Human Dimensions of Marine Protected Areas in and near New Hampshire Waters

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Summary

The investigators interviewed 20 stakeholders in depth, and conducted informal interviews with 8 other stakeholders, concerning their (1) definitions of, (2) knowledge of, and (3) attitudes toward marine protected areas (MPAs) in and near New Hampshire waters. The stakeholders were selected to ensure a wide representation of occupational perspectives, ranging from public policy makers to private whale watch boat owners and sport fishermen/anglers. We used snowball sampling techniques to identify interviewees after we chose an initial group for contact. We used a semi-structured interview protocol, allowing for additional discussion of topics of interest to the interviewees. We analyzed the results of the interviews for conceptual categories and patterns concerning protection of marine areas in and near New Hampshire waters. As might be expected, definitions, knowledge, and attitudes toward marine protected areas varied according to the occupations and roles of the interviewees. Those stakeholders responsible for creation and implementation of policy were knowledgeable concerning the definitions of MPAs and were favorable toward maintenance and establishment of these areas, while private entrepreneurs were concerned that restrictions on resources in NH and Gulf of Maine waters would be implemented without adequate consultation with stakeholders.

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Interviewees uniformly agreed such consultation was necessary, and that cooperation between the scientific community and other stakeholders was essential to further planning.

**Introduction**

The management of marine resources continues to be an important issue as threats to the natural resource base are identified and awareness of the issues in both public and professional forums increases. One effort to conserve marine resources in the United States is the establishment of Marine Protected Areas (MPAs), zones in which activities are or would be regulated to aid the management of fisheries and other marine resources. To date, efforts to establish marine protected areas have been undertaken at numerous levels, including state and federal ones, a complex set of regulating bodies which complicate considerably the human and natural resource dimensions of the issues involved. We were interested in assessing stakeholders’ perceptions of past public involvement processes and their attitudes toward current MPA issues in the Jeffreys Ledge area in the Gulf of Maine, which are an important factor in developing knowledge of the social dimensions of MPA related issues in New Hampshire.

**Background**

Natural resource management has traditionally been viewed as a task governed by scientific disciplinary knowledge, but the need to incorporate stakeholder and community perspectives in efforts to collaboratively develop management plans is necessary to ensure the success of management efforts and to avert environmental conflicts (Daniels and Walker 2001; Ozawa and Susskind 1985). The need for these approaches in regards to MPAs is evident in numerous works on the topic (Capitini et al. 2004; Weible, Sabatier, and Lubell 2004; Agardy et al. 2003; Friedlander et al. 2003) and is identified in the New Hampshire Sea Grant Strategic
Plan for 2001-2006, which states: “Of highest priority in the search for new approaches to fisheries management is the need for effective communication and genuine partnership among the diverse stakeholders” (NH Sea Grant:12). Similarly, as the Marine Protected Areas of the United States’ website says:

To date, the vast majority of research and literature on MPAs has focused on natural science, with largely anecdotal references to social science and few rigorous programs evaluating the complexities of the human dimensions of MPAs. This critical information gap must be addressed in order to promote sound decision-making that takes into account the human and nonhuman dimensions of the environment. The inability to adequately address the human dimension of MPAs is perhaps the greatest single impediment to their broader and effective use in marine conservation today.

http://mpa.gov/information_tools/social_science.html

This approach has a history in the Gulf of Maine region, as natural resource agency activities and numerous scholarly works focusing on this region, including those by Samuel Brody, advocate for and incorporate stakeholder inclusive management processes (Brody and Nicholson 1999, Brody 1998a, Brody 1998b, Brody 1998c, Brody 1996).

Despite these efforts, more social science research on MPA issues is needed. The National Marine Protected Areas Center asserts that: “Although we are beginning to understand the natural ecology of these systems more fully, federal and state management agencies often lack information on the social, cultural, and economic aspects of MPAs.” (National Marine Protected Areas Center, 2003). As clarified by the National Marine Protected Areas Center, while there is increasing information about the state of marine resources and the workings of marine ecosystems, one important gap within that extensive body of scientific research is the lack of examination of the role that human values, decisions, and behaviors play in the development and application of effective management tools in the NH seacoast and Gulf of Maine region, including the Jeffreys Ledge area. The human dimensions are among the most
complex variables in any management program, and it is important to acknowledge that the effectiveness of scientifically-grounded management techniques is strongly influenced by social factors. Simply put, before appropriate and effective management tools can be created and employed, a fundamental understanding of the social and cultural factors that influence public perceptions must be developed. Incorporating knowledge of these factors into current policy and management efforts can assist managers in their efforts to develop successful plans of action by facilitating their collaborative creation. A critically important part of natural resource management is public involvement. To better understand these factors, our research examined stakeholders’ perceptions of past public involvement process and their attitudes toward current MPA related issues.

**Methods**

The research project used in-depth interviews with stakeholders as the primary means of data collection. Some participants were purposefully selected to ensure a broad range of stakeholders representing various constituencies ranging from public policy makers to private entrepreneurs in whale watching/tourism. Snowball sampling was used to further identify participants from stakeholder groups. Confidentiality in responses was guaranteed, as respondents were told that no testimony about groups or individuals would be linked to them personally in any report. A semi-structured, open-ended protocol was used to ensure that analysis of the set of interviews was meaningfully conducted (see Berg 1995; McCracken 1988).²

² This data-gathering method uses predetermined open-ended questions to examine the research questions that guide the research, but the format also allows for unscheduled probes and digressions into unanticipated topics that arise in the course of the interview itself. The freedom to explore unforeseen areas of interest in subsequent interviews is especially important in a descriptive investigation, as these topics may generate significant analytical insights.
Interview answers were written down and additional notes taken in the course of the interviews. The content was inductively analyzed (Glaser and Strauss 1969) into conceptual categories and patterns that emerged from the data itself (Miles and Huberman 1984) and that were relevant to the research questions used to create the interview protocol.

Preliminary background research for this project began in 2005. Brian Eisenhauer and Katherine Donahue, co-Principal Investigators, attended an MPA regional meeting in May, 2005, at the Gulf of Maine Institute in Portland, Maine. Both PIs made or renewed contacts which were helpful in later research. Donahue maintained contact with Gib Chase, formerly of the US Fish and Wildlife Service, and his advice is gratefully acknowledged here. Funding for this project was officially available in 2006, and extensive in-depth bibliographic research was begun on marine protected area issues both in the US and in international waters. An interview protocol was developed in summer, 2007 (see Appendix). Donahue conducted informal interviews in the spring and summer of 2007 in Maine and New Hampshire. These interviews were held with commercial fishermen in Gulf of Maine waters and with fisheries biologists. She traveled to the Gulf of Maine Institute in July, 2007, to meet with marine biologists and researchers there concerning MPA issues. Several made suggestions concerning stakeholders who should be interviewed more formally. Brian Gagnon, a Plymouth State University graduate student in the Environmental Science and Policy program, who has worked with Brian Eisenhauer on other federally funded projects, was identified to help conduct the interviews. Donahue and Gagnon traveled to the seacoast to begin interviews in the fall of 2007, and they continued interviewing, in person, on the telephone, and via email through the fall. Donahue also held informal interviews with participants on a whale watch trip and on a fishing trip with anglers for bluefish off the coast of New Hampshire. Despite the fact that we are officially finished with this project,
interviews continue in anticipation of including a broader sample of stakeholders for a paper based on this research to be given at the International Symposium on Society and Resource Management in 2008 at the meeting to be held at the University of Vermont. For purposes of this report, however, the 20 in-depth interviews were held with the following categories of stakeholders:

- Commercial fishermen/women, including owners and crew: 4
- Wildlife/fisheries biologists, state, federal: 2
- Conservation advocates: 3
- Saltwater anglers, including members of advocacy groups: 2
- Whale watch/sport fishing enterprises: 6
- State agencies/regulators concerning offshore areas: 2
- Marine education/extension: 1

Several of the interviewees serve on regional or national councils concerned with fisheries management or conservation or saltwater angling advocacy.

**Results**

The interview responses were analyzed for their conceptual categories and patterns of thought. We focused primarily on the stakeholders’ definitions of marine protected areas, their perceptions of the past and current issues concerning MPAs, and their attitudes toward the potential establishment of a national MPA system. We have included some of their responses here.
Definitions of MPAs:

The respondents were divergent in their definitions of MPAs. As might be expected, the commercial fishermen/women who serve on regional and/or federal regulation councils, as well as the fisheries biologists used definitions similar to those found in Executive Order 13158, which defined a marine protected area as:

…any area of the marine environment that has been reserved by Federal, State, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein. ([http://www.nepa.gov/nepa/regs/eos/eo13158.html](http://www.nepa.gov/nepa/regs/eos/eo13158.html))

Other respondents, including whale watch/sport fishing boat owners or crew members had a wide variety of definitions, including “no-go areas”, and areas closed to any human use. We include some of their responses:

*What, in your opinion, is the best definition of a marine protected area?*

**Commercial fishermen/women:**

“MPA is an area that is designated as having use restrictions in order to improve the natural state of the ocean.”

“Very broad/general. An MPA is piece of “land” (underwater) that is closed to resource harvesting of any kind. This ranges from fish species to sand and gravel to whale watching.”

**Wildlife/fisheries biologist:**

“MPA has already been defined in an Executive Order, essentially an area afforded some level of “lasting protection” for natural or cultural resources. The level and type of protection afforded varies widely based on purpose of the particular MPA. This definition seems to work well, however the public often views the term “protected” to imply total exclusion of human activity which raises often unfounded concerns among the MPA’s neighbors.”

**Conservation advocate:**

“MPAs, are aimed at slowing the degradation of underwater habitats, improving the numbers of oceanic organisms by reducing over fishing and habitat destruction.”
Saltwater angler:

A MPA would be an area where over-fishing occurs, and the need to change different types of gear to protect the ocean bottom.

Whale watch/sport fishing boat owner:

“An area of the ocean that is tightly regulated or closed to human activity in order to protect it from human related destruction.”

Whale watch/sport fishing boat owner: “Any no-go area.”

Past and Current MPA issues:

The respondents were asked what they thought the most important past and current MPA issues have been. All the respondents were uniform in their criticism of past efforts to regulate fisheries, citing the fact that not all constituencies or stakeholders were involved in the past. Commercial fishermen/women as well as whale watch/sport fishing boat owners and crew cited the fact that science is important for understanding the fisheries, and several called for more science to be done in collaboration with the commercial fishermen. This interest in the importance of science may in part be due to the fact that most of the commercial fishermen/women and the whale watch/sport fishing boat owners had college or graduate degrees in biology or fisheries management or some other scientific field. Damage by trawlers was cited by both a conservation advocate and a whale watch/sport fishing boat owner as a problem that needs addressing. Better understanding of fishing technology was also cited by two interviewees.

What do you think are the most important MPA issues?

Commercial fishermen/women:

“Involving those invested in this type of work. Use science to create foundation, use public input to guide implementation.”
Conservation advocate:

“Ocean floor damage from trawler activity, the decline of large predatory fish species (in regards to the ecological effects).”

Wildlife/fisheries biologist:

“Public understanding of the geographic scale of an MPA required to achieve a stated goal – it may be quite small if designated to protect a specific cultural artifact (ship wreck) or very specific habitat type, but may have to be very large if the intent is to reduce fishing mortality on a highly mobile species.”

Whale watch/sport fishing boat owner:

“A lack of stakeholder involvement”

Part of the question concerning MPA issues asked for the respondents’ ideas of the pros and cons of MPAs. Their responses show a concern for the impact on local economies and marine-related businesses when MPAs were established without consideration for the stakeholders’ concerns, while one conservation advocate was concerned that regulation had not adequately or quickly enough addressed trawler/dragger damage to the ocean floor. The pros of MPAs were seen by all stakeholders as protection of fisheries and their habitats for the near present and the future. Only one respondent was vocally opposed to the concept of MPAs, although that person did say there could be some benefit if science was properly used in establishing protected areas while considering the impact on local business.

What are the Pros and/or Cons of MPAs?

Commercial fishermen/women:
-Cons: Misguided MPAs often hurt local economy
-Probs: Help preserve fisheries / natural resources for future generations.

Wildlife/fisheries biologist:

-Cons: If used as part of a fishery conservation strategy an MPA can place an unfair burden of conservation on the resource users closest to the MPA.

-Probs: Provides an effective way to conserve/protect unique natural and cultural resources and to demonstrate a resources potential if managed conservatively.

Conservation advocate:

-Cons: Difficulties experienced when trying to get local industry to address these problems. Current damage done to the ocean floor will take hundreds and hundreds of years to fully recover.

-Probs: Regulations have shown to greatly improve conditions, meaning when enacted they can have a significant improvement.

Saltwater angler:

-Cons: That it would not be closed forever.

-Probs: That it will be used as a way to help species that are over-fished, and re-open when fishery is rebuilt.

Whale watch/sport fishing boat owner:

-Cons: Can impact some businesses’ profits.

-Probs: Protects ocean habitats for future generations.

Appropriate Level for MPA Establishment

Stakeholders were asked what they thought the appropriate level of MPA establishment might be. The majority, included state regulation agency members, agreed that the federal level
was appropriate, although commercial fishermen/women, as well as wildlife biologists, and a saltwater angler, thought state, regional, and even local levels could also be included in such establishment.

*What is the appropriate level for MPA establishment – state, regional, or federal?*

**Commercial fishermen/women:**

“Often times working at a federal level means leaving out the local population’s input. This causes problems when trying to enact or enforce.”

**Wildlife/fisheries biologist:**

“All levels can be appropriate. Scale of government depends on objective being addressed by the MPA.”

**Conservation advocate:**

“Federal level management. Certain issues such as managing migratory fish populations can only be done by protecting their entire habitats. Also a good deal of harvesting as well as other ocean uses take place in federal waters.”

**Saltwater angler:**

“Federal, and State, and also user groups. This has to be a group effort. And not just picking an area without sound scientific reason, why you would close this area.”

**Whale watch/sport fishing boat owner:**

“Federal level. After three miles out it is all federal waters. They have the resources needed to enforce the rules.”

**Perception of the MPA Process (Past and Present)**

As we were interested not only in stakeholders’ concerns about issues related to MPAs but also in the process of creation of protected areas, past and present, we asked their perceptions of the MPA process. Their answers were occasionally similar to those having to
do with MPA issues, past and present, but they provided insight into the level of involvement of respondents, as well as their attitudes toward MPA creation. Stakeholders remarked on the negative feelings as well as the adversarial processes in the past, as well as the importance of working together across constituencies in the present and the future. The lack of a common definition of MPAs was cited by a wildlife/fisheries biologist as well as a whale watch/sport fishing boat owner in contributing to problems of common understanding presently and in the future.

Perception of the MPA process:

Commercial fishermen/women:

“Past MPA issues have created negative feelings in those that felt they were powerless to influence the MPA decisions. Countering this will be difficult.”

Wildlife/fisheries biologist:

“The law requires a high level of public input. The biggest challenge is to communicate what an MPA is and what that will mean in terms of what activities can/cannot occur in that area. There is also widespread concern that once established the rules governing permissible activities could too easily change – can the policy makers be trusted?”

Conservation advocate:

“Process is too adversarial. To opposing sides with little compromise or cooperation. Opponents often have economic investment in not implementing stricter regulations.”

Saltwater angler:

“This has to be a group effort.” “We need to listen to each other, and come to agreement.”

Whale watch/sport fishing boat owner:

“Doesn’t feel there is a real well defined process yet. The definition of an MPA is very broad for most people. There are a variety of ways to achieve regulations.”
Finally, stakeholders were asked about their attitudes toward the establishment of a national MPA system. Here, attitudes were divergent, as had been the definitions of MPAs themselves. Even within the commercial fishermen/women constituency, attitudes ranged from the idea that such a system would be a good idea, if states could participate, to the worry that an MPA system would be anti-business, to the attitude that an MPA system is “just bureaucratic nonsense”. On the other hand, a fisheries biologist said a system would “make sense”, while a conservation advocate said there already was legislation in place, and a salt water angler and a whale watch/sport fishing boat owner were concerned that there was little common agreement on what an MPA is or should be, particularly considering that there are many different issues and impacts, to local business, to livelihoods, and to the future of different types of fisheries, even on one small coastline such as that of New Hampshire.

**Attitudes toward the potential establishment of a national MPA system:**

**Commercial fishermen/women:**

“A national MPA “system” would be good, if it was just an effective system states could follow on their own accord to achieve goals they feel important.”

“Feels it would most likely be anti-business.”

“It is just bureaucratic nonsense.”

**Wildlife/fisheries biologist:**

“Makes sense.”

“Effective in recruitment of fish”

**Conservation advocate:**
“There already is some legislation enacted at a federal level.”

Saltwater angler:

“This is not like on land where you can see everything. First what is a MPA, What do we want to do with it. What will it accomplish, what do we want it to accomplish. I just don’t want to see areas closed, just so an MPA can be created without sound scientific reasoning.”

Whale watch/sport fishing boat owners:

“Seemed cautious about a federal level MPA system. Didn’t think it would be possible to create an MPA system at that level while taking into account the many different issues that can be specific to one area of coastline.”

“Is uncomfortable with this idea. Thinks it might threaten his livelihood if restrictions are too tight.”

Conclusions

The results of this research provide a clearer understanding of stakeholders’ attitudes toward public involvement processes in MPAs and the outcomes of those processes. This knowledge can and should be applied in future efforts to engage in effective public participation processes. Our findings reflect the lack of a common definition of marine protected areas, and the impact that issue has on attitudes toward a potential establishment of a national MPA system. Respondents uniformly expressed their concern that not all stakeholders had been included in past MPA processes and discussions and that the various interested constituents must be included in the future. Even though respondents reflected their own particular interests in their responses, they acknowledged that MPAs could provide lasting benefits, provided they were instituted with
knowledge not only of the scientific dimensions of the MPAs, but also of the human dimensions, including social and economic concerns, of the waters off the coast of New Hampshire.

**Outcomes of this research:**

The information generated by this research will be disseminated through:

- The final report of the key findings from the research will be distributed to NH Sea Grant personnel, interviewees, and other interested parties
- The final report will also be made available on the web site of the Center for the Environment at Plymouth State University so that public access is possible.
- This developmental project is very likely to lead to a more extensive research project that can produce more generalizable information on a broader array of topics
- We plan to present this research at the International Symposium on Society and Resource Management in 2008 at the meeting to be held in Burlington, VT, and to submit the report as a peer-reviewed journal article.
References Cited


Appendix

**NH Sea Grant Interview Protocol**

Name: Contact information:

- What type of work do you do?
  - Public,
  - Federal
  - State
  - Town
o Fish Cooperative

o Private
  o Commercial fishing
  o Sport fisherman/Angler
  o Whale watch/tourism
  o Research or advocacy group: which?

o (position title):

o What, in your opinion, is the best definition of a marine protected area?

o What do you think are the most important current MPA issues?
  o Cons
  o Pros
  o What is the appropriate level for MPA establishment – state, regional, or federal? and why do you think so?

o How should MPAs balance protection with other uses such as fishing, angling, whalewatching?

o What experience have you had with marine protected areas?

o Have you participated in the development of marine policy?
  o If so – how/when
  o Enforcement
  o Have you had to work with policy-makers?
Have you been involved in any MPA related public involvement processes in the past?
  - How were you involved in that process?
  - What is your opinion of it?

Why?

Perceptions of
  - Whether the process was understood by those involved.
  - Representation and empowerment through the representation and involvement of local people in decision making
    - were their perspectives valued/respected
  - The communications across groups involved in the process (Do scientists, managers, and marine users have “strong lines of communication”?)
  - Equity in the allocation of socioeconomic benefits and resources from creating the MPA
  - How conflicts were resolved in the process
    - Was science and technology the bottom line, the deciding factor?
  - The knowledge of the environmental system used in the decision making process.
  - Whether the process was leading to effective biodiversity and species protection.
  - Whether “sustainable utilization of resources” a goal in the process.

How could the public involvement process be improved to address the points above (may arise in previous discussion)?

Opinions about the effects of past involvement

Perceptions of the potential establishment of a national MPA system.