portland, ME |
| John Worth | Maineport Towboats, Inc. | President | Belfast, ME |
| Edward McLean | Conners Bros., Ltd. | President | Blacks Harbour, NB |
| Timothy Hendrix | Portland Pipeline, Inc. | Director of Operations | South Portland, ME |
| Subtotal: 4 | | | |
| **Independent** | | | |
| Ann Hayden | Resource Services, Inc. | President | Brunswick, ME |
| Chris Cornell | Stetson & Pinkham | Sales & Marketing Manager | Damariscotta, ME |
| **Total: 66** | | | |

## Appendix 3: Important Next Steps

Based on the responses of the survey, the author of this report is recommending to the Gulf of Maine Council that following steps be taken to continue the process of developing a MPAs program in the Gulf of Maine. A more thorough discussion of important next steps, specific recommendations and policy options will be presented in a second report made to the Gulf of Maine Council:

1. Hold a workshop on MPAs in the Gulf of Maine: A workshop that brings together some of the individuals interviewed for this report would facilitate further discussion about the possibilities for a MPAs program. Experts and others that have experience in designing and implementing MPAs elsewhere could be invited to share their experiences and apply their knowledge to the Gulf of Maine.

2. Define and locate critical habitats: A classification system for critical habitats needs to be developed specifically for the Gulf of Maine. Several classification systems already exist, such as those used by the NMS Program, the IUCN and the Great Barrier Reef Marine Park Authority. These could be adapted for the Gulf of Maine. In addition, baseline data on the location and characteristics of critical habitats need to be recorded and mapped. Significant efforts have already taken place to generate data on important habitats and marine species. Finally, an inventory of existing MPAs in the Gulf of Maine should be conducted.

3. Establish an advisory committee: An advisory committee should be set-up to develop a more comprehensive proposal for a MPAs program in the Gulf of Maine. This body should concentrate on establishing an effective process for designing and implementing MPAs.

4. Develop a pilot project: A pilot project is a logical next step in developing a successful MPAs program. An experimental MPA would help build consensus, demonstrate the effectiveness of the concept, and facilitate an information exchange. A MPA can be used specifically to generate scientific data and fulfill many of the goals described in step # 2.
A pilot project should be established in a geographic location that can be accessed by as many interested parties in the Gulf of Maine region as possible and should take advantage of existing MPAs or areas that have already been recognized as needing special protection.