

Engaging Communities in Marine Protected Areas: Concepts and Strategies from Current Practice

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ABSTRACT

This study provides information and insights about the community engagement strategies in current practice by Marine Protected Area (MPA) managers and community members throughout the United States. Until now, no synthesis of these efforts has been completed. Recognizing this gap, the National Marine Protected Area Center commissioned an external report on community engagement to be undertaken by Master's students at the University of Michigan. Through a literature review, interviews with MPA managers and community members, and an online survey, this report addresses the identified need. Common challenges to community engagement identified by MPA managers and community members are communication, involvement, representation, resource limitations, preconceptions, and staff expertise. Principles of community engagement are: to be proactive; to be clear about purposes and terms; understand, validate, and speak to the community's concerns; start early with clear expectations; be responsive; be inclusive; build on common needs and goals; and recognize that it all begins with relationships. MPA managers described six objectives for community engagement: to increase awareness and raise visibility of the MPA; to enhance understanding and support for the MPA's purpose and resources; to encourage MPA-beneficial stewardship behaviors within the communities; to enable others to help advance MPA objectives; and to instill community ownership and pride in the MPA. Moving forward, we encourage managers to draw inspiration from the community, celebrate small victories, and share ideas and inspiration.

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CHAPTER 1

INTRODUCTION, BACKGROUND AND METHODS

Although marine protected areas (MPAs) in the United States are typically planned and implemented through a top-down, legislative approach by federal or state government agencies, marine resource managers are increasingly incorporating more bottom-up, community engagement strategies as part of their professional “toolkits.” Managers may try to engage local communities for a wide variety of reasons, from raising awareness about the existence or conservation goals of an MPA to recruiting volunteers and citizen scientists.

Community engagement has many definitions. For the purposes of this study, it is defined as any activity in which local community members build relationships with staff and managers at a nearby MPA, and vice versa. This includes activities where MPA managers and staff promote connections between local community members and an MPA. Community engagement in MPA planning and management has long been recognized as an effective practice for aquatic resources management and conservation internationally (e.g. Gelcich et al, 2008; Nielson et al, 2004), as well as in the United States. Although a wide variety of engagement activities have also been underway at MPAs across the U.S. for many years, there has not been a comprehensive synthesis of these activities.

This report addresses the need to gather information about approaches to community engagement in MPA planning and management in the U.S. and to share this information with MPA managers and staff. A team of master’s students from the University of Michigan’s School of Natural Resources and Environment was enlisted by the National Marine Protected Area Center to investigate the current status of community engagement by U.S.-based MPAs. The team’s primary objectives were to explore the ways in which MPA managers and staff are engaging with local communities. This report includes an exploration of the challenges they encounter, the key principles that guide their work, the objectives they pursue in engaging with their communities, and the specific strategies they employ. The team also sought insights from managers about what might help advance their community engagement efforts and what advice they would give to other MPA managers.

BACKGROUND

Marine Protected Areas in the United States

Within the United States, MPAs are defined as “any area of the marine environment that has been reserved by federal, state, tribal, territorial, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein” (Executive Order 13158, 2000). For the purpose of this project, “MPAs” are defined as any aquatic areas where natural and/or cultural resources are

given greater protection than the surrounding waters.

MPAs are effective tools for marine conservation. They serve as “natural laboratories” for conservation ecologists, as reservoirs of natural resources for user groups, and as refuges for threatened or endangered marine species (e.g. Agardy 1994). They vary greatly in size, scope and purpose around the world, and they may encompass entire island archipelagos, or a patch of water the size of a single shipwreck. Examples of MPAs in the U.S. range from national marine sanctuaries to national parks and wildlife refuges, state parks and conservation areas and fisheries management closures. They span a variety of habitats, from the open ocean to coastal areas, intertidal zones to estuaries, and the Great Lakes.

The research conducted for this project included interviews with people working at National Marine Sanctuaries, National Estuarine Research Reserves, National Wildlife Refuges, Marine Reserves, National Seashores, and National Parks in coastal regions that encompass aquatic areas. MPA staff in British Columbia, Canada, working with a Wildlife Management Area, an Ecological Reserve, and two Marine Protected Areas, were also interviewed.

National Marine Protected Areas Center

The National Marine Protected Areas Center (“MPA Center”) was established in 2000 under Executive Order 13158 as a partnership between the National Oceanic and Atmospheric Administration (NOAA) and the Department of the Interior. The MPA Center is housed in NOAA’s Office of National Marine Sanctuaries, and functions as a resource and connection point for the diverse assortment of MPAs in the United States. The Center currently coordinates information gathered from over 1600 protected areas in the U.S. (Wenzel & D’lorio, 2011).

The MPA Center is responsible for developing a science-based, comprehensive national system of MPAs. MPA Center staff work in collaboration with federal, state, tribal, and local governments and stakeholders to facilitate the effective use of science, technology, training, and information in the planning, management, and evaluation of the nation’s system of MPAs. According to the MPA Center’s factsheet, its three primary functions are:

1. “Building capacity of federal and state marine protected area programs to more effectively manage natural and cultural marine resources”
2. “Communicating with and engaging stakeholders to help connect marine protected areas to communities”
3. “Serving as a unique and neutral source of marine protected area-related science, information and tools for coastal and ocean decision-makers”

(Wenzel, 2011).

Project Scope

The scope of this project falls squarely within the three primary functions of the MPA Center listed above.

The MPA Center defines capacity building as “strengthening the knowledge, abilities, relationships and values that enable institutions, organizations, groups and individuals to more effectively address MPA use and management and make informed decisions in adapting to new challenges.” (NOAA, 2009). Rather than exclusively focusing on how best to enhance the stewardship behavior of individuals in the community, many MPA managers constrained by limited resources also seek ways to harness the energy of the community to help advance the MPA’s mission and goals. This report addresses capacity building by describing the different objectives that MPA managers have for engaging their local communities.

Strategies to communicate with and engage stakeholders in local communities can help MPA managers overcome a variety of challenges as well as proactively pursue a number of objectives. Community engagement strategies help MPAs to prevent user conflicts, disperse environmental knowledge, build trust among participants and produce decisions that are responsive to local values (Beierle & Cayford, 2002). According to Pomeroy (1995), these strategies can “empower” communities and help them overcome disagreements over resources, access rights and management structure.

Box 1.1. Tribal Consultation

There are unique legal issues with tribal consultation. Legal and tribal consultation is addressed by Executive Order 13175, which was enacted by President Clinton (November 6, 2000) and re-affirmed in a Presidential Memorandum by President Obama (November 5, 2009) and states “executive departments and agencies (agencies) are charged with engaging in regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications, and are responsible for strengthening the government-to-government relationship between the United States and Indian Tribes”.

The U.S. officially supports the United Nations Declaration on Rights of Indigenous Peoples. “This non-binding, yet historic document speaks to the responsibility of governments to fully engage with all tribal and indigenous peoples, ‘recognized’ or ‘non-recognized,’ which may be affected by proposed actions or policies” (United Nations, 2008).

The intent of this report is to provide insights about the varied objectives that guide community engagement activities and specific examples of ways in which these engagement objectives are currently being pursued by MPA managers across the country. This report is meant to serve as a source of information and inspiration for MPA managers who are interested in beginning or improving engagement with community members. The information gathered here can serve as a tool for coastal and ocean decision-makers and serves the third primary function of the MPA Center.

While there are many natural resource management processes underway around the world that are engaging tribes and indigenous communities, the complexities of engagement with distinct, sovereign entities, such as tribes

were beyond the scope of this project. Tribal and indigenous population engagement is critical, and the

National MPA Center will be publishing a Cultural Resources Toolkit (forthcoming in late 2014) to further address these engagement intricacies and their importance. For additional information and resources regarding engagement of tribal and indigenous populations, please see Box 1.1 and Tribal Resources in Appendix A.

Context is critical to the success or failure of community engagement strategies. There is no “one size fits all” approach. A well-intentioned, carefully crafted effort employing these strategies may fail if it does not account for local histories, dynamics between stakeholder groups and social, economic and political dimensions that affect those involved in the process (Kessler, 2004).

METHODS

Literature Review

In March and April 2013, prior to developing the interview protocol and beginning interviews with MPA managers and community members, the team completed a literature review as part of the project final proposal. Topics reviewed included ecosystem-based management, adaptive management, current status and history of MPAs in the U.S., and community engagement in natural resources management. Sources cited include peer-reviewed scientific literature, reports and educational materials from various organizations involved in natural resources management, and information gathered from past master’s projects at the University of Michigan’s School of Natural Resources and Environment.

Box 1.2. Definitions

Marine Protected Area: any area where natural and/or cultural resources are given greater protection than the surrounding waters.

MPA Managers and Staff: individuals employed by and working in an MPA (referred to as “MPA Managers” for simplicity)

Community Member: an individual who resides in close geographic proximity to an MPA.

Interviews

Working in conjunction with the National Marine Protected Areas Center and a University of Michigan faculty advisor, the project team developed an interview protocol (Appendix B) to structure and guide conversations with MPA managers, staff and community members. MPA Managers and Staff were defined as individuals employed by and working in an MPA. Manager and staff interviewees included individuals in a variety of MPA roles including sanctuary

superintendents, program and project coordinators and managers, a park archaeologist, a fishery and wildlife biologist, a chief resources manager, and an environmental administrator. Regional coordinators who oversee multiple MPAs were also interviewed. For simplicity throughout the rest of the document, all of these individuals are referred to as “MPA Managers”. For the purposes of this project, “community

member” is defined as an individual who resides in close geographic proximity to an MPA. (Box 1.2). This concept is deceptively complex, as some MPAs may span thousands of square miles and community members residing in close geographic proximity to them are not necessarily close to one another or an MPA’s central administrative offices.

A standard interview protocol was developed for all team members to follow when interviewing MPA managers and community members. One set of questions was written specifically for MPA managers, and a second set of questions was written for community members.

The major questions asked of MPA managers were:

- What are the ways in which you [an MPA manager] are currently engaging with communities?
- What are the major objectives guiding community engagement activities?
- What is particularly challenging about community engagement?
- What advice do you [an MPA manager] have for others beginning to engage with communities?

The major questions asked of community members were:

- How do you [a community member] interact with the MPA?
- What motivated you to get involved with the MPA?
- What is particularly challenging about engaging with the MPA?
- Have you been responsible for getting others from the community involved?

Potential MPA manager interviewees were identified with assistance from the MPA Center. Each manager was initially contacted via email. Interviews were then scheduled either by phone or in-person if a project team member was in the manager’s region. Typically, interviews lasted approximately 30-45 minutes, and an audio recording was made with the manager’s knowledge and verbal consent.

Potential community member interviewees proved more difficult to identify and contact, as community member contact information is not as readily available as MPA manager contact information. Some community members were recommended by the MPA managers interviewed. Other community members were approached and interviewed while attending Sanctuary Advisory Council meetings and similar events. As with managers, interviews with community members were recorded with their knowledge and consent.

Interviews took place in a variety of formats and settings—both in-person and over the phone, individually or in groups, and at locations including conferences, office spaces and outdoor areas. A total of 53 individuals were interviewed, including 31 MPA managers and 22 community members. A comprehensive list of interviewees, their roles, and their associated MPAs is located in Appendix C.

Digital Tools and Data Storage and Analysis

Interviews conducted by phone were recorded with permission from interviewees using the “Tape-a-Call

Pro” mobile phone application. Interviews conducted in-person were recorded with permission using either a handheld digital recorder, or the voice recording feature standard to most laptop computers.

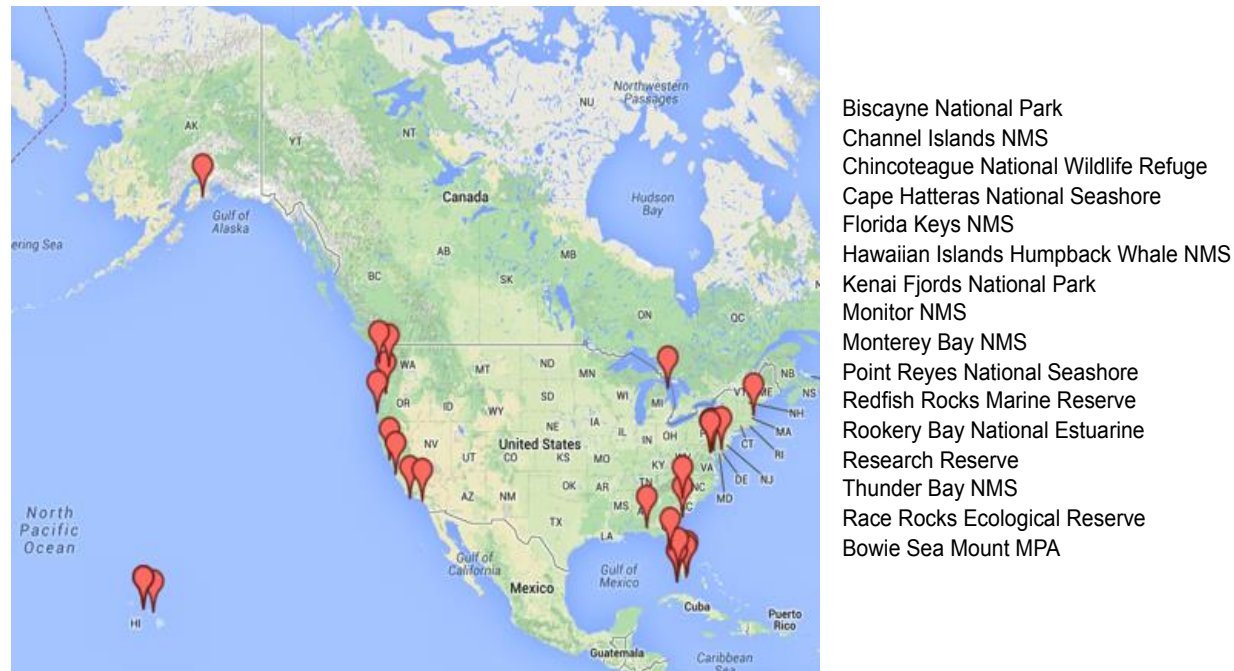
All audio files created during interviews were uploaded onto the team’s Google Drive folder both to back them up and keep them in a common, accessible location. Transcriptions were made of each interview recording using the free online Google Transcribe application. Documents containing transcriptions were also stored online in the project Google Drive folder. Particularly relevant and informative quotes from interviews were typically set into boldface font by transcribers so that they would be easy to locate during data processing and compilation.

Interview transcripts were systematically coded to identify substantive responses to questions about challenges, approaches, motivations, and strategies. These results informed the structure and content of Chapters 2-4.

Locations of Interviewees and MPA Case Sites

Our interviews included individuals associated with 17 MPAs, including 13 in the U.S. and 4 in Canada (Fig. 1.1).

Fig 1.1. Locations of Interviewees and MPA case sites



A complete and detailed list of the MPA case sites can be found in Appendix D.

Online Survey

In order to supplement interview data, an email-based survey was created and distributed to 42 individuals knowledgeable about MPAs. Contact information for these individuals was provided by the MPA Center. The survey was open from August 12, 2013 until September 12, 2013 and included eight questions. All but one question were open-ended. The project team was specifically interested in gathering additional examples of how community members are engaging with MPAs, as well as additional information on the challenges of community engagement.

Major survey questions included:

- What are some specific ways that community members have been involved in your marine protected area (or that you have observed in more than one MPA)?
- Please provide one or two specific examples of community engagement in MPAs that you think are good examples that might be profiled in our project report. What is it about these examples that make them stand out in your mind?
- What is particularly challenging about community engagement in MPAs?
- What are ways in which you think community engagement in MPAs might be improved?

Recipients had the option to answer the survey within their email or through a browser. Recipients who did not complete the survey within two weeks received a reminder email. The survey questions can be viewed in Appendix E.

Eight recipients responded to the survey (all MPA managers). We attribute the low response rate to several factors: (1) recipients were busy because August is a peak time for tourists; (2) a number of recipients had already been interviewed; and (3) the recipients typically receive a high volume of email. In addition, the survey's reliance on open-ended questions, which require more effort relative to fixed responses, may have depressed the survey completion rate.

Webinars

The team participated in two webinars. The first webinar, completed midway through the project, was intended to help the team gather information and to get feedback on preliminary findings. The second webinar allowed the team to share findings and recommendations following completion of the project.

- *Webinar 1:* The team shared preliminary findings from interviews and solicited feedback from MPA staff during a webinar on October 24, 2013. Approximately 20 MPA staff from federal and state programs across the U.S. were part of the webinar, which was the annual “partners meeting” of the National System of Marine Protected Areas.

The presentation described the research process, provided a timeline for the project and highlighted findings related to community engagement strategies, challenges and effectiveness

(see Appendix F). The presentation concluded with questions for the webinar participants. Two participants offered comments about the need for genuine engagement in response to the presentation. Following the webinar, the client emailed participants and suggested that they email or call the team with any additional feedback; no email or phone feedback was received.

- *Webinar 2:* A second one-hour webinar on April 10, 2014, was devoted exclusively to the project's findings (see Appendix G). Approximately 160 participants attended the webinar from a variety of entities including local, state, and federal government, universities, and non-governmental organizations from 16 countries. The webinar video and slides were posted on the National Marine Protected Areas Center website, which hosts a number of free and publicly available recorded webinars.

ORGANIZATION OF THE REPORT

Chapter 2 summarizes common challenges to community engagement that were identified by MPA managers and staff during our interviews. Chapter 3 outlines the key principles expressed by MPA managers in this study that guide their work with their local communities.

Chapter 4 presents real-world examples of various community engagement strategies currently being employed. The strategies are categorized by the major objectives they help MPA managers to pursue:

- Increase awareness and raise the visibility of the MPA
- Enhance understanding of the MPA's purpose and resources
- Sustain formal and/or informal communication and collaboration
- Encourage stewardship behaviors
- Enable others to help advance MPA objectives
- Instill community ownership & pride in the MPA

Chapter 5 presents concluding reflections as well as a broader view of the project as a whole. Finally, references and links to complementary resources that may be of use to MPA managers seeking to engage their local communities are included at the end of the report.

CHAPTER 2

COMMON CHALLENGES TO COMMUNITY ENGAGEMENT

Engaging communities with MPAs inevitably involves many challenges. Our interview protocol included the following questions for MPA managers and staff:

- What are examples of challenges working with communities that you've run into?
- How were you able to overcome these challenges? Are there any that have not been overcome? In hindsight, what might have you done differently?
- What skills or capacities do you feel you need to better engage communities?
- What advice would you give to a new MPA manager who might encounter similar challenges?

This chapter summarizes the responses that managers and community members identified as challenges to community engagement. Responses are clustered by six common, overarching categories (listed from most to least responses): communication, involvement, representation, resources, preconceptions, and staff expertise.

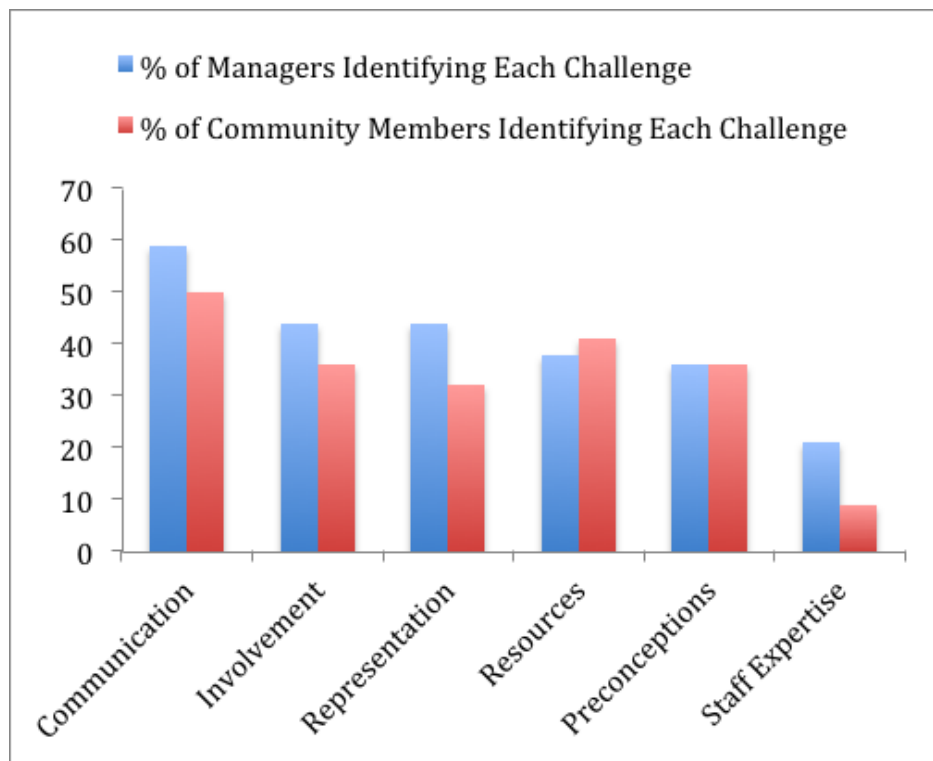


Fig. 2.1. Percentage of MPA managers and community members identifying each of the six common categories of challenges to community engagement.

I. Communication

More than half of all interviewees cited communication difficulties as a challenge to community engagement. This challenge includes sharing complex information that may be technical or regulatory, generating awareness that an MPA exists, and communicating complex concepts.

Sharing complex information

Twenty-one interviewees, including both community members and MPA staff, reported difficulties in communicating complex information. The difficulty includes communicating terminology and scientific information as well as framing this complex information accurately.

Generating awareness

Fifteen of the MPA managers interviewed reported difficulties in helping community members become aware of an MPA. Some managers commented that it can be challenging to help communities understand the purpose of an MPA and to explain why it is needed.

Many interviewees noted the lack of clear boundaries demarcating the physical locations of MPAs as a challenge. As a result, the public may not know that they are in a protected area. Delineating boundaries in a marine environment is challenging and can require substantial resources; unlike terrestrial sites, it is not simply a matter of building a fence or designating entry points. According to a staff member at the U.S. Fish and Wildlife Service, inaccuracies in Google Maps exacerbate the difficulty of communicating MPA boundary lines.

The presence of visitor centers may or may not help to generate awareness. According to a manager at Biscayne Bay National Park, while 75 percent of visitors live within commuting distance of the park, most do not stop by the visitor center before entering the park. Reaching visitors on private boats is particularly challenging. In contrast to Biscayne, the majority of visitors at the nearby terrestrial Everglades National Park are from outside of the local commuting distance and typically stop at the visitor center.

Communicating rules and regulations

Fourteen of all interviewees noted difficulties in ensuring that all parties involved in engagement and management processes understand rules and regulations. Sharing information between scientists and community members is particularly fraught.

Balancing environmental protection with public access may bring about additional communication challenges. A staff member at the Fish and Wildlife Service discussed this issue in the context of the

Crystal River Refuge in Florida, where tourists sometimes swim with manatees—an endangered species. Staff face a similar issue at Chincoteague National Wildlife Refuge, where public beach access may harm the endangered piping plover. Staff members explained that it can be challenging to clearly explain the ecological and legal issues at stake. For example, one manager called it a “difficult sell” to help people understand the legal responsibilities of refuges. This staff member believed that public support for refuges would be higher if the public understood their mission.

II. Involvement

Lack of community involvement and participation in engagement efforts is a challenge cited by 17 of the 39 MPA staff members and 8 of the 22 community members interviewed and surveyed. According to their feedback, low levels of community involvement in MPAs arise from several factors. These include a lack of interest in participation on the part of community members, demonstrating visible impact, work/life balance, and a tendency for people to engage only when disputes arise.

Lack of interest in participating

Fourteen interviewees commented on the difficulty of encouraging community involvement when community members are simply not interested in the MPA or in participating in its management. This disinterest may be because they cannot identify with it, think it is irrelevant, or have different interests. A staff member at the Rookery Bay National Estuarine Research Reserve explained that in her experience, some people have a general lack of interest in environmental issues or managed areas, so even if they visit the MPA they do not necessarily think about it as a protected area. Another manager mentioned the challenge of getting locals to care about the MPA and to get involved. MPAs that are less accessible to the public may seem less “real,” because they are far removed and not always readily seen from even slightly inland locations. A staff member of the National Wildlife Refuge System explained that getting people to feel passionately about their mission is the first step to getting them involved and building a constituency of support.

For example, it has been challenging for staff at the Monitor National Marine Sanctuary to get community members to connect with and care about an offshore MPA that is only one mile in diameter, protecting a single shipwreck. A sanctuary staff member explained that the absence of something “physical that you can sit right there and touch and play in” makes it harder for people to appreciate the MPA. Even for MPAs that are frequented by the public, the necessity for management and protection might not be evident, for instance when people experience a clean, healthy-looking beach. As one community member pointed out, when communities do not even recognize an issue, it is hard to get them to care enough to get involved.

Demonstrating visible impact

Another challenging aspect of involvement concerns empowering the community to participate in meaningful ways, which includes ensuring that community members feel their voices are being heard and that they are able to make a difference. Eight managers specifically emphasized the importance of empowering the public to get involved: people want to feel that participating is worth their time and effort. They want to know that MPA staff took their comments and questions seriously and did not just store them in a file.

Work/life balance

Engagement often involves a trade-off with other daily activities that both MPA managers and community members undertake and value. All of the MPA managers and staff members interviewed are extremely dedicated to their work, passionate about the mission of their MPAs, and are often involved in MPA activities that extend beyond their workday. Community members who are involved with MPAs donate a great deal of their time and energy. However, there is a limit to what people can do with limited time and multiple responsibilities. The efforts of MPA managers and staff often take them out of the office and into the community, and their work schedules extend beyond the standard nine-to-five. Turnout and participation in public meetings can be low due to logistical factors, such as inconvenient meeting locations and times, insufficient notice, and even unfavorable weather conditions.

Many MPA volunteers are involved in multiple organizations and have their own careers and personal lives as well. As one manager put it, outreach takes a lot of work; staff members are juggling multiple roles, and they “have lives, and don’t want to give up a bunch of weekends.” Finding a good work/life balance and a manageable involvement level is a challenge for both MPA staff and community volunteers.

Conflict-motivated engagement

Community members are frequently only motivated to become involved when they perceive a threat to a resource, and their involvement is triggered by conflict with MPA staff and managers. An underlying problem is that informational meetings or science presentations, which are intended to facilitate a deliberative process, may not draw large or diverse segments of the community. A staff member at the Channel Islands National Marine Sanctuary commented that public attendance at advisory council meetings “is almost a direct function of whether there is rule-making going on at the time.” One Sanctuary Advisory Council member in the Florida Keys National Marine Sanctuary explained his belief that there is a “silent majority” that appreciates resource management and is content with the way things are going, but the individuals who come to the meetings are the ones “who like to stir everything up.” Encouraging more consistent community involvement that anticipates issues and resolves conflicts is an important challenge for MPAs to overcome.

III. Representation

Impartially and uniformly representing an entire community is the third most-mentioned challenge to community engagement, with 17 of the 39 managers and 7 of the 22 community members interviewed and surveyed citing some aspect of equitable representation as a concern. This challenge can be subdivided into five general categories: ensuring representation, outreach methods, diverse and dispersed communities, engaging diverse perspectives, and communication across language barriers.

Ensuring representation

A challenge for MPA managers is ensuring that community representatives are actually representing their communities and not just themselves. It can be difficult for managers to discern whether groups within their communities are being adequately represented or not. Sometimes representatives will attend meetings and engage in discussions but their input will not necessarily coincide with the actual interests or concerns of the groups they are allegedly representing.

Outreach methods

Figuring out how to reach community members can also be challenging. Should outreach be conducted using telephones, printed materials, or online communication? While newer outreach tools like social media can be very powerful for communicating with a large number of people, they also run the risk of missing entire segments of the population. Facebook may work for more urban and connected communities, but it might not reach those that reject newer technologies in favor of more traditional beliefs and practices: a manager in Hawaii commented that the Coral Reef Alliance has tremendous success using Facebook as an outreach tool on busy and developed Maui, but the same method is not effective on more rural and strongly traditional Niihau. One manager explained the difficulty associated with using phone surveys to collect information about the community, because younger generations have significantly fewer land lines and their cell phone numbers are not listed.

Diverse and dispersed communities

MPA managers often struggle to engage highly mobile, increasingly diverse and multicultural communities. “What is the ‘community’ anymore?” queried one manager. For example, community members with multi-generational familial ties to an area may engage differently than newcomers. A manager who was born outside the U.S. commented that that she had no idea the MPA existed until she was an adult; her family would almost always return to South America to visit friends and relatives when they traveled, and they still had much stronger ties there than they had yet developed in their new home. Developing these kinds of connections to an area takes time, perhaps on the scale of generations. Many coastal communities may also have a substantial proportion of seasonal community members, people who own second “vacation” homes in the area and only reside there for part of the year. As with

newcomers, seasonal residents may feel less strongly connected to an area and it may be more difficult to get them involved with an MPA.

Communities that are spread over large or complex geographic regions can also be more challenging to engage. MPA managers run the risk of missing some segments of the community simply because these segments live far away from the central offices that administer the MPA. Reaching these community members takes more time, effort and resources. In some situations, such as communities that are spread across unique neighborhoods or on separate islands, geographically distant community members may even view managers or central MPA offices as “outsiders,” which can hamper building relationships and trust.

Engaging diverse perspectives

In communities that have multiple groups with competing interests, MPA managers explained that it is challenging to bring everyone together and get them to move forward. It is sometimes as difficult to get community members to engage with each other as it is to get them to engage with the MPA. Individuals who feel very strongly about an issue or who simply have what several managers called “strong personalities” may be over-represented. These personalities and perspectives are more likely to come to public meetings, and so are often over-represented in community engagement. In addition, some managers expressed concerns about how to engage the “silent majority”—people who do not feel strongly enough about an issue to engage.

Communicating across language barriers

Engaging multilingual communities demands specialized skill sets of MPA staff and can stretch already limited resources. For example, the Sanctuary Advisory Council for the Florida Keys National Marine Sanctuary struggles with public comments at their meetings. While most of the charter fishermen in the area speak English, a large proportion of the commercial fishermen are Spanish-speaking. The SAC tries to accommodate this need by hiring translators for a portion of their meetings, but this accommodation is difficult because it is impossible to predict which community members will attend every meeting, and they want to avoid paying a translator if it is unnecessary.

Similarly, staff at Biscayne National Park noted that they initially had communication challenges when they started offering their fisheries awareness class: the class was offered in English, but at least half of the local attendees from strongly multilingual Miami-Dade County spoke only Spanish and therefore found very little benefit in attending the class. Park staff addressed the issue by developing a second module in Spanish, and today they offer the class in English during odd-numbered months and in Spanish on even-numbered months.

IV. Resource Limitations

Resource limitations are perhaps the most predictable limiting factor in community engagement efforts, and 15 of the 39 MPA managers and staff and 9 of the 22 community members interviewed and surveyed mentioned lack of resources as a challenge to community engagement. Resource limitations can exacerbate other challenges. For example, it can be difficult to sustain engagement with limited staff time. Both funding and time limitations were expressed by MPA managers and community members, each presenting unique challenges.

Funding limitations

The challenge of funding is ubiquitous. In the words of one manager, “it all costs money.” There is little indication that funding limitations will cease to be an issue anytime soon.

Of the 15 instances when MPA managers mentioned resource limitations, they specifically mentioned funding 11 times. The challenge of funding presents itself in a multitude of ways. For many MPA managers, the challenge was manifested in limited staffing. Four managers explained the difficulties associated with unsustained funding because it limited their ability to hire additional engagement staff. Demand placed on staff to process the extensive community feedback or citizen science data can be intensive. Two additional managers explained that lack of funding barred them from conducting outreach surveys, despite having the necessary staff.

Insufficient funding also limits implementation of engagement programs. An MPA manager in the Florida Keys mentioned the tactical difficulty of having to prioritize projects based on available funding.

Funding limitations can confound the activities of MPA managers in other ways. These limitations can affect the logistics of engagement. For example, two managers stressed the need to support staff member transportation costs to engagement events. Two other managers expressed the need to provide food for staff and community members at events. In addition, lack of funding limits the amount of education MPA managers can offer to community members.

Community members also face unique funding limitations. Of the 22 community members interviewed, 9 specifically mentioned funding as a challenge. For community members engagement is often an activity for which little or no compensation is received, and often constitutes an out of pocket expense. Many of the SAC members in the Florida Keys pointed to the demands placed on non-SAC members who wish to stay engaged and offer their voices during public comment periods. Some community members find it very difficult to attend even a single meeting at the expense of a day’s income; this is particularly true for community members who make their living off of marine resources.

Time limitations

Time is another precious commodity when it comes to community engagement. Community engagement is not comprised of a single event but is instead an ongoing and often evolving activity. Meetings must be held regularly to allow interested parties to stay in communication and keep momentum on projects. The resulting demand on staff time adds up. MPA managers express the necessity yet difficulty of remaining engaged for the long haul.

Time challenges are equally confounding for community members. For example, Sanctuary Advisory Council members can be limited in the amount of time they have to report to their fellow stakeholders and to deliver stakeholder input back to the council. One SAC member in the Florida Keys National Marine Sanctuary explained he cannot reach out to every one of his constituents and meet personal daily obligations, including work and family.

V. Preconceptions

Preconceptions represent a particular kind of communication challenge: reaching people who have information and beliefs related to MPAs that are inaccurate. Sometimes these preconceptions are relatively harmless, such as believing that an MPA is a national park when it is not. In other instances, interviewees report deliberate efforts to spread misinformation about an MPA or situations in which preconceptions led individuals to actively oppose MPA activities. 9 of 22 community members and 14 of 39 MPA managers and staff noted specific examples of preconceptions impeding community engagement. This section describes three categories of preconceptions: distrust of government, expectations and misinformation.

Distrust of government

One of the most common preconceptions encountered has nothing to do with any particular MPA; instead, this preconception finds fault with MPAs due simply to their association with government. Community members report many instances of individuals having a general dislike or fear of government activities. This sentiment can spill over into hostility toward MPAs. According to interviewees, distrust can fuel the spread of misinformation, which in turn can further erode trust. MPA managers variously described distrust of government as a “concerted anti regulatory agenda” and as a “Tea Party mentality of wanting to keep government out.” While the particular root of government distrust may vary by location, this general preconception was frequently reported in interviews.

Inaccurate expectations

According to interviewees, members of the public sometimes hold unrealistic or inaccurate expectations of government personnel and MPA planning and management activities. In some cases, community members did not understand the roles, responsibilities and limitations associated with MPA management. This finding aligns with research which suggests that it can be challenging to set accurate expectations for stakeholders in a participatory process (Fox et al. 2013). Interviewees report that inaccurate expectations may fuel misperceptions, tension or conflict between an MPA and its community. For example, community members at an MPA meeting in Florida accused a Sanctuary Advisory Council (SAC) of overstepping its authority; these individuals were apparently unaware that the SAC solely exists to advise and does not make or implement management decisions. In some cases, setting appropriate expectations requires helping people to understand what can and cannot be changed about a process. It may be possible to change a date for a community meeting, but not to add an additional meeting to the calendar.

Misinformation

Interviewees reported that—whether intentionally or not—individuals sometimes spread false information about MPAs. Several commented that the Internet, and social media in particular, have exacerbated this issue. As one community member described it, “Before you close your car [door], it’s gonna be on somebody’s blog.” Sometimes this misinformation may reflect a lack of understanding about an issue. For example, one MPA manager described his experiences with community members who believed that an MPA would not benefit the local economy; he said it can be particularly difficult to overcome this belief when an MPA is located a significant distance from the community that it benefits, such as the Monitor National Marine Sanctuary site, which is offshore from North Carolina yet draws tourists to its museum in Virginia.

VI. Staff Expertise

Staff expertise was cited as a challenge by 8 MPA managers and 2 community members. Five managers suggested that degree programs confer the scientific skills necessary for MPA management but seldom provide the equally essential training in interpersonal communication and leadership. In interviews, managers mentioned that staff traditionally have strong science backgrounds but need additional skills in facilitation and communication.

One manager spoke to staff team composition (what he termed “a bunch of biologists”) as a challenge for reaching out to community members during the early stages of a newly designated MPA. Another manager described a struggle she experienced in connecting to community members: “We’re not expert communicators; we’re...scientists and natural resource managers.” Communication challenges were further highlighted by a manager who spoke of the difficulty for scientifically trained staff to

communicate technical data in layman's terms: "When we started out, we were definitely too technical.... we're not trained in outreach and education, so I think we approached it from entirely too scientific [of a perspective]."

Three managers and one community member highlighted facilitation as a particularly important skill. One community member expressed frustration with meetings he has attended (over sixty, as he currently sits on a panel of citizens involved with an MPA). He believed that meetings had not properly used the public's time and were poorly facilitated by MPA staff. He recommended that a trained, outside facilitator should be introduced to overcome conflicts and aid in meeting management. Consistent with that comment, an MPA manager emphasized that she and her colleagues are trying to find and hire staff who are "really good facilitators, and those are the ones we want to put out in the community".

CHAPTER 3

KEY PRINCIPLES FOR EFFECTIVE PRACTICE

Several key principles are at the heart of effective community engagement and collaboration. It was clear that these principles are embedded in the community engagement activities of many of the MPA managers interviewed. MPA managers and staff were asked questions about their experiences with community engagement and what advice they would offer other managers and community members. In their own ways and through their own stories, their responses highlighted many themes shared in common that guide their efforts working with communities:

- Be proactive
- Be clear about purposes and terms
- Understand, validate and speak to the community's concerns
- Start early, with clear expectations
- Be responsive
- Be inclusive
- Build on common needs and goals
- Recognize that it all begins with relationships

Whether explicitly stated or simply implied by their stories, these key principles guiding their practice mirror those identified in the literature about collaboration and community engagement. These key principles for effective practice are described below.

I. Be proactive

Community engagement does not emerge out of thin air. Opportunities need to be provided and a compelling purpose needs to be apparent. Bridges need to be built, preferably before challenging issues arise. Many MPA managers commented on the varied ways in which they reach out to their communities and blaze new pathways. For example, Thunder Bay National Marine Sanctuary staff make a point to attend events and meetings held by other organizations, including those meetings held outside normal business hours. The Sanctuary Superintendent and other sanctuary staff sit on boards of the local Boys and Girls Club, Chamber of Commerce, Downtown Development Authority, and the school board. "It's not enough to say, 'Come [to the sanctuary] and I'll tell you how you can help me,'" commented the Superintendent; "We go to their meetings and say, 'How can we help you?'" This proactive approach to community outreach has set the stage for ongoing collaboration by establishing relationships and mutual respect. "You're hearing their issues instead of waiting for them to raise a hand when you're talking about your issues," notes the Superintendent.

Similarly, a staff member at Monitor National Marine Sanctuary makes a concerted effort to be involved

in the education community, not just locally, but through state and national teachers organizations. “As the education person you can't sit back and wait for them to come to you, you have to go to the meetings that are open,” she explains. She recognizes that it is important to be involved both at the teacher level but also at the upper levels of principals and superintendents of the school district, since these are the individuals who “are going to make things happen.” Furthermore, since it takes time to implement new policies and programs for school districts, it is important to plan ahead and pitch program ideas early. She attends as many meetings as she can to share the sanctuary’s educational programs with a broad audience, at both the supervisor and teacher level. Many of our interviewees noted that taking the time to foster collaboration with the community early on, before their help or support is needed, leads to a greater degree of trust, and often more effective working relationships.

II. Be clear about purposes and terms

Clear communication and transparency through all stages of MPA planning and management are important for community engagement. Community members who understand the purposes of an MPA, the rules, and how these are decided upon by managers are less likely to be distrustful of the whole process (Dalton 2004; Rowe & Frewer 2000). Whether community members are interested in visiting an MPA to boat, fish, or play on the beach, or want to become more involved in MPA management, it is important that they know the MPA’s purpose. Does it exist to protect specific species, a fragile habitat, or important cultural resources? Visitors are more likely to follow posted rules about what they can and cannot do at an MPA if the reasons behind those rules are clear. One National Park Service employee recommended that managers communicate “missions, values, and history” of the MPA, which may spark community members’ interest, and encourage them to learn more or become more involved in stewardship activities.

It is just as important to clearly communicate what is meant by different terminology. For example, the term “marine protected area” has negative connotations with some user groups, who assume that all MPAs are no-take reserves. Clarifying the definition of an MPA could work in favor of MPA managers trying to engage community members who are initially opposed, such as the fishing community. Figuring out how community members are perceiving an MPA and learning what terminology they are using to describe an area may assist in understanding their perspective. For instance, confusion over language can overwhelm stakeholders, especially when they are dealing with complex technical and legal information. One community member who represented sportfishing interests during the creation of no-take reserves in the Channel Islands National Marine Sanctuary recalled that stakeholders struggled to understand the terminology used in reference materials from other MPAs that had undergone similar processes, since it did not align with the terminology used in California. He suggests that clarifying terminology can go a long way towards solving this problem. “If everybody understands what you're talking about, all of a sudden a lot of it becomes less fearful,” he said. Productive conversations that get to the substance of the issue at hand are facilitated once all parties have the same understanding of the terminology commonly used as well as of the broader mission of the MPA.

III. Understand, validate and speak to the community's concerns

Community engagement is constructed upon a foundation of human relationships. As described throughout the literature, people stay engaged in collaborative processes when they feel that their involvement is valued and worthwhile for both themselves and the MPA, and when they feel that their contributions are heard and make a difference (Dalton 2005; Irvin & Stansbury 2004; Rowe & Frewer 2000). Many MPA managers interviewed emphasized this essential element of their work with communities. As one interviewee put it, “people have to feel like they’re contributing... [Some view consultation as] you coming to them to get comments that aren’t necessarily going to get incorporated.” Ultimately, people want to make a difference and feel that their efforts are having a positive impact on something they care about.

Discovering and understanding the key issues that community members care about is an important step that allows MPA practitioners to truly address the concerns of the community. One interviewee who works with NOAA’s International MPA Capacity Building Program noted that it is helpful to determine community members’ sources of information and how different community members’ opinions and perceptions related to the MPA are developed. For instance, do they get their news from the radio, newspapers, or the Internet? How does each of these sources influence their opinions?

Understanding what community members value helps MPA practitioners communicate in relevant and understandable terms, which is key to uncovering shared interests and common goals. A U.S. Fish and Wildlife Service employee emphasized the importance of perspective-taking, or “seeing through the community’s eyes,” and incorporating that into communication about the mission of the MPA. “Sometimes we get caught up in speaking bureaucratic language and the language of people that are passionate about wildlife,” he explained, although this is not the best way to communicate to particular audiences. For example, some stakeholders may care less about protecting certain endangered species, but more about protecting their way of life for future generations. Explaining wildlife conservation as protection of our national heritage helps community members understand why preservation of some species might be important to them after all.

IV. Start early, with clear expectations

Including stakeholders in meaningful conversations at the beginning of any process is a vital step that builds trust, promotes problem-solving based on shared interests, and often prevents misunderstanding and conflict in the future. Community members should be engaged in the process as early as is practical (Rowe & Frewer 2000). An important element of early involvement is setting expectations. MPA managers and staff should have an understanding of what forms of community engagement are possible in the present and might be possible in the future, and they should communicate that clearly to the public.

The public needs to know how their input may make a difference, and what things, if any, they cannot influence. For example, a staff member of the Department of Fisheries and Oceans Canada (DFO) commented on the importance of being clear with the community about the roles and responsibilities of those involved with the MPA. While assessing the potential of MPA designation, terms of reference were developed in order to “make it clear what we were doing, how we were operating, who was representing who, and how we were going to make decisions,” he noted. Additionally, the DFO implements feasibility studies at the beginning of the MPA designation processes to allow for conversation between DFO, the wider community, and stakeholders. Feasibility studies are used primarily as a way to determine if an area warrants MPA status, and it is made clear that an MPA isn’t “a foregone conclusion” but rather an exploration to understand its potential usefulness. Managers explained that being open and transparent about how the decision-making processes work and the roles that community members can play, and listening to the community’s concerns and ideas early on will positively influence the relationship between the community and the MPA and often leads to more effective protection.

V. Be responsive

Soliciting and recording community feedback in public meetings may be legally required, but “checking the box” without thoughtfully analyzing community members’ interests and concerns and working with them to derive solutions can actually be counterproductive. Many MPA managers emphasized the importance of being responsive to community members’ concerns, through encouraging them to participate, truly listening to what they have to say, and returning to them for feedback. A staff member at NOAA’s MPA Center in Monterey, California, works with community members in participatory GIS workshops that map ocean uses in California to help inform MPA planning decisions. She explained that connecting with stakeholders well in advance and maintaining relationships through subsequent workshops, rather than just “calling it a day” after gathering data from a single meeting, has been key. She commented that the best way to gain confidence and the trust of a community “is to routinely come back with another opportunity to improve upon what they did in the past, to keep bringing the people to the table, and to keep them in the dialogue.” Another effective way to show community members that they are valued is keeping one’s word; as the same staff member described, “delivering what you promise when you promise it.” Keeping one’s word goes a long way towards strengthening the relationships between different groups, by establishing trust and demonstrating respect.

VI. Be inclusive

MPA practitioners also pointed out that the full diversity of a community is generally not represented by the people who attend public meetings at government offices. To reach broader segments of the population, MPA managers recommend venturing outside of the MPA to join community members in places where they generally congregate, such as churches, clubs, and social venues. Bringing discussions

into the community demonstrates a commitment to listening to, learning from, and valuing perspectives held throughout the community.

Multiple interviewees pointed out that it is vital to connect with resource users who make their living from the waterfront. Resource users will be naturally engaged as well as particularly invested in the resource, which may translate to a more proactive community. While these community members may help spark conversation and action within the community, it is also important to balance outreach with others who may not have an economic stake or who may not naturally engage to make sure all community interests are being represented. One interviewee spoke to the importance of creating a diverse dialogue with input from a wide variety of stakeholders, the purpose of which is to show “not just how the user sees but also how the community sees ocean use”.

Being inclusive may also involve providing opportunities for representatives of different interests to come to the same table for discussion. For example, the Department of Fisheries and Oceans Canada (DFO) has used targeted consultation early on in the process of establishing MPAs as a means of increasing transparency. Targeted consultation refers to managers contacting specific individuals and groups (as opposed to broad, general outreach) within the community and engaging in consultation regarding the MPA. Advisory committees are formed and provide space for interests to be voiced and for focused discussion among the representatives of those interests. For example, during the establishment of the Bowie Seamount MPA, targeted consultation was used in conjunction with open houses in various communities to “provide information and to hear support, comments and input.”

VII. Build on common needs and goals

Successful collaborative efforts build upon common needs and goals shared by multiple stakeholder groups that may otherwise have had little interest in cooperating with one another (Wondolleck & Yaffee 2000). A shared goal or need can be a powerful motivator, and many MPA practitioners emphasized the value of helping parties discover shared interests around which to build solutions. For example, one manager notes that acknowledging similar interests among various community members and groups maintains the integrity of collaborative MPA management (between managers and community members), especially when many individuals desire to be involved and have varying ideas of management strategies. Part of the value is building the trust that everyone’s interests are being considered, and that visions of MPA management among various representatives can be similar. A staff member at the Race Rocks MPA pointed out that it is “important to try to reflect everyone’s comments, but it’s difficult when they’re conflicting as well.” In the midst of a long facilitated meeting, he had people answer the question “what are your values for the area?” and a visual word frequency analysis was done in order to show commonality.

Other MPAs use a common history to boost pride in a place. The Mayor of Alpena, Michigan, for example, says that the Thunder Bay National Marine Sanctuary (TBNMS) successfully rekindled local

interest in the history of the Great Lakes. A once-thriving shipping industry contributed to dozens of shipwrecks in the Lake Huron waters near Alpena. The mayor believes that until the establishment of TBNMS in 2000, “the average resident had kind of forgotten about” the area’s history as a shipping nexus. He believes that TBNMS brought new attention to Thunder Bay’s history—and that it served as a “life saver” for the community when recession hit later that decade. The community’s eventual embrace of TBNMS can be seen in its community-backed effort to market Alpena as the “Sanctuary of the Great Lakes” beginning in 2012, as well as an identity for the area’s sports teams: the Alpena Hockey Association is now the Alpena Thunder Bay Wrecks, and the travel swim team changed its name to the Thunder Bay Schooners.

Similarly, a mutual need for resources can foster collaboration and fuel partnerships with groups that may appear to share little in common. The Superintendent of Thunder Bay National Marine Sanctuary commented that organizations in Alpena, Michigan, recognize the benefits of working together. He attributes this collaborative spirit in part to the area’s economy, because there are “such limited resources here for everybody, [that] you have to partner to get anything done.” Successful outcomes of one partnership often lead to the next one. Organizations that have worked with TBNMS include Alpena Community College, the local chamber of commerce, a nearby Air National Guard facility, the Huron Pines river restoration group and a number of student groups and athletic teams. Building on shared objectives and mutual needs of varying groups representing different interests has been a successful approach for promoting collaboration and engagement with MPAs and within communities.

VIII. Recognize that it all begins with relationships

Nearly all MPA practitioners interviewed mentioned that successful community engagement between community members and MPA staff is built on understanding and trust. As discussed many times throughout this report, trust takes time and care to build, but its importance cannot be overstated. Many managers explained the importance of “going beyond the microphone.” In one interviewee’s words, “Managers really need to form relationships in local communities in different ways, not through a public scoping meeting [where] there’s a microphone and people are coming to react.”

For example, the manager of Rookery Bay National Estuarine Research Reserve discussed how the first Superintendent of the Florida Keys National Marine Sanctuary took it upon himself to approach community members outside of scoping meetings. When doing so, he sometimes chose not to wear his NOAA shirt, instead wearing his “casual wear” (a Hawaiian shirt). As a result, the manager commented, “when they think about Billy Causey, they don’t necessarily think about ‘Billy from NOAA’, they think about Billy Causey the person. And they trust Billy. They may not trust NOAA, but they trust Billy.”

Similarly, the Superintendent of Cape Hatteras National Seashore “uses every opportunity” to help build relationships. He spends much of his time meeting with leaders and stakeholders throughout the community, both mending fences and building bridges. The Superintendent expressed, “if it’s a

relationship where you only show up at the door when you have an issue and you need something it's not really a relationship," a sentiment that many other managers echoed.

The guiding principles described above are central to effective collaboration and community engagement in many of the MPAs examined. While these principles provide an overarching perspective of how MPA managers involve community members in meaningful ways, the next chapter will present specific strategies that MPA managers and communities undertake to foster effective community engagement, illustrated by real-world examples.

CHAPTER 4

COMMUNITY ENGAGEMENT OBJECTIVES & STRATEGIES

MPA managers engage with communities using many different strategies. This chapter categorizes these strategies according to six objectives, or core purposes, that help define community engagement efforts. Whereas the principles in Chapter 3 offer general advice for enhancing the potential success of community engagement efforts, the objectives and strategies presented in this chapter describe why managers engage with their communities and what activities they use. More specifically, the objectives described in this chapter represent the desires and expectations of the MPA managers leading community engagement efforts, while the associated examples illustrate the specific strategies managers have adopted in pursuit of the objectives.

Six objectives were evident in the wide spectrum of community engagement activities described by managers in our interviews. These objectives are:

1. Increase awareness and raise visibility of the MPA
2. Enhance understanding and support for the MPA's purpose and resources
3. Sustain formal and/or informal communication and collaboration with community members
4. Encourage MPA-beneficial stewardship behaviors within communities
5. Enable others to help advance MPA objectives
6. Instill community ownership and pride in the MPA

Our hope is that MPA managers and communities use this chapter as a guide for assessing and navigating the particular needs and opportunities facing them. These objectives and strategies are not intended to be viewed as “best practices” or a blueprint for community engagement in all MPAs. Rather, engagement strategies must be tailored to individual communities. As one manager explained, “There’s no perfect way to do this.” Another manager likened it to cooking: “I would never preach that [someone] in Michigan or someone in Louisiana should wholeheartedly adopt the Channel Island recipe. It just doesn’t work that way.” To continue the metaphor, this chapter merely offers ingredients. It is up to managers and community members to find the right combination.

I. Increase awareness and raise the visibility of the MPA

Community members do not always realize that an MPA exists, effectively precluding engagement before it starts. This lack of awareness can be attributed to the relatively hidden and inaccessible nature of MPAs whose key features are often offshore and submerged underwater. People may camp along the shore of Biscayne Bay, oblivious to the existence of a national park within their view, or they may drive along the California and Oregon coastline, unaware that a system of MPAs is right outside their car windows. To raise the visibility and awareness of their MPAs, managers coast-to-coast in the U.S. are

using both time-honored and newly-minted strategies. These activities set the stage for future, more encompassing community engagement activity.

Novel signage

One common and simple approach to raising visibility is signage that clearly identifies the MPA. For example, the Thunder Bay National Marine Sanctuary has placed billboards spotlighting the sanctuary along roadsides in northern Michigan, thereby increasing the visibility of that MPA. More novel signage strategies have also been implemented. For example, supporters of Redfish Rocks Marine Reserve and Marine Protected Area in Port Orford, Oregon took advantage of the busy highway that runs along the shoreline close to the reserve. In 2013, the Redfish Rocks Community Team adopted mile 305-306 of Highway 101. Volunteers from the Community Team clean this stretch of highway 2-4 times per year, and their activities and the corresponding sign help raise awareness of the presence of the relatively new reserve, one of the first in the state of Oregon. The Redfish Rocks Community Team also posts photos of their highway mile adoption on Facebook, drawing additional awareness about the reserve.

Branded services, such as weather information

Some managers increase awareness of their MPAs through services provided to specific MPA users in a community. For example, some national marine sanctuaries provide fishermen with current, detailed information about weather and sea conditions at a number of marinas. This data is available online and at physical displays set up at strategic locations. The data is branded with the National Marine Sanctuaries' logo and includes information about sanctuary resources and programs. Similarly, Thunder Bay National Marine Sanctuary helps fishermen by providing information about the location of shipwrecks, which are often good places to find fish. Fishermen who use this information are reminded about the presence of the sanctuary.

Social media

A number of managers report using social media to help raise awareness of their MPA. A helpful characteristic of social media is its scalability. Managers who do not want to devote significant staff time to Facebook can repost content from around the web, such as a news article featuring the MPA. Alternatively, if time permits, they can post original content, such as photos from an MPA outreach program. Managers can also piggyback on other efforts to keep their Facebook page fresh; for example, Monterey Bay occasionally posts photos taken by their research teams, including a Spanish shawl nudibranch that was viewed by more than 45,000 people on Facebook.

These examples represent just a few ways MPAs are increasing their community visibility. The activities noted here offer two lessons. First, it may make sense to take advantage of activities that are already happening—whether that is people driving along a highway, a dive team doing research or community

members browsing Facebook. Second, once these strategies are in place, they may not require significant staff time or money. By tapping into existing activities and needs, these MPAs enjoy increased visibility while using resources in a manner that can be sustained over time.

II. Enhance understanding and support for the MPA's purpose and resources

Community members who are aware of an MPA's presence may still wonder: "So what? What is it and why should I care?" This lack of understanding can limit community interest or support for the MPA and, at times, result in misperceptions, distrust and opposition. As one manager noted, "It's very difficult to do a good job in protecting resources without some measure of support from the community." Managers employ a range of different strategies for enhancing understanding and support. Five examples are provided below.

Offsite activities

Staff at many MPAs deliver off-site presentations, physically bringing the MPA into the community. For example, staff at Biscayne National Park regularly travel to deliver guest lectures to schools, scouting groups, boating clubs and marine supply stores. Groups usually request the lectures or presentation for a specific event or topic, such as a career day or a current issue staff are dealing with at the park. An intern at Biscayne National Park recently developed a presentation about lionfish, an invasive species, and will use the slides while leading lionfish dissections in classrooms across Miami-Dade County. Biscayne staff also regularly attend events such as the Miami International Boat Show to answer questions and share information about the park.

Workshops with added value

Some MPAs offer incentives to help people gain a deeper understanding of what an MPA does. For example, Rookery Bay National Estuarine Research Reserve offers workshops that can help professionals in their careers. One of the classes helps landscapers reduce the cost of their projects while also showing them how to limit fertilizer runoff—an important issue for the estuary. Another Rookery Bay workshop provides participants with a Master Naturalist Certification, which can help eco-tour guides, naturalists and educators in their careers. Rookery Bay's workshops have spread nationally, with nearly all National Estuarine Research Reserve sites now offering workshops geared for local professionals and policy makers.

Interpretive signage

Managers at some MPAs reported facing a balancing act. They want people to understand and appreciate MPA resources, but they also want to protect these sites. As a compromise, some managers

report being strategic in how they market themselves. Shipwrecks provide a good example of this strategy. Instead of prohibiting visitation to vulnerable shipwrecks, which could lead to looting, Biscayne National Park advertises a selection of shipwrecks and holds ranger-led snorkeling tours along a unique underwater archaeological trail called the Maritime Heritage Trail. The park promotes the trail through fliers, brochures and at the park's store.

Experiential activities

Experiential activities can also extend into more formal education efforts that can be integrated with school curricula. For example, Biscayne National Park has a youth camping program in which park educators take fourth and fifth graders out for overnight camping on Elliott Key, where they expand on topics covered in the students' regular classrooms. On a national scale, the National Oceanic and Atmospheric Administration (NOAA) offers the Bay Watershed Education and Training (B-WET) Program, which funds local experiential learning activities for K-12 students in schools across the country. B-WET aims to promote environmental literacy and help kids "understand, protect and restore" watersheds, oceans and coastal ecosystems.

Creative learning experiences

Community members can gain a deeper understanding of their MPA's resources through creative educational programs that bring the MPA into their own homes. One example of a program that increases understanding and benefits both the community and the MPA is an adopt-a-fish program that takes place at the Redfish Rocks MPA in Port Orford, Oregon. Adopt-A-Fish is a partnership between the Redfish Rocks Community Team, the collaborative community body that helps inform state MPA management decisions, and a doctoral candidate at a nearby university. In this program, citizen participants select a fish species of interest to university scientists and make a small donation to the Adopt-a-Fish program. The program staff tag an individual fish of that species with a locator and provide a weblink to the "adopter," who can watch the movements of the fish in the offshore waters. Participants get a glimpse of marine life and learn about research techniques at the same time. They also receive merchandise such as stickers and t-shirts, which help to market the program. Funds from the program help researchers and MPA staff to conduct detailed monitoring of the ecology of the Redfish Rocks MPA.

Fulfilling current informational needs

Managers that pay close attention to the interests of the community can often provide tailored information that reflects the current informational needs of the community members. For example, an *E. coli* outbreak in Hawaii triggered intense interest among community members about the safety of the water. "People didn't know what to do and were basically panicking," recalled a Hawaiian Islands Humpback Whale National Marine Sanctuary manager. In response, the sanctuary hosted a public

meeting that brought local water quality experts and community members together to discuss the issue. The manager noted that the sanctuary's role in facilitation and education is important. "They look to us for answers," said the manager. Although the focus of the public meeting was *E. coli*, the sanctuary was able to relate the value of the MPA to community members and fill a needed informational gap.

III. Sustain formal and/or informal communication and collaboration with community members

While many community engagement strategies emphasize awareness and understanding through both traditional and novel educational activities, managers also seek ways to sustain ongoing communication in both formal and informal ways. Relationships provide the foundation for effective community-MPA interaction and finding ways to easily and regularly interact with community members and resource users helps maintain and strengthen those relationships. Moreover, having ready forums for interaction will ensure that dialogue can occur about emerging issues before they become intractable. These forums also enable ideas and advice to be shared in a timely manner. Managers pursue this objective in varied ways, ranging from formal Sanctuary Advisory Councils to less formal working groups and community coffees.

Sanctuary Advisory Councils (and similar bodies)

Each of the 14 sanctuaries in the NOAA National Marine Sanctuary system is advised by a Sanctuary Advisory Council (SAC). These councils play a major role in facilitating communication and collaboration between MPA managers and community members. These councils consist of representatives from various user groups, government agencies and the public at large. Each council's role is to provide advice to the sanctuary superintendent on the designation and/or operation of a national marine sanctuary (NOAA National Marine Sanctuaries, n.d.).

SACs give sanctuary staff and community members more opportunities to engage with one another. These councils give community members a chance to voice their concerns and opinions early during the planning process and provide a mechanism for sustained, targeted outreach to the community. Sanctuary Advisory Councils enhance understanding and collaboration between many stakeholder groups, including federal, state, and local governments, tribes, charter and sport fishermen, recreational user groups. A Sanctuary Advisory Council's ability to share common ground with the community through its diverse array of council members facilitates communication and collaboration between the MPA and the community.

The structure of Sanctuary Advisory Councils is not solely confined to federal government. Analogous arrangements can be found at state levels. One example is the Redfish Rocks Marine Reserve and Marine Protected Area and its associated Redfish Rocks Community Team. When the MPA was

established in 2009, Oregon House Bill 3013 “mandated that the management plan for Redfish Rocks be developed in collaboration with a local community team” (Redfish Rocks Community Team, n.d.). The Redfish Rocks Community Team was subsequently established by charter in 2010. Stakeholder group representatives are given a place on the team and are encouraged to participate in the management of the MPA, including development of monitoring plans, education and outreach goals, and compliance and enforcement objectives. The Oregon Department of Fish and Wildlife has final authority over management decisions.

Regularly scheduled community meetings

Simple working groups provide a valuable method of sustaining communication and collaboration. The Monterey Bay National Marine Sanctuary (NMS) holds monthly meetings with the trawl fishing fleet in Monterey Bay. These regular meetings focus on the discussion of “essential fish habitat” (NOAA/NMFS Habitat Conservation, n.d.) as part of a five-year review process organized through the Pacific Fishery Management Council. Sanctuary staff and fishers look at charts and discuss ocean sites and fishing operations. The working group discusses the target species and impacts of the essential fish habitat boundaries.

Informal gatherings

Opportunities to communicate and collaborate are not confined to formal structured settings. The Thunder Bay National Marine Sanctuary Advisory Council hosts formal bimonthly meetings; the sanctuary also sponsors informal coffees and lunches in between formal meetings. Dates and times for formal SAC meetings and informal community coffees are posted on the Sanctuary’s website for the entire year and are open to the public. Community coffee and lunch dates provide a less intimidating opportunity to become engaged for those with concerns or comments. NMS staff deliberately schedule informal meetings for mornings or afternoons in order to accommodate diverse schedules.

Field trips

Some MPA managers encourage more personal communication with community members. In the Channel Islands National Marine Sanctuary, one coordinator recommends field trips as a way to bring diverse community interests together through shared experiences. In the coordinator’s words, field trips help stakeholders “get to know each other in a way that brings in more of a human element to the discussion.” Different stakeholders are encouraged to take leadership roles during field trips, because “no one knows the ocean like a fisherperson does. No one knows the passion of protecting a species like an environmentalist does.” This level of communication is difficult to reach in more formal confines.

Community liaison positions

Many MPA managers and community members find that communication and collaboration is facilitated when a dedicated staff member is available to coordinate and organize the effort. In one example, a staff member at the Redfish Rocks MPA discussed the benefits of having a central MPA manager/community liaison on the MPA staff. He found that a single point person is essential to keeping an otherwise diffuse group of stakeholders informed, which facilitates the group's effective communication. This point person works as a contact and link between the team, the community, and the state, which allows for improved communication and logistical support. An AmeriCorps member initially filled this role for the Redfish Rocks Community Team, but subsequent grant donations have enabled a full-time staff person to take on the duty.

Online collaborative mapping

While not an ongoing structure, this is a tool in a planning process/management plan review process that could bring people together in a sustained way for a short period of time. Online collaborative mapping tools have helped stakeholders in different physical locations in the Channel Islands National Marine Sanctuary discuss possibilities for MPA reserve boundaries from both ecological and economic perspectives. For example, an interactive online tool called SeaSketch allows multiple stakeholders to have an online discussion in real time. This tool has helped stakeholders in different physical locations in the Channel Islands to discuss possible MPA reserve boundaries during multiple sessions. Each participant has the ability to draw a different reserve design, which can then be jointly analyzed and discussed. For example, a Channel Islands NMS staff member says, "I can draw something and you can say, ouch, that doesn't work for the squid guys. How about we do it here? And I could say, oh that looks ok, but that's all goat pasture—there's no real good habitat there. So it's a really tremendous tool."

IV. Encourage MPA-beneficial stewardship behaviors within communities

MPAs do not exist in isolation from the broader ecological and human systems around them. What happens onshore and in surrounding waters invariably affects the 'health' of MPAs in both positive and negative ways. Hence, yet another key objective pursued by MPA managers through their engagement strategies is to encourage MPA-beneficial stewardship behaviors within their communities. Many MPA managers encourage and promote stewardship behaviors in very creative fashions. In interviews with MPA managers and staff, a wide range of these innovative ways are revealed.

An educational fishing competition

Some MPA managers have found ways to promote good stewardship through effective advertisement of the good stewardship behavior itself. For example, the Sanctuary Classic is a fishing and photography competition that takes place nationally in a number of national marine sanctuaries. The Executive

Director of the Sportfishing Conservancy runs the classic, which is a challenging but highly rewarding project that encourages people, especially families, to fish and take photos of their catch. The end goal is to promote catch-and-release methods and simultaneously promote sportfishing with good stewardship practices. Fee-free participant entry into the contest encourages greater participation and provides the MPA managers with a wealth of promotional advertisement opportunities.

Alternative spring break

Spring Break often has connotations of heavy drinking and partying among the high school and college set, but some protected areas are reaching out to provide an alternative. At Biscayne National Park, the Alternative Spring Break program led by their Fish and Wildlife Biologist hosts over 200 high school and college students who clean up the beaches in preparation for sea turtle nesting season. Students also learn more about the sea turtle nesting process, providing a broader understanding of what goes into a specific environmental stewardship issue, as well as how to take personal action.

Blue Star certification program

Dive boat operators near Florida Keys National Marine Sanctuary (FKNMS) can choose to become “Blue Star Certified.” This certification indicates that the operators are knowledgeable about the local marine environment, and promise to share that knowledge with their clients, thus helping FKNMS to reach people who do not directly interact with sanctuary staff. The Blue Star Program encourages dive boat operators to educate recreational divers about the local reef ecology and show them how to minimize negative impacts on the reef. In order to be certified, dive boat operators must meet a set of requirements. These requirements include training all staff to a specified standard of knowledge, conducting on-board briefings with recreational diver passengers, and offering passengers a conservation-related activity. The FKNMS provides certified operators with a special decal to put on their boats and with placement on the Blue Star page on the Sanctuary’s website, an official endorsement.

Tourists are often eager to learn about the marine environment, according to a local dive shop owner and member of the FKNMS Sanctuary Advisory Council. He suggests that particularly sensitive areas in FKNMS should be restricted to Blue Star certified operators in order to protect the reef as well as encourage more operators to become certified. “I’m hoping that more and more shops would go, ‘Wow, that’s so cool and it doesn’t cost me anything! Why wouldn’t I be Blue Star?’ I do everything I can to push Blue Star because then we know that we’ve got well-trained operators taking people out there.”

Team OCEAN

MPA managers also rely on the assistance of trained volunteers to promote good stewardship practices. For example, the Ocean Conservation Education Action Network (Team OCEAN) is a NOAA program implemented in the Monterey Bay and Florida Keys National Marine Sanctuaries. This program trains

volunteer docents “to promote safe and enjoyable public use of the marine environment and to advocate protection of its natural resources” (Florida Keys National Marine Sanctuary, n.d.). In the Florida Keys, these docents patrol the Sanctuary on NOAA sanctuary boats, providing information on the local ecology to visitors and teaching good stewardship practices. Though the volunteers are unavailable year-round, their input has proved invaluable – a FKNMS Sanctuary Advisory Council member notes that these volunteers can point out information to those who might be otherwise uninformed. In the Monterey Bay sanctuary, these docents use sanctuary kayaks to interact with visitors to the sanctuary.

Makai Watch

Taking its inspiration from the “neighborhood watch” model of community caretaking, the Makai Watch program gives local residents an opportunity to help manage their marine resources. The program—named for the Hawaiian word meaning “towards the ocean”—is a partnership between the state of Hawaii’s Department of Land and Natural Resources, as well as local communities and nonprofit organizations, such as The Nature Conservancy. Makai Watch’s activities include outreach and education, research, monitoring and enforcement. The program is flexible and allows communities to focus on particular interests and perceived needs. For example, a community that experiences high levels of tourism may choose to focus their Makai Watch program on stewardship behavior education, while a community that relies on fisheries may specialize in research and monitoring. While community members cannot be actively involved in enforcement, they can report violations and gather information to assist enforcement officers.

Makai Watch and similar programs require support. When Hawaii first introduced Makai Watch, the state was overwhelmed by community interest. The Coral Reef Resilience Manager at The Nature Conservancy, previously employed with the State of Hawaii, told us that it is important for program organizers to be prepared. “When you open a door to a community, you have to have somebody there to answer,” she said of engagement. “You have to expect that communities are going to want to be engaged. You’re going to need more support than you think.” In addition, engaging communities in fostering compliance requires active agency engagement and community training to avoid potential conflicts between volunteers and ocean users. Hawaii’s experience illustrates the potential for the Makai Watch structure to successfully tap community interest in MPA management.

Fisheries & boating awareness classes

Biscayne National Park in Florida offers a fisheries awareness class to park users who commit a fishing violation. Violators have the option to attend the class to have the ticket formally dismissed from their record by a judge, reminiscent of the way most traffic schools operate. The class, which is free and open to the public, also draws participants who have not received a ticket. As of August 2013, over one thousand participants have attended the class, with about two-thirds of the participants attending for ticket remediation and the remaining third attending as members of the general public. A staff member at Biscayne National Park says that “of the over six hundred people who have taken the class for ticket

remediation, we've only had two people ever have a second violation," which speaks to the efficacy of the course.

Biscayne National Park also offers a boating awareness class. Like the fisheries class, individuals who commit a boating violation, such as running aground on the reef or sea grass, have the option of attending the class in order to remove boating violations from their record. As an example of behavior they would like to prevent, Biscayne Bay National Park staff noted a recent incident in which a 22-foot boat struck the reef, causing \$300,000 in damage to the park.

V. Enable others to help advance MPA objectives

MPA managers can seldom go-it-alone. They operate with constrained budgets and do not always possess the capacity, expertise or authority to undertake needed management actions. As a result, managers often seek to enable community members and other organizations to help advance MPA objectives. Hence, one community engagement objective is to enlist the assistance of those who have the interest—as well as the capacity and resources—to undertake activities that align with the goals of an MPA.

Enabling others to help advance MPA objectives requires persistence and long-term support. MPA managers must invest time and effort to build relationships and to train outside parties. As is evident from interviews, teamwork between MPAs and local communities frequently takes the form of partnerships and of citizen science programs, both of which are described more fully below.

Partnerships and friends groups

Partnerships with community members and organizations can help with one of the most common challenges noted by MPA managers: resource limitations. There is a long history of partnerships supporting parks in the U.S. at both the state and national level. Many parks have been established with assistance from “friends groups” or received ongoing support via partnerships (Fortwangler 2007). While government-funded MPAs cannot solicit funds from the surrounding community to fulfill their objectives, nonprofit groups are free to pursue this funding, which they can use to help MPAs carry out community engagement activities (Baker et al 2010).

One example of a thriving partnership is between Rookery Bay National Estuarine Research Reserve (“Rookery Bay”) and Friends of Rookery Bay (FRB). Since 1987, volunteers have worked through Friends of Rookery Bay to increase community support for the Rookery Bay Reserve. Friends of Rookery Bay invites the public to participate in stewardship, research and education activities. It also raises funds from individual donors, businesses and philanthropic foundations to support Rookery Bay Reserve programs.

In addition to helping with day-to-day programs and support, the partnership between Rookery Bay Reserve and Friends of Rookery Bay has led to the construction of the Rookery Bay Environmental Learning Center—a project that required extensive funding and over a decade to complete. The Friends of Rookery Bay collected hundreds of thousands of dollars to support the construction of the Rookery Bay Environmental Learning Center.

The funding to build the Environmental Learning Center came from a variety of sources, including the local community, the state of Florida, and federal partners such as NOAA. Naples is a relatively affluent community, and also one that a staff member at the reserve characterized as “pretty cooperative and not very contentious”. Funding from local sources may have been more readily available and the construction of the facility less controversial here than in other parts of the U.S. Another staff member at the reserve explained that in spite of this favorable climate, it still took Rookery Bay staff ten years to raise the funds, design the facility, and build the Environmental Learning Center.

Multicultural Education for Resource Issues Threatening Oceans (MERITO)

Partnerships may be specifically designed to involve a cross-section of a community in MPA activities. For example, the Monterey Bay National Marine Sanctuary (MBNMS) is involved with a set of partnerships known as the Multicultural Education for Resource Issues Threatening Oceans (MERITO) program, which helps bring marine conservation education and outreach efforts to the local Hispanic community. MERITO is an evolving set of partnerships, coordinated by a dedicated MBNMS staff person under a single, long-term program. The program itself has three main components: 1) a professional development program for Hispanic teachers, college, and graduate-level students who have expressed the desire to learn more effective ways to teach science to minority groups; 2) a site-based bilingual ocean outreach program that addresses the need to inform Hispanic students and adults of the land and marine resource connection by having them spend more time in and around the marine environment; and 3) a community-based bilingual outreach program that addresses the demand for marine science and technology-based programs among the typically overlooked minority groups in the area.

MERITO accomplishes its mission by casting a wide net across the community. Partners have included at least three universities, a number of California state parks, the Elkhorn Slough National Estuarine Research Reserve, local parks and recreation departments and school districts. Through these partnerships, the MERITO program has fostered relationships and ties that it can tap into in response to changing needs in the community and at the MPA.

Community volunteers

Some community members are willing volunteers, helping the MPA in myriad ways. Some “super volunteers” will often devote many hours to supporting MPA activities, often over many years. For example, at the Thunder Bay National Marine Sanctuary (TBNMS), a local student supports the sanctuary and its facilities year-round. During winter months, he staffs the sanctuary’s visitor center,

and in the summertime he provides interpretation for glass-bottom boat tours, which began visiting shipwrecks in the sanctuary in 2011. Meanwhile, he has enrolled in a new marine technology program at the local community college—a partner with TBNMS—through which he became SCUBA certified in sanctuary waters and learned to use remote operated vehicles for research.

The partnership between this “super volunteer” and TBNMS has obviously benefited both parties. The volunteer received the personal satisfaction of taking part in exploring and protecting his MPA’s natural resources, while some of the resource limitation issues for MPA managers are alleviated.

Citizen science

By enlisting the help of large numbers of people, large-scale citizen science efforts can serve as “eyes and ears” for MPA managers—helping managers to stay abreast of the conditions of an MPA. One example of a large-scale effort is NOAA’s Marine Debris Program. While there are many components to this program, citizen science is one of its hallmarks. Since its creation in 2006, the program has sought to investigate and solve problems that stem from marine debris. Given the large scale of this issue, the program operates mainly through partnerships, which include state and local agencies, tribes, NGOs, academia and industry. Partner activities include monitoring and marine debris removal activities conducted by citizens. For example, citizens in Port Orford, Oregon, meet at a beach once a month to conduct 100 meter long transects. They look for marine debris, record what they see, and report the information back to NOAA. The Marine Debris Program coordinates similar efforts across the entire ocean coastline of the U.S. and around the Great Lakes.

By employing large groups of citizens, the Marine Debris Program conducts a larger cleanup and collects more information on MPA conditions than NOAA could achieve unilaterally. Community members also enjoy the experience. According to one MPA manager at the Redfish Rocks Marine Reserve, the Marine Debris Program and others like it, get “community members involved in not just the marine reserve, but also a stewardship ethic...and then people have a sense of ownership.”

Another example of citizen science is a citizen archaeologist program. This partnership is between the Monitor National Marine Sanctuary (MNMS), archaeologists from the Mariners’ Museum, and a dive club in Beaufort, North Carolina. The goal of the program is to teach experienced divers how to become underwater archaeologists. Participants (divers who pay for the class and the diving expenses) learn how to map a shipwreck, take underwater photographs and video and create photo mosaics. The class benefits both the MPA and the divers. The newly trained archaeologists share their findings with MNMS, alleviating the need for the sanctuary to pay professional underwater archaeologists to travel to the sanctuary. The class gives divers the opportunity to learn a new skill and become impassioned about contributing to the scientific knowledge on shipwrecks. The relationship between the dive community and the MPA managers is strengthened through the program.

VI. Instill community ownership & pride in the MPA

Many MPA managers noted that general disinterest limited their ability to foster community concern and support for their MPAs. These managers sought ways to trigger interest and concern that could instill a sense of community ownership and pride in the MPA, thereby setting the stage for broader support and engagement. They sought to create meaningful connections between the MPA and the community, helping it to become part of the community's culture and identity. As one manager commented, "What we need to do is talk to people, get them involved, get them into the process. Because once we do that, people know they have a place in this."

Instilling community ownership and pride in an MPA involves overcoming the physical separation between the community and the MPA and incorporating not only the ecology of the MPA but also the concept and idea of it into the minds, hearts and souls of the community. In essence, the MPA seeks to become part of the community's culture and identity.

Catch-and-Cook

A sense of ownership and pride can be developed through various pathways, such as food. For example, the Catch and Cook program in the state of Michigan is promoted through the Michigan Charter Boat Association and others. This program is intended to "promote and encourage creative, yet safe, marketing of Michigan Great Lakes sport fish" (Michigan Catch and Cook, n.d.). Those who charter a boat and catch fish that day can have it cleaned and cooked as part of a full course meal at the partner restaurant. Additionally, a list of Michigan beers and wines are offered to further the uniquely local component to the experience. As a result, the day out on the water is brought back onto land and turns into a night to enjoy. It also provides an opportunity for that marine identification to linger with the participants, facilitating the MPA's integration with the culture and lifestyle of both fixed and visiting community members.

Fireside chats

A similar education-based example is a series of what are rather warmly dubbed "fireside chats" at Boca Chita, an island in Biscayne National Park and a popular campsite. These chats are short (15-20 minutes) picture presentations on a wide range of topics, from sea turtles to lionfish, held right after sunset. These talks are attended by both children and parents, and while the children are generally more engaged at first, staff report that parents enjoy their time as well.

Halloween ghost ship

MPA managers in Thunder Bay National Marine Sanctuary in Alpena, MI made creative use of their facility in the community's annual Halloween celebrations. More than fifty shipwrecks have been

discovered within the sanctuary, and the visitor center contains a life-sized model of a ship. At Halloween, staff undertake the monumental task of turning it into a ghost ship. The ghost ship tradition, initiated in 2008, allows parents and children to have an indoor space to enjoy their Halloween regardless of weather conditions. Staff dress in costumes and engage with the visitors. This event traditionally runs for approximately two hours with between 800 and 1,000 children and their families attending the event. At the end of the night, visitors have experienced their Halloween in a special way that serves as a reminder of the uniqueness of the marine resource to the community of Alpena, year after year.

Fresh 45

Local teens in Alpena, Michigan have incorporated Thunder Bay National Marine Sanctuary's re-branding initiative into their own. After sanctuary staff made a compelling presentation about the new "Sanctuary of the Great Lakes" brand to the local high school's marketing class, students used the momentum of the brand to form their own group named "Fresh 45", so named because the freshwater sanctuary is located at the 45th parallel. Its mission is to attract Alpena teens back to the community after college. The group seeks to "highlight things that we already have here." Partnerships and events have included dances at a workout facility named Bay Urban and a developing collaboration with glass bottom tour boat company Alpena Shipwreck Tours. In addition, the high school has been working with Fresh 45 to plan the 2014 after-prom party. Fresh 45 attempts to anchor the inspirations of the youth in the local and marine environment unique to Alpena, potentially making the MPA a part of their identity.

Fleet workshops

The Redfish Rocks Community Team (RRCT) in Port Orford, Oregon, has increased a sense of ownership and pride among community members by moving away from auditorium-style workshops to more engaging meetings on the stakeholders' own turf.

The Oregon Department of Fish and Wildlife (ODFW) implements a regularly scheduled fleet workshop to encourage involvement from commercial fishermen in management decisions within the marine reserve. The workshops were initially held at an inland indoor location, but there was often low turnout at these workshops. Many fishermen in the area have misgivings about collaborating with ODFW but the need for more input from fishermen remains high. One staff member at the RRCT explained, "Instead of trying to bring the fishing fleet to this event, we brought the event to the fishing fleet."

The RRCT also invited governmental organizations, NGO partners, and other stakeholders in the marine reserve to set up booths at a community event, "Redfish Rocks on the Docks". These organizations included Oregon Shores, the Surfrider Foundation, and Oregon Sea Grant. ODFW set up their own stage where they were able to share their research findings, project results, and future initiatives to all event attendees. The organizers distributed hot dogs, donuts and coffee for attendees and set up musical performances and touch tanks with starfish and other sea life. The RRCT turned the previous workshops

into a family affair and tourist attraction, encouraging a robust and diverse turnout from the broader community.

Conclusion

The six major objectives outlined in this chapter are intended to provide a compass for MPA managers as they navigate their relationships with their communities, assess their particular needs, and consider their own goals. The examples illustrated here should provide imagery and inspiration for MPA managers as they tailor community engagement strategies to their own specific contexts, needs and communities. There is no single perfect way to engage every community; managers who identify with these objectives may be able to draw on the examples provided here when designing their own unique community engagement programs.

CHAPTER 5

CONCLUDING REFLECTIONS

The purpose of this report was to gather information and insights about the community engagement strategies being utilized by MPA managers throughout the United States. All of the MPA managers interviewed for this study are undertaking some form of community engagement. The strategies for engagement are as widely varied and individually unique as each MPA and community. There is an amazing array of highly innovative and creative activities occurring, and the diversity of interactions and relationships between MPA managers and community members is impressive. While there is good reason to be optimistic, the challenges of community engagement cannot be overlooked; drawing upon previous managers' experience can provide insight and guidance.

While gathering information from MPA managers, the authors of this study found themselves in a unique position to view community engagement efforts related to marine protected areas from an overarching perspective. A synthesis of this information resulted in three observations drawn by the project team: there is much inspiration to be drawn from the community, celebration of small victories can lend itself to engagement efforts, and sharing ideas and inspiration is at the center of many engagement efforts.

These three observations, and community engagement as a whole, are rooted in relationships. Ultimately, relationships are at the heart of community engagement, and their foundations in communication, listening, and understanding are indispensable to its practice.

Drawing inspiration from the community

The community is a source of inspiration, hopes and ideas. It is important to recognize that most communities care about their marine resources and are motivated to protect them. It became evident during interviews that MPA managers are already keenly aware of the community's desire to be involved. An engaged community is an incredibly powerful force that can affect MPA managers' achievement of accomplishments and activities either positively or negatively.

Many MPA managers pointed out intrinsic rewards to working with communities, particularly gaining a sense of satisfaction from positive community responses to engagement efforts. Managers who are confident that they are representing their communities well can feel affirmed by the work they are doing and can be encouraged by feedback received from the community.

Managers can feel satisfaction from knowing that they have formed meaningful relationships with people and understand their interests. They can also have peace of mind that they have done their best to hear diverse community voices and concerns and that some conflicts may be averted. Most

importantly, managers are grateful for the efforts that community members have taken, and are inspired by their work.

Celebrating small victories

Engaging with the community is an on-going process that requires a great deal of time and effort on the part of MPA managers as they seek out community voices, build relationships, understand wide-ranging interests and concerns, and begin to build solutions with community members. However, managers who wish to improve community engagement with their MPAs need not see it as an overwhelming task. Small victories can be shared, celebrated, and built upon. These victories may include reaching out and communicating with a segment of the community that has not historically been involved, or initiating a volunteer program.

It is helpful to be open to new ideas and innovation and allow for brainstorming with community members and MPA staff so that creative ideas can surface. Paying attention to what has worked well in the past and at other MPAs is important. In addition, recognizing that community members may have new, potentially helpful ideas can also lead to fruitful outcomes. There really is no one-size-fits-all approach that can be recreated at different MPAs across the country: each place has unique needs and goals, and unique community voices that can contribute valuable ideas. Managers can undertake a number of small pilot projects based on ideas suggested by the community, rather than committing entirely to a single new idea or following past precedent. Small pilot projects provide a chance to implement and evaluate a variety of ideas without taking big risks that may draw on resources and/or have negative ecological or community outcomes. By being open to taking small steps and testing new ideas, managers may be able to grow small successes into big ones.

When managers see positive outcomes, they can build momentum by sharing successes far and wide. Getting the word out to the community that good things are happening, and that better ones are possible boosts interest and motivation to keep building on initial steps. Positivity can be contagious--community members will want to be part of something that they feel is inspiring and has the potential to grow with their help.

Sharing ideas and inspiration

MPA managers draw knowledge and inspiration from each other and from community members. All forms of interaction can have value for MPA managers—allowing them to hear fresh ideas, to share the results of their MPA’s research, to keep the public informed about their local MPAs or to accomplish many other valuable tasks. Regardless of how managers choose to engage with each other and with their communities, these opportunities to share ideas are critical for helping managers excel in their work.

In-person interactions to share experiences and ideas can have many advantages. When managers have a chance to talk to each other they can exchange community engagement strategies, compare notes about what has and has not worked, and share stories about their own experiences. When managers meet with community members they give an MPA a face, contextualizing the MPA in terms of individual people, rather than as anonymous government officials. Often, the fine-grained detail of these exchanges is lost when funneled through phone calls, video conferences and emails. The benefits of face-to-face interactions are rooted in a simple concept: communication is about much more than the substance of what people say to each other; it is about the ways in which it is conveyed and the relationships and understanding that are created as a result.

While the intricacies of personal interaction may be removed during remote interactions, technology cannot be undervalued as a powerful medium for communication. In an increasingly interconnected world, people can now share ideas and information in ways that were not feasible before through technology. Rather than traveling to meet in person with a few individuals or exchanging information through a handful of interactions by phone, MPA managers can now potentially communicate with large numbers of people from all over the U.S. and even the world.

Webinars, social media, improved video conferencing and increasingly portable communication devices now permit large-scale dissemination of information at relatively low cost. However, the increased speed and relative ease of communication through technology can sometimes lead to an overabundance of information. MPA managers cautioned about “networking fatigue,” for example, managers may find themselves spending a disproportionate amount of time answering emails.

Both face-to-face meetings and technology-aided communication can be meaningful ways to exchange information and provide inspiration to MPA managers. Interactions among managers and between managers and community members are indispensable to community engagement, regardless of the methods utilized.

Conclusion

This report is not intended to prescribe certain activities and practices, but rather to serve as a source of inspiration and encouragement to those first attempting to engage their communities, or seeking to improve existing engagement programs. There is no perfect, single strategy that will foster community engagement across all MPAs and all communities. Our hope is that managers might relate with the challenges to engagement identified in the report, and perhaps recognize the key principles for effective practice in their own work. The examples presented in the report are a snapshot of the full complexity of community engagement activities currently underway across the U.S. We hope that these varied examples and observations will help MPA managers as they navigate their relationships with communities in new ways.

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Appendix A: Additional Resources

References and links to complementary resources for MPA managers and communities.

HELPFUL REPORTS AND WEBSITES

Aloha `Āina: A Framework for Biocultural Resource Management in Hawaii's Anthropogenic Ecosystems

The Hawaiian Islands Humpback Whale National Marine Sanctuary held a workshop in 2012 to discuss a possible transition to a more ecosystem-based management approach based on traditional native Hawaiian management practices. The document that resulted from this Aloha `Āina (“deep love for the land and sea”) is available from the following link, and is of potential use and interest to natural resources managers everywhere.

http://hawaiihumpbackwhale.noaa.gov/council/council_aloha_aina_guidance.html

An Assessment of Institutional Relationships at the Olympic Coast National Marine Sanctuary

An external assessment of the institutional relationships at the Olympic Coast National Marine Sanctuary completed in April 2012, commissioned by the Sanctuary and completed by a team of graduate students at the University of Michigan's School of Natural Resources and Environment. The authors concluded that the sanctuary has built a strong foundation for collaboration between sanctuary staff, key institutional partners, and the individuals, organizations, and tribes that work with the sanctuary.

<http://www.snre.umich.edu/ecomgt/pubs/ocnms/AssessmentofInstitutionalRelationshipsatOCNMS.pdf>

Engaging Communities in MPAs: Concepts and Strategies from Current Practice

The authors of this report produced a webinar through the Ecosystem-Based Management Tools Network and OpenChannels.org to over one hundred and fifty attendees on April 10, 2014, breaking down their findings into challenges, principles, objectives and strategies. The slides presented demonstrate current community engagement efforts across the United States.

<http://openchannels.org/webinars/2014/toolkit-engaging-local-communities-mpa-management>

Getting Involved in Caring for Hawaii's Coastal Resources: A Community Guidebook

Hawaii's Department of Land and Natural Resources published practical guide for Hawaiians to become involved in Hawaiian coastal stewardship. It contains step-by-step guidance on how to develop a community program, examples of community activities, and case studies of Hawaiian community programs.

http://coralreef.noaa.gov/education/educators/resourcecd/guides/resources/hi_resources_g.pdf

Governing Marine Protected Areas: Getting the Balance Right

For MPA managers interested in policy issues, this report from the United Nations Environment Programme may be a valuable source of ideas and inspiration. The report explores how to combine top-down, bottom-up and market approaches to best guide MPA decision-making.

<http://www.unep.org/ecosystemmanagement/Portals/7/governing-mpas-final-technical-report-web-res.pdf>

Marine and Coastal Protected Areas: A Guide for Planners and Managers, 3rd edition

While targeted at practitioners of MPAs located in tropical countries, this guide provides community engagement information that may prove helpful for managers in the U.S. as well. The report is made available through the International Union for Conservation of Nature and Natural Resources (IUCN).

https://www.iucn.org/about/work/programmes/marine/marine_resources/?1600/Marine-and-Coastal-Protected-Areas-A-guide-for-planners-and-managers

Marine Ecosystem-Based Management in Practice

This site is the result of a collaboration between Dr. Julia Wondolleck and Dr. Steven Yaffee (University of Michigan), Dr. Heather Leslie and Dr. Leila Sievanen (Brown University) and Dr. Lisa Campbell (Duke University). It provides an analysis of the key characteristics of an ecosystem-based management approach and presents over 60 case studies of MEBM initiatives from around the world.

<http://webservices.itcs.umich.edu/drupal/mebm/?q=node/68>

Marine Protected Areas of the United States: Conserving Our Oceans, One Place at a Time

This report was produced by NOAA's National Marine Protected Areas Center in November 2013. Detailing the coverage, level of protection, resources protected, and ecological representativeness of MPAs in U.S. waters, this report also features brief case studies in MPA management from around the country. For the first time, data specifically focuses on MPAs protected for natural heritage (protection of ecosystems, biodiversity, habitats and species) as well as areas protected for cultural resources and values.

http://marineprotectedareas.noaa.gov/pdf/fac/mpas_of_united_states_conserving_oceans_1113.pdf

Marine Protected Areas and Healthy Coastal Communities: Recommendations of the Marine Protected Area Federal Advisory Committee to the United States Secretaries of Commerce and Interior, with a Supporting Analysis

This report affirms the importance of engaging local communities in MPAs, and offers general principles to maximize mutually beneficial effects.

http://marineprotectedareas.noaa.gov/pdf/helpful-resources/mpafac_rec_healthycommunities_12_11.pdf

Reef Resilience Toolkit

The Reef Resilience Program is designed to build capacity of managers worldwide to engage their communities in reef management and to address the multitude of stressors affecting their reefs. The program is led by The Nature Conservancy and run as a partnership between many different organizations, including the NOAA Coastal Services Center. The online toolkit provides online courses, a collection of case studies of successful reef management programs, and information about their "Training of Trainers" workshops.

<http://www.reefresilience.org/>

Stakeholder Engagement: Participatory Approaches for the Planning and Development of Marine Protected Areas

This report was produced by the World Wildlife Fund/NOAA Capacity Building Partnership. A series of five steps were developed in workshops and training sessions over several years: Understanding and engaging stakeholders; getting started with stakeholders; participatory problem solving; stakeholders as

advisors; and co-management approaches. The report serves as a helpful guide for practitioners who need guidance on the steps and techniques for engaging stakeholders in MPA management.

http://awsassets.panda.org/downloads/stakeholder_engagement.pdf

Stakeholder Participation: A Synthesis of Current Literature

Although published in 2004, this overview of participatory methods prepared for the U.S. National Marine Protected Areas Center remains a useful source of information about how to engage communities in MPA management.

http://marineprotectedareas.noaa.gov/pdf/publications/Stakeholder_Synthesis.pdf

USEFUL TOOLS

Ecosystem-Based Management Tools Database

The Coastal-Marine Ecosystem-Based Management (EBM) Tools Network, an alliance of EBM tool users, providers, and researchers, has provided the EBM Tools Database. This online platform is intended to help a broad range of users find, share, and contribute information about decision-support tools, projects and resources. The database organizes information and resources in five areas: tools, projects, resources, organizations, and practitioners. Tools such as MarineMap, InVEST, and SeaSketch can be found here.

<http://www.ebmtoolsdatabase.org/>

U.S. Marine Protected Area Mapping Tool

An interactive online application designed in partnership between NOAA's National MPA Center and NOAA's National Ocean Service Special Projects Office. The application offers information on spatial boundaries, conservation based classification data, and site management information for over 1,600 marine protected areas in the United States.

<http://marineprotectedareas.noaa.gov/dataanalysis/mpainventory/mpaviewer/>

INNOVATIVE PROGRAMS & INITIATIVES

Blue Star Certification

This is the official NOAA website listing all the Blue Star-certified dive boat operators in the Florida Keys National Marine Sanctuary. These dive boat operations have passed the NOAA-administered certification program, ensuring that they are knowledgeable about proper stewardship behavior in the reef ecosystem and that they relay these lessons to SCUBA diver clients aboard their boats. These operators are committed to coral reef conservation.

<http://sanctuaries.noaa.gov/bluestar/operators.html>

Multicultural Education for Resource Issues Threatening Oceans (MERITO)

An initiative administered through NOAA's office of national marine sanctuaries, the multicultural education and outreach work currently operates at Monterey Bay and Channel Islands National Marine Sanctuaries. The purpose of this work is "to build and engage a conscious and culturally inclusive constituency for ocean protection nationwide". This program offers programs and experiences for a huge range of people at varying levels of understanding and involvement, from teachers to students to families.

General MERITO Website: <http://sanctuaries.noaa.gov/education/merito/>

Monterey Bay MERITO: <http://montereybay.noaa.gov/educate/merito/welcome.html>

Channel Islands MERITO: <http://channelislands.noaa.gov/education/meritoacademy.html>

NOAA Marine Debris Program

Authorized by Congress to work on marine debris through the Marine Debris Act (signed into law in 2006 and amended in 2012), this program envisions the global ocean and its coasts, users, and inhabitants free from the impacts of marine debris.

<http://marinedebris.noaa.gov/>

Ocean for Life

This international ocean science and cultural exchange program brings together high school students of diverse backgrounds to foster cross-cultural relationships, explore marine science, and develop a stewardship ethic for the ocean through America's national marine sanctuaries. It is designed around

three main themes: a sense of place, interconnectedness, and ocean conservation and stewardship. This program is a partnership between the National Oceanic and Atmospheric Administration's Office of National Marine Sanctuaries, The GLOBE (Global Learning and Observations to Benefit the Environment) Program, and the National Marine Sanctuary Foundation.

Ocean For Life Alumni website: <http://www.oceanforlife.org/>
Sanctuaries Link: <http://sanctuaries.noaa.gov/education/ofl/welcome.html>

Thank You Ocean

California's Thank You Ocean campaign is a nonprofit partnership supported by the State of California, the NOAA Office of National Marine Sanctuaries, and the Ocean Communicators Alliance. The mission of this campaign is to unite voices and amplify messages to raise ocean awareness and promote everyday actions that protect the ocean, focusing on four major threats: climate change, marine debris, water pollution, and marine life decline. This program is a recipient of the Coastal America Award from the White House.

<http://www.thankyouocean.org/>

MARINE NETWORKING OPPORTUNITIES AND LISTSERVES

Marine Ecosystems and Management

A bimonthly information service on ocean planning and ecosystem-based management strategies through the Marine Affairs Research and Education (MARE) not-for-profit corporation and the University of Washington School of Marine and Environmental Affairs, this publication provides news, views, analysis and tips from experts around the world.

<http://depts.washington.edu/meam/>

MPA News

An information service designed to serve the global MPA community by providing news and analysis on planning and management of international marine protected areas, this website is published by Marine Affairs Research and Education (MARE).

<http://depts.washington.edu/mpanews/>

OpenChannels

A project of Marine Affairs Research and Education (MARE), the OpenChannels forum for ocean planning and management is a source of news, guidance, and community discussion on sustainable practices in ocean planning and management. Services provided include an email-based discussion forum for the marine protected area community (the MPA List), job and event listings, and a literature library.

<http://openchannels.org/>

Appendix B: Interview protocol for MPA managers and community members

MPA Managers

1. Background of MPA, manager's role, who is involved

- “I know you're [job title, name of MPA], and you've been involved in [these] initiatives. We'd love to learn more about your role in that.”
- Who do you work with (staff, MPA users, volunteers, other organizations)?
- How would you describe the relationship between the community and the MPA and MPA managers?
- *What is your role in your MPA? Tell me about what you do.*
- *Can you give some background on your MPA? What is its purpose?*

2. Community involvement, “success” stories

- In what ways is the community engaged in [working/involved with] the MPA currently?
 - (if needed) What mechanisms do you use to engage the community?
- What are your objectives for engaging communities? (advising on management actions, restoration activities, citizen science, education, etc.)
- Who are some specific people involved within the community? How are they involved? Is it working?
- What are some examples of effective engagement with communities? What could have made it even more effective?

3. Challenges in involving communities

- What are examples of challenges working with communities that you've run into?
- How were you able to overcome some challenges? Are there any that have not been overcome? In hindsight, what might have you done differently?
- What skills or capacities do you feel you need to better engage communities?
- What advice would you give a new MPA manager who might encounter similar challenges?

Needs Assessment

- What kind of materials or outreach strategies do you use to engage communities? (format and content)
- What do you find most effective? What are you most comfortable using?
- What has not worked well? Why?
- What kind of training approaches and materials would be most useful to you?
 - specifics to ask about if not mentioned: webinar, PowerPoint, page of bullet points

- What would you say are the greatest constraints to more effective engagement of communities with MPAs?
- Where do you go to look for ideas, support, and help? (Your MPA program or parent agency, NOAA MPA Center, NGO partners, professional networks, etc.)
- How much contact do you have with other MPA managers?
 - If you do have contact, is that contact helpful to your work?
 - What is the means of contact? (email, webinar, phone, meetings?)
 - Would you like to have more contact/communication with other MPA managers?

End of interview:

- How could we improve this interview?
 - Who else should we talk to?
 - *Reiterate the purpose of our study.* Do you have anything more to add?
-

Community Members

1. Community member role

- Background: Who are you, what organization (if any) do you represent? What are your interests or concerns regarding the MPA? How close to the MPA do you reside? How are you involved with the MPA?
- How do you interact with the MPA? How long have you interacted with it?

2. Community member involvement, success stories and challenges

- What motivated you to get involved with the MPA?
- **Have you been responsible for getting others from the community involved?** How did you do this? (What has worked well for getting others involved? What hasn't worked well?)
- How do you interact with MPA managers? How often? How would you describe your relationship with the MPA manager?
- Do you feel that the MPA has impacted your community? How?
- Do you feel that the community has impacted the MPA? How?

Needs Assessment

- If you could make any changes to the way in which you are involved with the MPA, what would you change? (E.g. more influence over decisions, more access to managers, more access to information)
 - How do you think community interests can be better supported at your MPA?
 - What materials might be helpful to promote community involvement?
 - How do you get information about the MPA?
 - Do you feel that your sources of information are credible?
-

- What would motivate you to be more involved?

End of interview:

- How could we improve this interview?
- Who else should we talk to?
- *Reiterate the purpose of our study.* Do you have anything more to add?

Appendix C: List of Interviewees and Survey Respondents

Elsa Alvear
Chief of Resource Management
Biscayne National Park
Homestead, FL

Leo Asuncion
Acting Director
Coastal Zone Management Program
Office of Planning, State of Hawaii
Honolulu, Hawaii

Ben Becker
Director and Marine Ecologist
Pacific Coast Science and Learning Center
National Park Service
Point Reyes, CA

Chris Bergh
South Florida Conservation Director
The Nature Conservancy
Big Pine Key, FL

Shauna Bingham
Volunteer / Outreach Coordinator
Channel Islands National Marine Sanctuary
Santa Barbara, CA

Billy Causey
Regional Director--Southeast Atlantic, Gulf of Mexico and Caribbean Region
NOAA Office of National Marine Sanctuaries
Key West, FL

Malia Chow
Superintendent
Hawaiian Islands Humpback Whale National Marine Sanctuary
Honolulu, HI

Kevin Conley
Resource Manager
Fisheries and Oceans Canada
Nanaimo, British Columbia
Canada

Flaxen Conway
Professor and Director
Marine Resource Management Program
Oregon State University
Corvallis, OR

Mimi D'Iorio
GIS Manager
National Oceanic and Atmospheric Administration
Salinas, CA

Jeff Gray
Superintendent
Thunder Bay National Marine Sanctuary
Alpena, MI

Karen Grimmer
Resource Protection Coordinator
Monterey Bay National Marine Sanctuary
Salinas, CA

Sean Hastings
Policy Coordinator
Channel Islands National Marine Sanctuary
Santa Barbara, CA

Lou Hinds
Refuge Manager
Chincoteague National Wildlife Refuge
Chincoteague, VA

Laure Katz
Director
Seascapes Program
Conservation International
Washington, D.C.

Charles Lawson
Park Archaeologist
Biscayne National Park
Homestead, FL

Gary Lytton
Environmental Administrator
Rookery Bay National Estuarine Research Reserve
Naples, FL

Petra MacGowan
Reef Resilience Program Manager
The Nature Conservancy
Seattle, WA

Cliff McCreedy
Marine Resource Management Specialist
National Park Service (WASO)
Ocean and Coastal Resources Branch
Washington, DC

Vanessa McDonough
Fishery and Wildlife Biologist
National Park Service
Biscayne National Park
Homestead, FL

Sean Morton
Sanctuary Superintendent
Florida Keys National Marine Sanctuary
Key Largo, FL

Benjamin Pister
Marine Ecologist
Cabrillo National Monument
National Park Service
San Diego, CA

Tyson Rasor
Project Coordinator
Redfish Rocks Community Team
Port Orford, OR

Shannon Ricles
Education and Outreach Coordinator
Monitor National Marine Sanctuary
Newport News, VA

Joe Schumacker
Marine Resources Scientist
Quinault Dept. of Fisheries
Taholah, WA

Tabitha Stadler
Research Project Lead
Rookery Bay National Estuarine Research Reserve
Naples, FL

Paul Ticco
Regional Coordinator--U.S. East Coast
NOAA National Marine Sanctuaries
Silver Spring, MD

Barclay Trimble
Superintendent
Cape Hatteras National Seashore,
Fort Raleigh National Historic Site,
Wright Brothers National Memorial
Manteo, NC

Charles Wahle
Senior Scientist
NOAA National MPA Center
Monterey, CA

Anne Walton
Project Coordinator
MPA Management Capacity Building Program
NOAA National Marine Sanctuary Program
Silver Spring, MD

Bret Wolfe
Marine Program Coordinator
National Wildlife Refuge System
Marine Program
Arlington, VA

Survey Respondents

Sarah Allen
Ocean and Coastal Resources Program Lead
National Park Service, Pacific West Region
San Francisco, CA

Sarah Biegel
National Environmental Policy Act Coordinator
NOAA West Coast Regional Office
Monterey, CA

Robert Brock
Marine Biologist
National Marine Protected Areas Center
Silver Spring, MD

Jessica Coakley
Fishery Plan Coordinator
Mid-Atlantic Fishery Management Council
Dover, DE

Susan Langley
Maryland State Underwater Archaeologist
Maryland Historical Trust
Crownsville, MD

Victor Mastone
Director/Chief Archaeologist
Board of Underwater Archaeological Resources
Boston, MA

Kyle Murphy
Aquatic Reserves Program Manager
Washington State Department of Natural Resources
Olympia, WA

Jim Spirek
State Underwater Archaeologist
South Carolina Institute of Archaeology and Anthropology
University of South Carolina
Columbia, SC

Appendix D: Locations of Interviewees and MPA Case Sites

United States MPAs

Biscayne National Park

Miami-Dade County, Florida

Biscayne National Park was established in 1980 and is governed by the National Park Service. Ninety-five percent of the park is water, and the shore of the bay is an extensive mangrove forest. The park covers over 270 square miles and includes Elliott Key, first of the true Florida Keys. It protects four distinct ecosystems: the shoreline mangrove swamp, the waters of Biscayne Bay, the coral limestone keys and the offshore Florida Reef.

Channel Islands National Marine Sanctuary

Santa Barbara Channel, California

The Channel Islands National Marine Sanctuary was established in 1980 and encompasses the waters around Anacapa, Santa Cruz, Santa Rosa, San Miguel, and Santa Barbara Islands, or five of the eight Channel Islands. The sanctuary spans 1470 square miles and its primary goal is to protect the natural and cultural resources within its boundaries. Multiple species within the sanctuary are endangered, threatened, or candidates of concern by both federal and California state government, including the humpback whale and bald eagle. The sanctuary is managed by the National Oceanic and Atmospheric Administration (NOAA). Ten percent of the sanctuary is designated as a no-take marine reserve by the State of California.

Chincoteague National Wildlife Refuge

Accomack County, Virginia/Worcester County, Maryland

Established in 1943 and encompassing over 21 square miles, this preserve is operated by the United States Fish and Wildlife Service. Primarily located on the Virginia side of Assateague Island (though with portions located on the Maryland side of the island), this refuge's purpose is to maintain, regulate, and preserve animal and plant species and their habitats. Habitats include beach, freshwater wetlands, shrubs, maritime forest, dunes, and salt marshes.

Cape Hatteras National Seashore

Dare County & Hyde County, North Carolina

Stretching over 70 miles, the Cape Hatteras National Seashore preserves natural and cultural resources and provides a wide variety of recreational opportunities, including fishing and surfing. The seashore was established in 1953 and is governed by the National Park Service. It provides a variety of habitats for many species, such as shorebirds and sea turtles. In addition, once known as the "Graveyard of the Atlantic", the seashore has a history related to shipwrecks, lighthouses, and the US Lifesaving Service.

Florida Keys National Marine Sanctuary

Florida Keys, US

Designated in 1990, the Florida Keys National Marine Sanctuary protects over 2900 square nautical miles of waters surrounding the Florida Keys, from south of Miami to the Dry Tortugas (though it excludes Dry Tortugas National Park). The area reaches into the Atlantic Ocean, Florida Bay, and the Gulf of Mexico. It includes more than 6000 species of marine life, the world's third largest barrier reef, and extensive seagrass beds. There are many opportunities for recreation, such as diving, swimming, snorkeling and fishing. It is administered by NOAA and jointly managed with the State of Florida.

Hawaiian Islands Humpback Whale National Marine Sanctuary

Hawai'i, US

Designated by the United States Congress in 1992, the Hawaiian Islands Humpback Whale National Marine Sanctuary encompasses 1400 square miles of the islands' waters. Its purpose is to protect the endangered North Pacific humpback whale and its habitat, and hosts thousands of humpbacks each winter. Unlike any other National Marine Sanctuary, the Hawaiian Islands Humpback Whale National Marine Sanctuary targets a single species. It is administered by NOAA and jointly managed with the State of Hawai'i.

Kenai Fjords National Park

Kenai Peninsula Borough, Alaska

Kenai Fjords National Park was established in 1980 by the Alaska National Interest Lands Conservation Act and covers an area of 1,046 square miles on the Kenai Peninsula. There are numerous fjords within the park and it is the fifth most-visited park in Alaska. Wildlife in the area include American black bears, sea otters, peregrine falcons, and orcas. It is governed by the National Park Service.

Monitor National Marine Sanctuary

Cape Hatteras, North Carolina

The Monitor National Marine Sanctuary was the first national marine sanctuary to be established. Designated in 1975 and comprised of 1 nautical mile in diameter, this sanctuary is the only one of the national marine sanctuaries to protect an individual cultural resource – the shipwreck of the USS Monitor. Since its sinking in 1862, this shipwreck has become an artificial reef that attracts fish species such as amberjack, black seabass, oyster toadfish and great barracuda. The sanctuary is managed by NOAA.

Monterey Bay National Marine Sanctuary

Central Coast of California, US

One of the largest of the nation's national marine sanctuaries, the Monterey Bay National Marine Sanctuary has a shoreline length of 276 miles and covers 6,094 square miles. It was established in 1992 and supports numerous mammals, seabirds, fishes, invertebrates and plants. The purpose of this sanctuary is resource protection, research, education and public use. It contains the nation's largest kelp forests and one of North America's largest underwater canyons. It is fringed by sand dunes, cliffs, and

hills along the coast. Human uses include kayaking, diving, commercial fishing, and many other activities. This sanctuary is governed by the NOAA National Ocean Service.

Point Reyes National Seashore and Adjoining MPAs

Marin County, California

Point Reyes was designated as part of National Park System in 1962 and signed into law by John F. Kennedy. It adjoins Point Reyes State Marine Reserve and Point Reyes State Marine Conservation Area, which combined encompass over 20 square miles of nearshore waters. It protects both cultural and natural resources, including the historic Point Reyes Lighthouse, marine mammals, and seabirds.

Redfish Rocks Marine Reserve and Marine Protected Area

Port Orford, Oregon

Redfish Rocks was established in 2009 as a pilot site for Oregon's new system of marine reserves. The reserve's location, boundaries, and management plan were all developed through a community-based process and in collaboration between the Oregon Department of Fish and Wildlife and a team of local Port Orford residents. The reserve covers 2.6 square miles of nearshore waters and the adjacent Redfish Rocks Marine Protected Area covers another nearly 6 square miles offshore. The Marine Reserve protects natural marine resources, including marine organisms such as rockfish and other species important to fisheries.

Rookery Bay National Estuarine Research Reserve

Naples, Florida

While Rookery Bay was designated as a National Estuarine Research Reserve in 1977, community-based efforts to protect the area began in 1965. At that time, local residents were concerned about development encroaching on the area. They formed the Collier County Conservancy and began to raise money to purchase lands around the mangrove forested estuary and put them under protection. Today the reserve encompasses 110,000 acres, including 70,000 acres of open water.

Thunder Bay National Marine Sanctuary

Alpena, Michigan

Thunder Bay was designated by NOAA as a National Marine Sanctuary in 2000. The sanctuary's mission is to preserve a nationally significant collection of historic shipwrecks through resource protection, education, and research. Encompassing nearly 450 square miles in Lake Huron, it is jointly managed by NOAA and the State of Michigan, with input from the local community through a Sanctuary Advisory Council.

Canadian MPAs

Boundary Bay Wildlife Management Area

Delta, British Columbia, Canada

Boundary Bay was designated as a Wildlife Management Area in 1995 by the Province of British Columbia. The Wildlife Management Area currently encompasses 42.5 square miles of the Fraser River estuary system, and it is considered a critical stopover for migratory birds as well as important nursery habitat for fish.

Bowie Seamount Marine Protected Area

Queen Charlotte Islands, British Columbia, Canada

The Bowie Seamount, located over 100 miles from the west coast of British Columbia, was listed as an Area of Interest in 1998 by the Canadian Minister of Fisheries and Oceans. In 2008 it was designated as a marine protected area under Canada's Oceans Act. The protected area encompasses 2,367 square miles and is managed under a partnership between the Canadian Natural Resources Ministry, the Council of the Haida Nation, and non-governmental organizations including the World Wildlife Fund. The MPA protects the largest of a chain of seamounts with a very high abundance of marine life.

Endeavor Hydrothermal Vents Marine Protected Area

Vancouver Island, British Columbia, Canada

Endeavor Hydrothermal Vents are Canada's first marine protected area, designated in 2003 by the Minister of Fisheries and Oceans. The vents are located 155 miles southwest of Vancouver Island in deep water along the Juan de Fuca Ridge.

Race Rocks Ecological Reserve

Victoria, British Columbia, Canada

The Race Rocks Ecological Reserve encompasses a small cluster of rocky islands in the Strait of Juan de Fuca near the southern end of Vancouver Island. The reserve was designated in 1980 by the Province of British Columbia after urging from faculty and students at the nearby Lester B. Pearson College of the Pacific, who conducted research in the archipelago. Today the reserve encompasses nearly one square mile, including Great Race Rock Island and smaller surrounding islets and reefs.

Appendix E: Online Survey

1. What category below best describes your relationship to the MPA? (Check one)

- MPA manager/staff member
- Other government agency
- Recreational user
- Commercial user
- Citizen/community member
- Advisory council member

If you are a MPA manager or staff member, please answer the following question:

What are some specific ways that community members have been involved in your marine protected area (or that you have observed in more than one MPA)?

If you are not a MPA manager or staff, please answer the following questions:

In what ways have you been involved in MPA related activities?

What motivated you to become involved in marine protected areas?

Questions for all respondents:

Please provide one or two specific examples of community engagement in MPAs that you think are good examples that might be profiled in our project report. What is it about these examples that make them stand out in your mind?

What is particularly challenging about community engagement in MPAs?

What are ways in which you think community engagement in MPAs might be improved?

The purpose of our project is to create tools for enhancing community engagement in MPAs. Do you have any additional thoughts on this topic?

Are you willing to be contacted for additional information? If so, please provide the following contact information.

Community-Based Tools for U.S. Marine Protected Area Planning and Management

In order to increase community engagement with marine protected areas managed by federal, state, territorial and tribal agencies, NOAA's Marine Protected Area Center has enlisted a graduate student team from the University of Michigan's School of Natural Resources and Environment to produce a capacity building community engagement toolkit.



Research Process

- Review literature
- Launch survey
- Conduct needs assessment
- Interview MPA managers and community members across the country
- Synthesize interview and survey data
- Compile training materials
- Pilot materials
- Revise and finalize materials



Milestones

Needs Assessment: April-May 2013

Survey Approaches: June-Sept. 2013

Analyze Interview Data: Sept.-Nov. 2013

Draft Capacity Building Materials: Jan. 2014

Pilot Materials: Feb. 2014

Revise and Finalize Materials: April-May 2014

Synthesis of What We've Learned

Types of Strategies:



- One-way vs. two-way
- Formal vs. informal
- Process design



Synthesis of What We've Learned

What are the Challenges?



- Funding is always an issue
- History and politics are important
- Misinformation and conflict
- Media a double-edged sword
- Challenges of scale

Synthesis of What We've Learned

What Has Been Effective?

- Partnerships
- Setting
- Citizen/Participatory science
- Opportunities, not obligations



Questions for you!

- What are examples of useful materials for MPA managers that provide tools and prompt thinking for bettering MPA management?
 - simple, accessible, usable
 - Can you provide us with contacts who can further lend help with:
 - easily communicated examples of community engagement
 - examples of useful materials for MPA managers
-

Contact Us

For questions or comments please contact the research team at:

mpaproject@umich.edu or (734) 545-8824

Appendix G: Webinar 2 – April 10, 2014

10 April 2014

A Presentation through:
NOAA National MPA Center
OpenChannels.org

Ecosystem-Based Management (EBM) Tools Network

Engaging Communities in MPAs: Concepts and Strategies from Current Practice



NATURAL RESOURCES
AND ENVIRONMENT
UNIVERSITY OF MICHIGAN

Presented by:
Matt Ferris-Smith
Samantha Miller
Joe Otts
Michelle Zilinskas

Project scope

- 1) Gather information about effective approaches to community engagement in MPA planning and management in the U.S.
- 2) Share gathered information with both MPA managers and community members

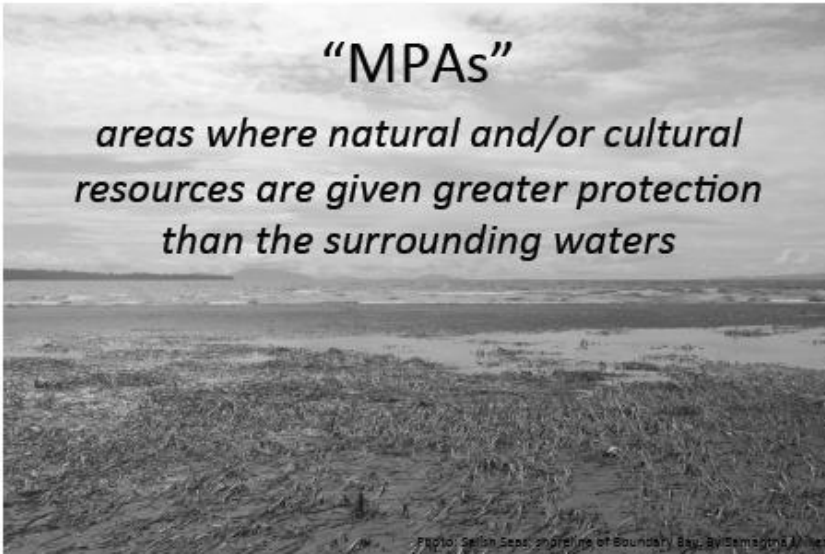


Photo: Salish Seas, shoreline of Boundary Bay. By Samantha Miller

Project definitions

“MPAs”

areas where natural and/or cultural resources are given greater protection than the surrounding waters



Project definitions

“Managers”

those employed by and working with an MPA—both managers and staff



Project definitions



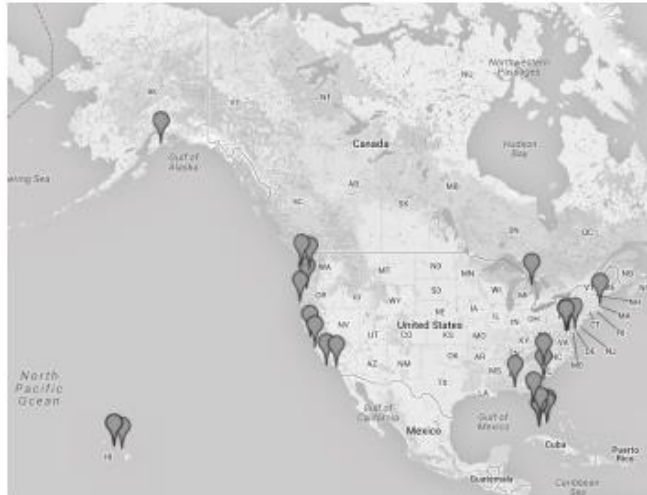
Methods overview

- Literature review
- 61 interviews
 - 40 managers
 - 21 community members
- Final report
 - Challenges to engagement
 - Key principles
 - Examples of engagement objectives & strategies
 - Recommendations & advice



Photo: Seish Seas, shoreline of Boundary Bay. By Samantha Miller

Locations of interviewees and MPA sites



Methods overview

- Literature review
- 61 interviews
 - 40 managers
 - 21 community members
- Final report
 - Challenges to engagement
 - Key principles
 - Examples of engagement objectives & strategies
 - Recommendations & advice



Photo: Seash Sees, shoreline of Boundary Bay. By Samantha Miller

Challenges to community engagement

Challenge categories:

- I. Communication
- II. Involvement
- III. Representation
- IV. Resources
- V. Preconceptions
- VI. Staff expertise

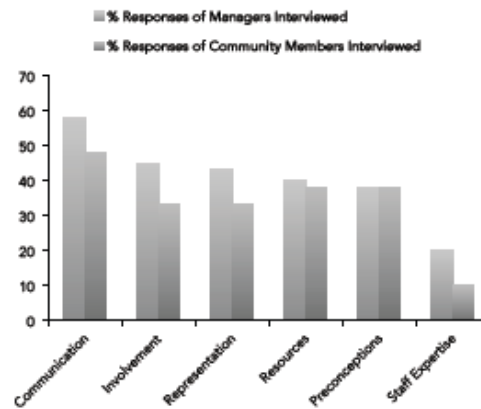


Fig. 1: Percentages of responses from MPA managers and community members interviewed for each of the six common categories of challenges to community engagement

Challenge: Communication

- Generating awareness
- Communicating rules and regulations
- Sharing complex information
- Language barriers



Challenge: Involvement

- Lack of interest in participating
- Making it worthwhile
- Work/life balance
- Conflict-motivated engagement



Photo: Selish Seas, Gulf Islands National Park Reserve, Canada
By Samantha Miller

Challenge: Representation

- Diverse & dispersed communities
- Incorporating diverse perspectives
- Ensuring representation



Photo: Selish Seas, shores of the Gulf Islands
By Samantha Miller

Challenge: Resources

- Funding limitations
- Time limitations

"It all costs money."

- Staff member at Channel Islands
National Marine Sanctuary



Photo: Monterey Bay National Marine Sanctuary
By Kate Davis

Challenge: Preconceptions

- Distrust of government
- Inaccurate expectations
- Misinformation



Photo: Stellwagen Bank National Marine Sanctuary
By Samantha Miller

Challenge: Staff expertise

- Need for additional skills of facilitation and communication

“We were definitely too technical...we were not trained in outreach and communication.”

- Staff member at Biscayne National Park



Key principles for effective practice

- Be proactive and start early
- Be clear about purposes and terms
- Make it worthwhile
- Be responsive
- Be inclusive
- Build on common needs and goals
- Recognize that it all begins with relationships

Key principle: Be proactive and start early

- Built trust to mitigate future conflict
- Set expectations



"It's not enough to say, 'Come [to the sanctuary] and I'll tell you how you can help me.' We go to their meetings and say, 'How can we help you?'"

- Staff member at Thunder Bay National Marine Sanctuary

Key principle: Be clear about purposes and terms

- Communicate the MPA's mission
- Clarify terminology

"If everybody understands what you're talking about, all of a sudden a lot of it becomes less fearful."

- Community member involved in Channel Islands National Marine Sanctuary



Photo: Rookery Bay National Estuarine Research Reserve
By Joe Ottis

Key principle: Make it worthwhile

Understand, validate, and respond to the community's concerns

"People have to feel like they're contributing... [Some view consultation as] you coming to them to get comments that aren't necessarily going to get incorporated."

- Staff member at Department of Fisheries and Oceans Canada



Photo: Chincoteague National Wildlife Refuge. By Michelle Zilinskas

Key principle: Be responsive

- Do more than "check the box"
- Provide feedback



Photo: Puuhonua o Honaunau National Historical Park. By Katie Davis

Key principle: Be inclusive

- Cast a wide net
- Connect with resource users



Prince William Sound, Alaska Photo Courtesy NOAA

Key principle: Build on common needs and goals

- Boost pride in a place using a common history
- Partner up to share resources



Photo: Thunder Bay National Marine Sanctuary, courtesy of NOAA

"There are such limited resources here for everybody, [that] you have to partner to get anything done."

- Staff member at Thunder Bay National Marine Sanctuary

Key principle: Recognize that it all begins with relationships



*"If it's a relationship
where you only show up at
the door when you have an
issue and you need
something, it's not really a
relationship."*

- Manager at Cape Hatteras National
Seashore

Photos: Upper left: Channel Islands NMS; Lower left: Papahānaumokuākea
Marine National Monument; Upper right: Channel Islands NMS (all courtesy of
National Marine Sanctuaries Facebook page); Lower right: Humpback Whale
NMS, courtesy of NOAA



Six objectives for MPA community engagement

1. Increase awareness and raise the visibility of the MPA
2. Enhance understanding of the MPA's purpose and resources
3. Sustain formal and informal communication and collaboration
4. Encourage stewardship behaviors within communities that benefit the MPA
5. Enable others to help advance MPA objectives
6. Instill community ownership and pride in the MPA

Six objectives for MPA community engagement

“There’s no perfect way to do this.”

—Oregon State University researcher

“I would never preach that a different place should wholeheartedly adopt the Channel Islands recipe. It just doesn’t work that way.”

—Staff member at Channel Islands National Marine Sanctuary

Objective 1: Increase awareness and raise the visibility of the MPA

Novel signage, such as adopt-a-highway



Redfish Rocks Marine Reserve, Oregon
Photos courtesy of Redfish Rocks Community Team Facebook page



Objective 1: Increase awareness and raise the visibility of the MPA

Social media: Easy to scale



Monterey Bay National Marine Sanctuary
March 13

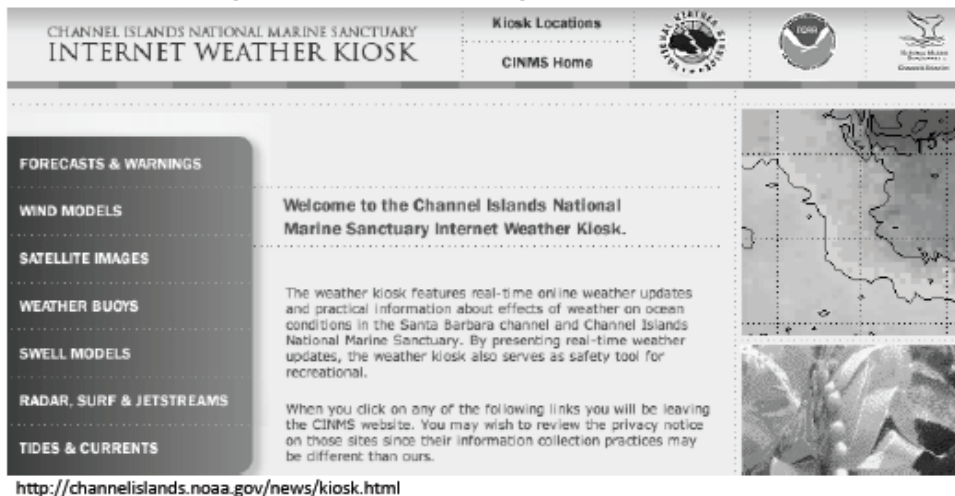
Students from Highland Elementary School in Seaside joined Sanctuary staff for a fun MERITO field trip to the rocky coast! Some favorite animals they identified included large green anemones, colorful seastars and even a staghorn sculpin. What a beautiful day at the tide pools! — at Point Pinos Lighthouse.



Photos courtesy of Monterey Bay NMS Facebook page

Objective 1: Increase awareness and raise the visibility of the MPA

Provide useful, branded services, such as weather info



Objective 2: Enhance understanding of the MPA's purpose and resources

Go into communities



Biscayne National Park at the Miami International Boat Show
Photos courtesy of Biscayne National Park Facebook Page



A lionfish captured at Biscayne NP has been put on ice

Objective 2: Enhance understanding of the MPA's purpose and resources

Provide incentives

LANDSCAPING WORKSHOPS OFFERED AT ROOKERY BAY

Category: Press Releases
Published: 17 July 2012

NAPLES, FL (July 18, 2012) - The Rookery Bay Environmental Learning Center, 300 Tower Road, hosts three landscaping classes presented by the Rookery Bay National Estuarine Research Reserve's Coastal



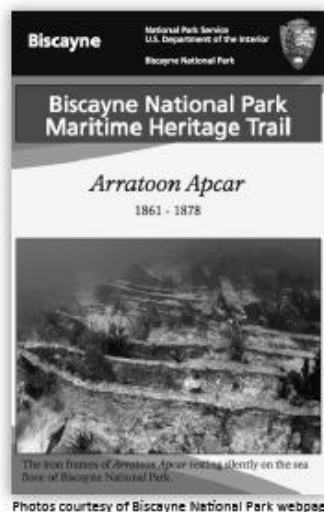
Students work to become certified master naturalists at Rookery Bay National Estuarine Research Reserve

Objective 2: Enhance understanding of the MPA's purpose and resources

Offer experiential activities



Divers explore the Arratoon Apcar, a shipwreck on the Maritime Heritage Trail at Biscayne National Park. A brochure includes a map with the location of the site.



Objective 3: Sustain formal and informal communication and collaboration

Advisory councils



A sanctuary advisory council meeting at Florida Keys National Marine Sanctuary.

Objective 3: Sustain formal and informal communication and collaboration

Casual gatherings

SAC Coffee & Lunch Dates

February 19 Coffee 8:30am
April 16 Lunch 12:00pm
June 18 Coffee 8:30am
August 20 Lunch 12:00pm
October 15 Coffee 8:30am

SAC coffees and lunches are held at the Sanctuary office. We will provide the coffee, but for the lunches it's b.y.o.b.

Coffee and lunch dates are posted online at Thunder Bay NMS. Participants might choose to drink "Shipwreck Soda," produced at a local business.



Photo courtesy of Thunder Bay National Marine Sanctuary Facebook page

Objective 3: Sustain formal and informal communication and collaboration

Online tools

"I can draw something and you can say, ouch, that doesn't work for the squid guys. How about we do it here? And I could say, that looks OK, but that's all goat pasture—there's no real good habitat there."

—Staff member at Channel Islands National Marine Sanctuary



Santa Rosa Island at Channel Islands National Park

Photo courtesy of Channel Islands National Park Facebook page

Six objectives for MPA community engagement

1. Increase awareness and raise the visibility of the MPA
2. Enhance understanding of the MPA's purpose and resources
3. Sustain formal and informal communication and collaboration
4. Encourage stewardship behaviors within communities that benefit the MPA
5. Enable others to help advance MPA objectives
6. Instill community ownership and pride in the MPA

Objective 4: Encourage stewardship behaviors within communities that benefit the MPA

- Encourages community members to take responsibility for the health of their MPA
- Engages community members in behavior that is conducive to meeting that responsibility
- Ideally, by virtue of the community members' own leadership, encourages others to take up that responsibility as well

Objective 4: Encourage stewardship behaviors within communities that benefit the MPA

NOAA's Blue Star Program



Blue Star-certified Dive Boat Operators in Florida Keys
Photo courtesy of NOAA

"I do everything I can to push Blue Star, because then we know that we've got well-trained operators taking people out there"

– Blue Star-certified dive boat captain in the Florida Keys



Objective 4: Encourage stewardship behaviors within communities that benefit the MPA

Hawaii's Makai Watch Program



Above and right: Makai Watch volunteers
Photos courtesy of Hawaii Coral Reef Strategy



Objective 4: Encourage stewardship behaviors within communities that benefit the MPA

NOAA's Marine Debris Program



Participants in NOAA's Marine Debris Program
Photo courtesy of NOAA

"It's just getting community members involved in not just the marine reserve, but also a stewardship ethic... and then people have a sense of ownership."

– MPA manager in Redfish Rocks Marine Reserve

Objective 5: Enable others to help advance MPA objectives

Two components:

- 1) Building relationships with outside parties – embodied by “partnerships”
- 2) Training outside parties – embodied by citizen science

Objective 5: Enable others to help advance MPA objectives

Partnerships example: Friends of Rookery Bay



Chamber of Commerce event at the Environmental Learning Center
Rookery Bay National Estuarine Research Reserve
Photo Courtesy of the Greater Naples Chamber of Commerce

"You engage the community in building [a] vision, and then you go out and start getting corporate sponsors and individuals that are interested in helping tell that story."

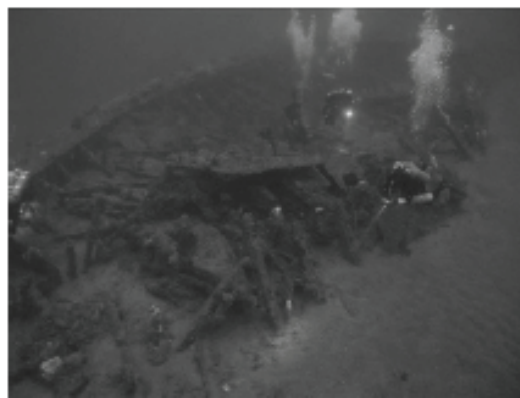
– MPA manager at Rookery Bay National Estuarine Research Reserve

Objective 5: Enable others to help advance MPA objectives

Citizen Science Example: Citizen Archaeologists at Monitor National Marine Sanctuary

"Now that our archaeologists have trained them, we know that the quality of what we're getting back is good... And this gives them that something more. It engages them and they're engaged with our office and with our archaeologists and divers, and then we have a better relationship."

– MPA staff member at Monitor National Marine Sanctuary



Divers exploring the wreckage of the USS Monitor
Photo Courtesy of NOAA

Objective 6: Instill community ownership and pride in the MPA

- Making the MPA a part of the community's culture and identity
- Breaking through the geographical barrier that separates the MPA and the community
- Embedding the MPA in the community and vice versa

Objective 6: Instill community ownership and pride in the MPA

Michigan Catch-and-Cook

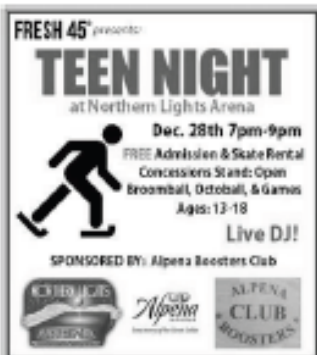


Left, middle and below: Michigan's Catch and Cook program "farm-to-table"
Photos courtesy of Michigan Department of Agriculture



Objective 6: Instill community ownership and pride in the MPA

Fresh 45°



"Our group is called 'Fresh 45, like fresh water and the 45th parallel [where Alpena is located]. We're trying to create events for teens and then highlight things that we already have here."

– Alpena High School senior



Left and above: Fresh 45° Facebook fliers advertising upcoming events
Photos courtesy of Facebook

In closing...



Thanks to the interviewees!

Sarah Allen
Elsa Alvear
Leo Asuncion
Ben Becker
Chris Bergh
Sarah Biegel
Shauna Bingham
Robert Brock
Billy Causey
Malia Chow
Jessica Coakley
Kevin Conley
Flaxen Conway
Mimi D'Iorio

Jeff Gray
Karen Grimmer
Sean Hastings
Lou Hinds
Laure Katz
Susan Langley
Chuck Lawson
Gary Lytton
Petra MacGowan
Victor Mastone
Cliff McCreedy
Vanessa McDonough
Rob Mitchell

Sean Morton
Kyle Murphy
Benjamin Pister
Tyson Razor
Shannon Ricles
Joe Schumacker
Jim Spirek
Tabitha Stadler
Paul Ticco
Barclay Trimble
Charlie Wahle
Anne Walton
Chuck Wiesen
Bret Wolfe

Special acknowledgements

Clients:

Lauren Wenzel (Acting Director, National Marine Protected Areas Center)
Ellen Brody (Great Lakes Regional Coordinator, NOAA)

Advisor:

Dr. Julia Wondolleck (Associate Professor, University of Michigan School of Natural Resources and Environment)

Thank you to everyone who donated their time and resources to our research!



Questions?

Project team:

mpaproject@umich.edu

A copy of the report will be available on the
National Marine Protected Areas website:
www.marineprotectedareas.noaa.gov

Coming May 2014!



Photo by Joe Otta