Lessons Learned
from
Recent Marine Protected Area Designations in the United States

A Report to:
The National Marine Protected Areas Center NOAA

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1.0 Executive Summary

In the United States and around the globe, governmental agencies use marine protected areas (MPAs) as a tool to manage human impacts in ecologically and culturally sensitive areas. Defined in the U.S. as "any area of the marine environment that has been reserved by Federal, State, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein" (E.O. 13158, Federal Register, 2000), MPAs are designated through various processes that attempt – some more successfully than others – to merge the prerogatives of often disparate stakeholder groups with the physical needs of complex ecological systems.

This report is a study of six separate and distinct efforts to designate MPAs in the United States. Based on the assumption that within their unique details lie lessons that can be broadly applied to other efforts, the case studies were carefully selected to represent diverse geographic areas and a spectrum of social, political, and ecological complexity. The assumption was correct. Through review of the written record and numerous interviews with those intimately involved in and affected by the six MPA designation processes, patterns emerged that formed the basis for important, broadly applicable lessons.

Case Studies
The six case studies that form the analytical basis of this report, illustrated in Figure 1, are:

- The attempt to designate a National Marine Sanctuary in the Northwest Straits and the related establishment of Bottomfish Recovery Zones in San Juan County, Washington
- The designation of the Channel Islands Marine Reserves off the Coast of Santa Barbara, California
- Phase I of the establishment of marine reserves under California's state-wide Marine Life Protection Act:
- The creation of the Tortugas Ecological Reserve in the Florida Keys
- Grouper Closures off the coast of Florida in the Gulf of Mexico
- The establishment of the Carl N. Schuster Horseshoe Crab Reserve in Delaware Bay.

Figure 1. Locations of the six case studies that form the basis of the evaluation. Size of case studies not to scale.

San Juan County Bottomfish Recovery Zones
Washington 1997

Carl N. Schuster Jr. Horseshoe Crab Reserve
Delaware Bay 2001

Case Study Locations

Marine Life Protection Act
California 2003

Gulf of Mexico Grouper Closures
Florida 2000

Channel Islands Marine Reserves
California 2003

The locations noted in this figure are for general information only.
For precise geographic boundaries of the six marine protected
areas consult the website of the NOAA Coastal Services Center,
National Marine Protected Areas Center at www.mpa.gov

Tortugas Ecological Reserve
Florida 2001

The case studies cover the period from the late 1980's through 2003 and extended from one year to approximately five years in length (Figure 2).

Figure 2. Timeline for each of the case studies. NMS refers to national marine sanctuary and BRZ to bottomfish recovery zones.

Northwest Straits NMS

San Juan County BRZ

Florida Keys NMS Management Plan

Tortugas 2000

Channel Islands Marine Reserves

Gulf of Mexico Grouper Closures

Marine Life Protection Act

Delaware Bay Horseshoe Crab Reserve

| 1988 | 1990 | 1992 | 1994 | 1996 | 1998 | 2000 | 2002 | 2004 |
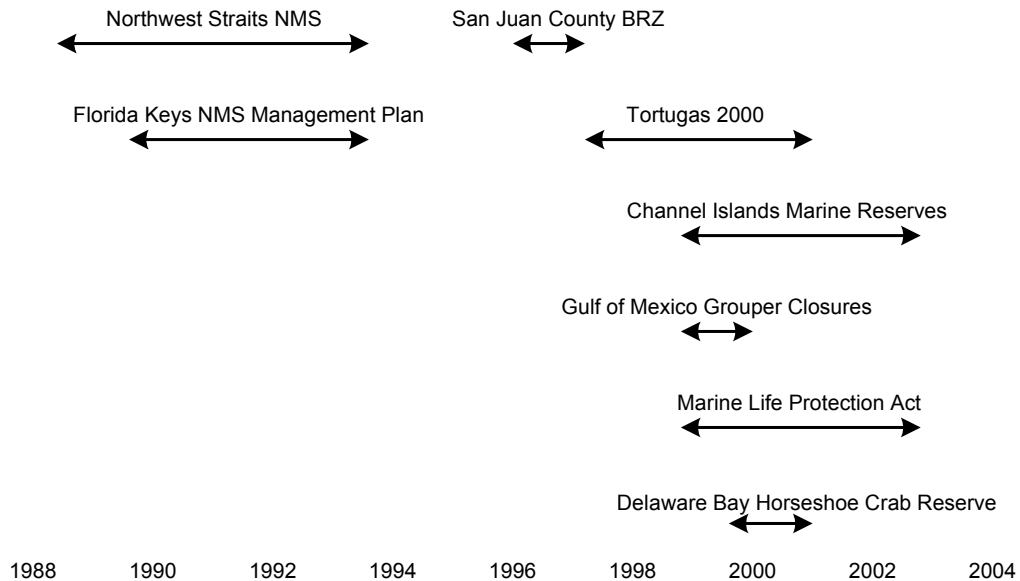
While all are unique in their settings, historical backgrounds, degree of conflict, scope, and other essential characteristics, clear themes emerged from the case studies that provided the basis for explicit findings and recommendations.

Findings and recommendations
The findings and recommendations from the case studies were derived, analyzed, and then synthesized into lessons learned and, ultimately, the report's Findings and Recommendations. To ensure their relevancy and usefulness to agency managers, the lessons are organized to coincide with the typical stages of an MPA process, from inception through designation and review.

Setting the Stage
Beginning with "setting the stage", the report reveals the critical role that history, process design, goal setting, and science all play in laying the foundations for a productive effort to designate an MPA. While it may seem obvious that MPA processes do not emerge from a vacuum, several case studies revealed that avoidable challenges surfaced when process managers failed to take the time to fully understand the social, political and ecological landscape that informs a designation process. These historical factors often reveal the motivations and goals of stakeholders, and, when understood, support a more nuanced approach to avoiding or diminishing potential conflict.

Surprisingly, some process managers also overlooked (or at least undervalued) the central role that authorizing statutory or regulatory language plays in determining explicit goals and objectives. Vague or confusing expressions of goals with respect to a designation effort can lead to ambiguous and conflicting expectations about roles and outcomes, as well as other serious pitfalls. Managers should therefore clearly articulate the underlying authority driving governmental action and then build on that authority to develop, as much as possible given their sometimes fluid nature, meaningful statements of goals. This will help participants know what is at stake for them and understand precisely how stakeholder advice, decisions, or recommendations will affect authorized decision making.

Process Management
Once initiated, MPA efforts turn to the "process management" phase of a designation. Process management factors include political considerations, the presence or absence of effective leadership, conflict management techniques, the role and timing of map making, and the availability of resources to fund a process. All these elements affect how efficiently and effectively a process moves through the inevitable twists and turns that occur in any designation. The case studies demonstrate that even processes that appear to be a straightforward application of scientific information to resource questions are significantly affected by their political settings and the push and pull of how user groups perceive the potential impacts of the proposed MPA(s). If not carefully managed and planned for, these allocation, socioeconomic, and political considerations can dominate a process. Effective leadership at the political, agency, stakeholder, and process levels is also a significant factor in the success or failure of a designation effort, as is the availability of skilled, interest-based conflict management tools.

Of course, intensive processes cost money, especially when facilitators, process design specialists, and sophisticated process techniques are utilized. But while stakeholder participation and process is an expensive, time-consuming, staff intensive undertaking, the case studies underscore the significant inefficiencies that occur when there is no clear staff oversight of a process, or when staff and management frequently change. In addition, staff must have the experience, stature, and core skills needed to understand and influence a processes' evolution, and to successfully flag and discuss emerging issues with program leadership.

Decisions and evaluation
The final analytical phase of a designation process is the point or points at which decisions are made, and how those decisions and the outcomes they produce are evaluated. Here, the case studies demonstrate the importance of managing expectations among stakeholders by ensuring that participants understand the role they play in making decisions, and what happens to their decisions or recommendations once a participant's role in the process is concluded. Is the process collaborative, consensus building, or simply input for the agency? Precisely where does the decision-making authority lie? Participants must know the answers to these questions.

An issue related to decisions is how they are evaluated once made. A number of the case studies exhibit the problems that can occur when evaluation measures are not designed into a process. Evaluation should not only focus on the degree to which an MPA is meeting its stated goals, but also on the effectiveness of the designation process itself. Obviously the more clear the MPA's goals, the easier it is to design a monitoring system to measure those goals. Where goals are less clear, a secondary process may be required to establish interim and longer-term monitoring targets or benchmarks.

Recommendations
In addition to these broader insights, the evaluation identified a number of specific recommendations.

1. Early planning efforts must include a thorough assessment of past history and its potential effects on stakeholder perceptions and the goals to which they will agree, as well as on their willingness to participate, and the groundrules they will accept.

2. Process managers must have a grasp of the underlying authority for a designation process, as well as the ability to explain it to participants.

3. Managers must have a vision of the process steps from beginning to end, not just the stakeholder participation stage.

4. Managers should design and manage MPA processes with an understanding of stakeholder motivation, an expectation that stakeholder goals will differ, and be prepared to handle disagreements and conflict.

5. Processes should incorporate appropriate flexibility and adaptability. Convenors and process managers should look at the full array of decision tools that are available and not feel locked into a complex consensus model or a rigid fishery management model.

6. Process managers need to remember that scientists are people, with motivations and biases like other stakeholders. Scientists should not work separately from other stakeholders, even on seemingly non-controversial issues. Scientists should be selected to ensure that their skills match the areas of expertise defined by the objectives of the process, and their role made clear to stakeholders.

7. Planners and managers should treat politics as the natural expression of human and interest group dynamics that reflect stakeholders' genuine interests and perceptions. They are part of the policy process and need to be recognized, accommodated and planned for. Such interest group dynamics often lead to conflict, which should be seen as a natural part of such complex processes.

8. Leadership is needed at the political level that initiates and supports the process, at the upper levels of involved agencies that ensure consistent commitment and follow through on decisions, at the process level where facilitation, negotiation, and conflict management skills are crucial, and at the interest

group level, where perceived stature, relationships with constituents, and the effective framing, control, and communication of a core message are important.

9. Value-laden conflicts can and should be addressed through the use of skilled, experienced facilitators. Where possible, third-party process managers should guide the process from the outset. If this is not possible, neutral third-party professional facilitators should at a minimum be employed to run the meetings.

10. Maps have many applications from identifying gaps to analyzing the implications of proposed boundaries. Process planners should consider three important aspects to maps – the process by which they are made, the information they contain, and how, when, and by whom they are used.

11. Upper level managers and agency decision-makers must ensure that key program staff are formally assigned to manage the process from start to finish, and that they have the experience, stature and core skills needed to understand and influence its evolution, and to successfully flag and negotiate emerging issues with the program leadership.

12. Process planners should be familiar with every stage in an MPA designation process, how long each step takes, and how much of it is set in law and regulation. They must know not only the stages of the stakeholder process and how long they will take, but be familiar with actions beyond the stakeholder process, where the stakeholder results go, what weight they carry, where results go in the next stage and how much of this is set in law and regulation. They must be able to communicate the overall picture to participants, and may need to do so more than once to be sure stakeholders do not lose sight of where their deliberations fit in the overall picture, or conceive unrealistic expectations about the outcome.

2.0 Introduction

Marine protected areas (MPAs) are in use throughout the world for a variety of purposes. In the U.S., numerous agencies have established MPAs to achieve a variety of objectives. Their sizes, shapes, and purposes are as diverse as their designations. National marine sanctuaries, fishery management zones, national seashores, national parks, national monuments, critical habitats, national wildlife refuges, national estuarine research reserves, state conservation areas, state reserves, and local parks perform as sites for research and education, as biodiversity reserves, as tools to conserve historic or cultural marine resources, as designations to reduce user conflicts, and to manage natural resources.

The federal government's MPA program defines marine protected areas as "any area of the marine environment that has been reserved by Federal, State, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein" (E.O. 13158, Federal Register, 2000).

Ocean resource managers at a variety of levels in the U.S. are considering MPAs to accomplish targeted objectives, including recovery of depleted fish populations. Fishery management councils are examining and debating the use of MPAs as fishery management tools. As program managers in National Marine Sanctuaries perform their periodic reviews and evaluations, no-take MPAs are being proposed as management measures in sanctuary management plans. State managers in Florida and Oregon are grappling with the effects of MPA designations on activities they manage in state waters, and in California a state law has mandated the development of a comprehensive system of MPAs throughout state waters.

Each proposed line on a chart, every suggested change or curtailment of human activity in the marine environment, engages user groups, managers, and scientists in the debate over the purpose, effectiveness, and evaluation of MPAs as a resource management tool. The process is never without controversy, highlighting the need for improved designation procedures, including more concrete criteria for MPA design and implementation.

During the past few years, federal and state agencies have undertaken public planning processes to create new MPAs or to establish fully protected marine reserves within existing MPAs. In each case, agencies sought public input on the design, location and management plan for new MPAs. Approaches used to acquire stakeholder input varied widely depending on agency-specific legal requirements, policies, timelines and other constraints. Public engagement in these very different planning processes ranged from sustained substantive involvement over several years, to more limited participation focused mainly on commenting on internally generated preliminary plans. The results of these MPA planning efforts varied as widely as their methods.

Constructive public engagement in MPA planning is vital to achieving conservation goals: both in establishing sites and in ensuring their effective long-term stewardship. Conversely, when MPA planning processes go awry, the resulting confusion and controversy can result in compromises on siting and levels of protection that do not comport with MPA objectives, and can complicate objective assessment of future unrelated MPA proposals in other settings.

To evaluate the effectiveness of stakeholder engagement in six recent federal and state MPA planning processes around the U.S., the National MPA Center initiated the MPA Lessons Learned Project to critically examine from a variety of perspectives what worked well, as well as what did not, and to make recommendations for future approaches to this fundamentally important phase of MPAs. A first phase

was publication of Marine Protected Area Process Review: Case Studies of Five MPA Establishment Processes, which can be viewed on line at http://www.mpa.gov/information_tools/lessons_learned.html. (NOAA 2003). The first phase was an objective documentation of five recent MPA establishment procedures, which specific process-related elements outlined for each. The present report examines the same cases from the perspective of stakeholders who participated in the planning and designation processes.

2.1 Report structure

This project uses a case study approach to provide raw material and insights for an evaluation of several planning processes. Although the evaluation focuses on past experience, the report intends to be constructive and prospective, leading to improvements to stakeholder participation processes in order to create more effective MPAs.

In particular, the Lessons Learned Project evaluates the effectiveness of, and perceptions of key participants in, six planning processes to establish MPAs. The case study sites were chosen by the MPA Center for their geographic range, variation in governmental authorities involved, and different modes of stakeholder participation.

The six processes examined were:

- Northwest Straits National Marine Sanctuary / San Juan County bottomfish recovery zones (federal/state/local; Washington state)
- The Channel Islands Marine Reserve (federal/state; off Santa Barbara, California)
- California's Marine Life Protection Act: Phase I (state; throughout California state waters)
- Tortugas Ecological Reserve (federal/state; Florida Keys)
- Gulf of Mexico Grouper Closures (federal/FMC (Fishery Management Council); Florida Gulf coast)
- Carl N. Schuster Horseshoe Crab Reserve (multi-state/federal; Delaware Bay)

Each case study includes a brief description of the historic management or policy setting, examines the specific case facts in light of the project's core questions, and extracts lessons learned. A synthesis of all the lessons is pulled together in a Summary of Findings (Section 6.0), that also includes recommendations on a variety of topics related to process design, process management, decision making, and evaluation.

2.2 A note about terminology

Executive Order 13158 defines marine protected area as "any area of the marine environment that has been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein." In this report, however, each case study uses the terminology adopted by that particular process, and is not based on a consistent definition. For example, some case studies used the term "marine reserve" in reference to areas that are completely no-take, while others used the term in reference to areas that have limited take. In another example, some sites preferred to use the term "consumptive use," while others preferred the term "extractive use." Definitions of terms are incorporated in each case study as appropriate.

A list of acronyms used in the report is provided in Appendix A.

3.0 Core Issues

The central goal of this effort was to assess a set of representative MPA planning processes to:

- Determine the effectiveness of stakeholder engagement
- Identify effective process planning and management elements
- Make recommendations to improve future such efforts.

The MPA Center sought information on stakeholder perspectives on a series of core issues related to these goals, including the following (drawn from the Statement of Work):

- The clarity and attainability of the conservation goals and objectives for the proposed MPA(s)
- The clarity of the policy and legal framework and the programmatic mandates within which the MPA planning processes were conducted
- The adequacy of the timeline from initial scoping to final decisions
- The adequacy of programmatic resources devoted to the planning process
- The impact, role, and adequacy of scientific information in informing decision making and resolving conflicts about site design, location and purpose(s)
- The adequacy, utility and clarity of technical information and decision support tools provided to the public
- The degree to which the perspectives of important stakeholder groups were adequately represented throughout the process
- The degree to which input from various stakeholder or user groups was weighed in making the final decisions on MPA design
- The influence of the 'process design' on its ultimate outcome, including the role of facilitators
- The degree to which the final MPA configuration met the stated programmatic conservation goals of the planning exercise
- Ways to improve meaningful stakeholder participation in MPA planning processes

It is clear that stakeholder perceptions alone do not provide a complete picture of the ultimate success (itself a difficult term to define) of a designation effort. Nevertheless, any participatory process that does not foster the involvement of key stakeholders is not likely to achieve its stated aims. In addition, the variety of viewpoints inherent in a broad cross section of stakeholders is a fruitful source of observations and insights for analysis and evaluation. The project's primary focus on stakeholder perceptions should therefore be seen as a basis for analysis rather than as an explicit criterion of process adequacy or success.

In conjunction with project managers, investigators expanded the issues identified in the Statement of Work into a longer list of questions that fell into four bundles related to:

- Planning and design of stakeholder and MPA designation processes,
- How convenors, facilitators, agency managers, and others managed the process itself,
- Decision making about designation and how that action related to the stakeholder process, and
- Evaluation of the stakeholder process as well whether the MPA designation includes a means to monitor the MPA and evaluate effectiveness in meeting its objectives over time.

3.1 Setting the stage: Process design
Issues related to the initial process design stages of the case studies included:

- The role of clear goals and objectives, as well as interim benchmarks or milestones
- The potential for confusion stemming from the often different sets of goals and objectives associated with enabling legislation, the individual MPA itself, and the process used to establish the MPA
- The function of any linkages established among these different sets of goals and objectives
- When in the designation process stakeholder participation was solicited
- The presence and results of actions to identify constituent groups, their perspectives, their relative influence, and their relationships to the set of goals and objectives
- The degree to which stakeholder representatives reflected their broader constituencies, including those directly affected by potential decisions
- Similarities and differences in how stakeholders viewed and understood the process
- The roles science and scientists, both natural and social, played
- The degree to which the general public was involved
- The presence and effect of any equity or environmental justice issues.

3.2 Working with stakeholders: Process management
Issues involved in the stakeholder process itself included:

- The identification and/or use of best practices for critical elements of the designation process
- The presence and function of explicit groundrules
- The function of leadership of different kinds
- The use and effectiveness of decision support tools (e.g., maps, interactive GIS)
- The influence of past history on the interactions of stakeholder groups
- The nature and extent of ongoing communication between stakeholder representatives and their constituents
- Whether resources available to constituents affected the scientific advice they were able to provide
- The way science was solicited and used in the process
- Methods used to ensure all participants had a common knowledge base
- Methods for eliciting needed information from different stakeholder groups
- The influence of external advocacy campaigns.

3.3 Decision making: What happens after stakeholders have their say?
Issues involved in making and implementing decisions included:

- The nature of the larger decision-making process and its relationships to local and regional processes
- Degree to which the larger decision process was understood by stakeholder groups
- The role played by comments from those outside the stakeholder process
- The influence of agency roles and relationships, as well as the larger political context, on decision making
- Methods by which agencies retain discretion on action as it proceeds through administrative steps.

3.4 Evaluation: Did the process accomplish its objectives?
Issues involved in determining whether reserves are effective included:

- The role of evaluation in determining if an MPA has met its objectives
- Meaningful ways to identify lessons that link process and fundamental purpose
- How monitoring was dealt with during stakeholder discussions

- Whether gathering scientific information was an objective of the MPA
- Whether an explicit monitoring plan was included in the MPA design
- Who was given the responsibility for monitoring
- Whether monitoring is linked to an adaptive management plan.

4.0 Project Methods

Investigators explored a set of issues regarding stakeholder perceptions of the respective designation processes through open-ended interviews. These were embedded in an analytic process used to assess the relative degree of success of each designation process and analyze the influence of factors that stakeholders perceived as key determinants of success or failure.

4.1 Methods used to gather information

Following a discussion of the core issues, a detailed interview plan was prepared. NOAA provided an initial list of contacts and investigators expanded this with referrals from individuals on the original list and with individual contacts in a variety of organizations. The team attempted to interview the majority of direct participants in each case study, as well as knowledgeable observers who could provide an outside perspective. Investigators continued interviewing new contacts until they had thoroughly cross-checked the important elements of each case and had begun to hear the same material repeated. This required as few as a dozen contacts with the less complex cases and as many as two dozen or more with the more complicated ones.

An introductory statement about the project was used to begin each interview (See Appendix B). A few standard questions were used to establish baseline information and introduce the subject matter, but investigators did not use a questionnaire or survey instrument. Instead, open-ended interviews were used to sound out subjects on the core questions and issues. Interviews were loosely structured around core issues. Giving interviewees the opportunity to set the tone and direction of the conversation, rather than asking them to follow a highly structured survey instrument, permitted more useful information to be gathered. Once the conversation was underway, the interviewer may have branched out from the original direction of the interview to ask additional questions based on the specific issues.

Where useful, one contact was challenged with information obtained from another (anonymously), to probe their depth of understanding, their relative objectivity, or to gather data on a different perspective. Second or third interviews with some contacts helped to follow up on material from an earlier interview or to address questions raised in other interviews. To the extent possible, knowledgeable individuals, with whom we have long-standing prior relationships, were used as fact checkers and to provide greater insight into the history and underlying motivations of particular groups. All interviewees had the option of placing all or part of their interview off the record, and some availed themselves of this option.

Team members made detailed notes of all interviews, shared them among the team members and discussed interview results regularly via email and phone. These discussions aided in refining themes, narrowing hypotheses on which to base findings, and encouraged investigators to challenge each other's interpretations of the validity and significance of particular interviews. Names of interviewees and interview notes were retained by the investigators as confidential work products, and not made available to either the project managers or other information sources (per the terms of the contract with the National MPA Center).

4.2 Methods used to address core questions

Because stakeholder perceptions are important but not the whole story, investigators looked beyond participants' perceptions of how events unfolded in the six case studies. Stakeholder perceptions are important, but not the whole story. To address the core questions, investigators also used the procedural documentation in the MPA Process Review (NOAA 2003), analysis of reported perceptions of participants from different interest groups and management agencies, comparisons of events and perceptions among the six cases, examination of the outcomes, investigation of the literature on process

design, insight derived from consultation within the team and with NOAA project managers. The project findings are thus more than a compendium of stakeholders' observations and judgments. They are instead the result of a synthetic and integrative analysis based on a broad range of information and experience.

4.3 Methods used to validate findings and avoid bias

Investigators used a range of techniques to help avoid bias in the data gathering and analysis and to verify conclusions and the basis of recommendations.

To ensure the representative nature of data sources, the team systematically interviewed a broad range of contacts, following suggestions for additional interview candidates, searching for other, independent, reviews of these and related planning processes, and looking for contrasting cases that challenged the plausibility of our emerging conclusions. Where issues emerged that have been treated in literature on planning, regulatory processes, stakeholder engagement or collaborative problem solving, investigators and cited used those resources.

Open-ended questions helped guard against influencing interviewees. Where interviewees' positions were known through their previous activities, investigators used this knowledge as a rough check on the internal consistency of their statements. The team employed other techniques to avoid subtle influences on our own perceptions, such as ensuring the inclusion of "dissidents" with no stake in the status quo or assigning two team members to key interviews where the contact was well known to member us. An internal skeptic's role also rotated among the team members in order to ensure that hypotheses and conclusions were adequately tested as they developed.

Investigators cross checked exceptionally passionate and eloquent interviews with more objective sources and compared verbal claims to the written record where possible. Where they found apparent distortions of the record, the team made further investigation and attempted to corroborate findings and conclusions by comparing several different sources and kinds of evidence, an approach termed "triangulation," to ensure that findings are based on several different, but mutually supportive, lines of evidence.

Information sources were weighted in terms of their relative validity and usefulness, giving more credence to those who had been directly involved in events, who had long-standing experience in the topic being discussed, whose statements could be validated through cross checks with other sources, who provided a thoughtful description and analysis of events, and who responded directly and knowledgeably to challenging questions.

5.0 Case Studies

5.1 San Juan County/Northwest Straits bottomfish recovery zones

Figure 3 shows the location and extent of the bottomfish recovery zones in the Northwest Straits portion of northwestern Washington State.

Figure 3. Location of bottomfish recovery zones in the Northwest Straits.

Source: (*www.co.san-juan.wa.us/mrc/ntz.html*)

5.1.1 Setting

The Northwest Straits is an area located in the northwestern corner of Washington State that covers approximately 1114 km^2 (430 mi^2) and includes the San Juan Islands, an island archipelago that supports diverse and abundant natural resources. A world-class tourist destination, the area also supports several active fisheries, domestic and international shipping traffic, and vast recreational opportunities. Over one million people live in the area, which spans 7 counties – Whatcom, Skagit, Snohomish, Jefferson, Clallam, Island, and San Juan – and runs along the southwest border of British Columbia. Home to several federally recognized Indian tribes with U.S. Supreme Court affirmed hunting and fishing rights, the area's resources are managed by an often confusing patchwork of tribal, federal, state and local government entities.

In 1983, acting through its authority under the 1972 Marine Protection, Research, and Sanctuaries Act (the act), NOAA identified a portion of the Northwest Straits as a potential national marine sanctuary (48 Fed. Reg. 35,568 1983). Six years later, Congress, led by Representative Mike Lowry (D. Wash.), doubled the sanctuary target area and elevated its status to "active candidate;" public scoping meetings were announced, and the formal vetting process was commenced (54 Fed. Reg. 41,481 October 10, 1989).

Located entirely in state waters, the sanctuary proposal almost immediately met with resistance. Although it received strong and sustained support from various NGOs (non-governmental organization) and some community members, the concept of a national sanctuary in the Northwest Straits never took hold with many local elected officials and community groups. As the process unfolded, opposition galvanized as the early to mid 1990s political culture shifted towards a local control, individual property rights perspective. To many, the sanctuary became yet another example of an "outside," "top down" federal initiative designed to subjugate residents and their ability to decide for themselves how to manage local resources.

The sanctuary initiative floundered in the midst of increasingly strident opposition. Public meetings grew volatile and unproductive as vocal opponents frequently shouted down federal and state officials' attempts to discuss the proposal. Without a clear understanding of the benefits a sanctuary designation would bring to the area, even supporters began to question the merits of the program and whether they were worth the concept's divisiveness among community members. Indian tribes, with enormous interests at stake through their treaty rights to many of the area's fisheries resources, largely sat on the sidelines because (1) they reportedly lacked sufficient resources to prioritize the sanctuary process over other critical issues facing the tribes, and (2) skepticism that the sanctuary would protect and further the tribes' interests, coupled with a perception that it did not have the sufficient momentum to succeed.

The beginning of the end of the sanctuary proposal came in 1994, when all seven county commissions voted to oppose a ational marine sanctuary in the Northwest Straits. Then in 1996, amidst intensive lobbying both for and against the sanctuary, Senator Patty Murray (D. Wash.) and Representative Jack Metcalf (R. Wash.) formed a bipartisan committee that developed an alternative rooted in a local, county-level approach to marine conservation. At the same time, San Juan County established bottomfish recovery zones (BRZs), voluntary measures to protect depleted bottomfish populations. Looking for guidance to San Juan County's measures and the creation of their Marine Resources Committee – a volunteer body charged with advising the county on marine related issues – the Murray-Metcalf Commission devised a seven county, "bottoms-up," federally-funded, voluntary program. Integrated through the coordinating leadership of the Northwest Straits Commission, and funded via a direct Congressional appropriation through the National Marine Sanctuary Program, the initiative supplanted the sanctuary concept with county-controlled, non-regulatory activities designed to "drive existing authorities to make reforms that have so far proved elusive" (Murray-Metcalf Report 1998).

The Northwest Straits Commission currently operates in its seven-county coordinating capacity and faces Congressional review and reauthorization in 2004. In April, 2004, the Northwest Straits Evaluation Panel, led by former EPA Administrator William Ruckelshaus, performed a Congressionally mandated five year review of the commission's accomplishments. Identifying several achievements – including the mobilization of citizens, increased voluntary compliance with conservation goals, and contributions to scientific understanding of the area – the Panel unanimously recommended reauthorization of the commission for eight to ten years. The Panel also recommended a two-fold increase of federal support from roughly $800,000 to $1.6 million annually.

The procedural steps taken to create the bottomfish recovery zones are set out in detail in MPA Process Review (NOAA 2003).

5.1.2 Major themes
Several themes emerged through discussions with dozens of individuals who participated in the Northwest Straits marine sanctuary initiative and in its metamorphosis into the establishment of BRZs and the county-led Northwest Straits Commission. Forming the basis for the lessons learned from these efforts, themes are most fully understood by first grounding them in significant factors that influenced the processes and their outcomes. These factors include the following:

- An intensely anti-federal, local control political climate
- A proposed national sanctuary located entirely in state waters
- A proposal that doubled the size of the site
- Federally recognized Indian tribal treaty rights within the area
- Unclear federal goals and several midstream leadership changes
- Local constituencies energized by a failed sanctuary effort.

Against this backdrop, and despite vastly divergent values placed on natural resources, political beliefs, and agendas with respect to the sanctuary, interviewees struck several common cords regarding why the sanctuary effort failed, and, conversely, why the BRZs are widely considered a success. These themes include (1) the importance of clear goals, (2) the appearance of a "top down" approach in a strongly independent community, (3) poor bureaucratic coordination and indecisiveness vs. quick, decisive and popular action, and (4) uncertain need for (and benefits of) a sanctuary vs. clear need for bottomfish protections. It is from these themes that the following lessons learned are derived.

5.1.3 Lessons learned
Prepare, prepare, prepare
Several interviewees reflected a perception among participants that federal and state officials charged with responsibility over the sanctuary effort did not have a firm understanding of the affected communities or the local challenges they faced. For some, this underscored the fear that ill-informed "outsiders" were attempting to push an agenda on communities they had no connection to or stake in. Exacerbating these perceptions was the fact that little was done to integrate the process or its state or federal participants into the affected communities. Instead, officials would arrive in communities for public meetings and then immediately leave, or hold meetings in areas, such as Seattle, that sent unintended signals to rural communities that this was a concept invented by urban environmentalists who wanted to "lock up" natural resources simply for their existence value. While the sanctuary office stationed a manager and staff member in NOAA's Seattle office, their presence did little to counter impressions in affected communities that federal officials were out of sync with local perspectives and concerns.

Perceptions that federal and state officials did not appreciate the depth of local concerns were formed early in the sanctuary process and plagued it throughout. While any proposal of this sort will generate some level of controversy among local residents, far more advance preparation could have been done to minimize the impact of this natural tension. For example, rather than going into the sanctuary process to learn more about perceived resource-related problems and how a sanctuary might address those problems, intensive research should have been done ahead of time so that problems and their potential solutions were understood as much as possible before the first public meeting was held.

Another aspect of preparation is the establishment of a presence in significant local communities. In the Northwest Straits, Friday Harbor, a town on the island of San Juan, was the source of most of the news, both myth and fact, that informed community members about the sanctuary. But rather than make efforts to connect to the community and gain trust, federal and state officials held public meetings and then left, leaving pregnant pauses in the process to be filled by people's greatest fears. At least one interviewee suggested that opening an office in Friday Harbor would have gone a long way to building trust and inspiring more grass roots support for the initiative. Perhaps the intensity of the anti-federal sentiment would have overwhelmed any effort to establish credibility among local residents, but the lack of a local presence clearly fed the perception, among some, of a top down, "outsider" driven agenda.

The establishment of bottomfish recovery zones in San Juan County, of course, benefited greatly from the years of work that went into the failed sanctuary effort. Not only were the county commissioners who

adopted the measure intimately connected to the affected communities, they also witnessed the public's reaction to the sanctuary and understood what was politically feasible. Moreover, the sanctuary process gathered into one place considerable information about the status and location of important resources in the area, an effort which proved valuable to planning efforts that followed. While largely anecdotal, the commissioners had credible information regarding bottomfish populations and, not coincidentally, broad support for the action. San Juan County was well prepared to act swiftly to protect areas through voluntary measures.

Develop and communicate concrete goals
It is telling that the only interviewees who said they understood the goals of a sanctuary designation in the Northwest Straits were the state and federal officials charged with articulating them to the public. Not even enthusiastic sanctuary proponents – whose support appeared to be based on vague desires to bring more attention and potential funding to the area – were able to clearly state what a sanctuary designation would mean for the region. Indeed, the most common criticism (and the most common theory as to why a sanctuary failed to materialize) is that the process lacked a clear statement of goals. According to many, the lack of goals, the lack of a clear vision to capture imaginations and galvanize support, resulted in an "information vacuum" that was filled by those who opposed the sanctuary.

The issue of goals and objectives goes deeper than merely articulating the aspirations of a sanctuary designation process. Clear goals give shape and definition to an otherwise amorphous concept. They allow people to respond and react, to ask pointed questions and work to fashion a proposal into something that will garner support within the affected communities. In this context, several interviewees mentioned a "straw" proposal that was not offered during the sanctuary process, as a tool that could have brought much needed focus to discussions. Without something concrete, the process degenerated into parade of horribles detailing what local residents feared most from a designation: the end of commercial and recreational fishing; the closing of favorite anchorages; the federalization of a place where local communities take great pride in their self-determined lives.

The lack of clearly communicated goals also affected how federal and state officials responded to people's concerns and questions about the impacts of a sanctuary designation. According to many participants, there was little follow-up when questions were asked, especially those related to the scope or practical implications of a sanctuary. Again, without direct answers to questions regarding how a designation would affect the daily lives of individuals who live and work in the area, the sanctuary concept was effectively defined by those already predisposed to oppose it.

The BRZ effort, on the other hand, benefited from clear goals. First, San Juan County – motivated by the outside pressures of the sanctuary initiative – sought to demonstrate that it could, through locally driven efforts, act to protect bottomfish populations without federal or state "top down" involvement. The county also established a clear goal of working to ensure that whatever measures they put into place received broad support, including support from those who opposed the sanctuary. Although several interviewees expressed concern that the goal of popular support came at the expense of the most effective resource protective measures, in terms of the county's goal of politically viable, swift action that demonstrated a deep local commitment to take bold steps, the measures were clearly successful.

Ensure interagency coordination
Interviewees both within and outside government agencies pointed to the lack of effective coordination throughout the sanctuary effort, both among state agencies and between state and federal efforts. This lack of coordination, they felt, was a significant factor in why the process never seemed to gain steady momentum. From the outside, the lack of coordination appeared sloppy at best, and at worst reflected a perceived governmental ambivalence regarding an increasingly controversial proposal. Detecting

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vulnerability, opponents reported exploiting this lack of unity while supporters of the sanctuary frequently felt out on a limb, with government officials doing little to help them counter growing opposition.

According to government interviewees, outside perceptions were not entirely off base. Federal officials reported being frustrated by mixed signals and an apparent lack of enthusiasm among some state agencies, and frequently experienced delays and lapses in communication around critical issues. For example, questions regarding the legal impact of the sanctuary being located entirely in state waters festered for months within state legal offices. Without guidance or agreed upon policies on this front, federal officials reported being hamstrung when communicating with communities about the proposal. In addition, several state agencies with significant roles in coastal resource management seemed to have diametrically opposing views on the merits of a sanctuary in state waters. This confusing situation hampered effective federal-state collaboration.

The lesson learned here is the importance of active and sustained coordination among state, federal and other agencies charged with shepherding a sanctuary proposal through its public review process. Critical issues must be defined and quickly resolved so that government officials can, as much as possible, respond to community concerns with one voice. Protocols should be in place to address inter and intragovernmental disagreements when they arise, long before they threaten to bog down a process or undermine public confidence in a government-led initiative. Federal and state officials must work in concert to develop a synchronized approach that seeks to energize local bottoms-up passion and ownership over the process and its outcome.

The complexities and significance of effective coordination in multi-agency, multi-government efforts stands in stark relief to the county-led effort. Acting virtually alone, the county's establishment of BRZs was not bogged down by endless coordinating efforts with other public agencies. At the same time, however, some Indian tribal representatives maintain the county members sometimes overlook the fact that matters are not as simple as the county would like to believe. While the county's Marine Resource Committee attempts to include tribes and has a representative from one tribe with interests in the area, several other tribes, possessing treaty rights to hunt and fish that are viewed by U.S. courts as the "supreme law of the land," have for the most part elected to stay clear of the MRC for fear that their participation might result in a legal or de facto diminishment of their federal rights. The county is not a legally recognized manager of resources, many tribal and state officials point out, and as such is not an appropriate forum for management activities to occur.

The lesson here is that coordination among public entities, including Indian tribes, must be shaped with a nuanced understanding of the legal and political context within which MPA efforts are playing out. At the county level, where tribes and non-Indian local governments live in the same place but are in many ways distant neighbors, much more could be done to bridge historical gaps and distrust by searching for common ground from which to act. The tribes, through their recently adopted Tribal Policy Statement on Marine Protected Areas, Marine Reserves, Marine Sanctuaries, and Fishery Conservation Zones (June 26, 2003), have established a framework to guide effective coordination in a manner that is consistent with established law and respectful of tribal prerogatives. Working within this framework, perhaps San Juan County and tribes affected by the BRZs and other county initiatives can more effectively coordinate their efforts and work together towards achieving common resource-based goals.

Sustain the momentum
A number of interviewees, especially those engaged in the process from the beginning, expressed concern that the sanctuary initiative appeared to follow an on again, off again schedule. As a result, some said, momentum was frequently lost, and the concept developed a reputation for unpredictably "popping up" after sitting dormant for long periods of time. This pattern not only fed the perception that federal and state officials were not serious about a sanctuary, it also allowed opponents of the proposal to fill the

information void with their own anti-sanctuary agenda. This was especially the case when fundamental questions, such as the project's exact geographic scope or practical, day-to-day implications for local residents, went unanswered and lingered indefinitely.

The BRZ measures, by way of contract, were taken swiftly, over the course of just a few months. And where the frequently stalled sanctuary effort fed the stereotype of a lumbering federal government initiative, the county-led initiative, striking while the iron was hot from the fallout of the failing sanctuary, underscored the perception that local government can act with relative lightening speed and lean efficiency.

Manage disagreements
Major government actions affecting natural resources often ignite deeply held, value-laden passions that must be considered and accommodated to avoid polarization. In the Northwest Straits, the process followed a very common pattern: early reactions to a somewhat vague sanctuary proposal quickly divided stakeholders into two basic camps, those opposed and those in favor of a sanctuary designation. According to participants, however, discussions rarely went beyond this positional posturing because little effort was made to identify common ground from which to build consensus. Instead, public meetings focused on basic reviews of the sanctuary process and requests for public input, a structure that failed to inspire constructive, solution-oriented dialogue regarding the state of the area's resources. Over time, positions hardened and opportunities for such dialogue diminished, even as information was gathered to support a common understanding of challenges to resources that might be addressed by a sanctuary designation.

A more constructive approach would have been to design a process to seek a common understanding of the challenges facing the area's resources and the ways in which those challenges were not being met by existing management practices. Several interviewees expressed concern that a sanctuary seemed a "solution without a clearly defined problem," a perception that left many unable to articulate a sound reason to support the initiative.

In the subsequent BRZ effort, philosophical disagreements over the effectiveness of voluntary measures took a back seat to the desire to quickly put something into place. This, of course, is an example of how stakeholders often put differences aside when confronted with a perceived common threat (here, the threat of outside control). And as often happens, now that the threat of a sanctuary is (largely) forgotten, differences are again arising over the efficacy of voluntary vs. mandatory measures. But because trust is largely intact from years of working together, because all participants take great pride in their ability to do things themselves, and because the structure and relationships and credible information are in place, the San Juan County groups are poised to manage and even resolve these and other differences as efficiently and gracefully as possible.

Provide sustained leadership
Another major critique of the sanctuary vetting process was that it lacked clear, consistent, committed, and decisive leadership. While leadership comes in many shapes and sizes, in the Northwest Straits context there were two areas where leadership was absent. First, with the exception of early political leadership from Representative Lowry that jump-started the process, the process lacked high-level public leadership from state or federal elected or appointed officials. Perhaps because of the growing controversy surrounding the initiative, several interviewees suggested that the sanctuary became a political "hot potato" that high-ranking officials were reluctant to support, either politically or fiscally. But without such support the initiative floundered in the wake of active grass roots opposition.

The proposal also seemed to lack effective leadership at the process level. Here, leadership was required to manage disagreements and add a neutral third party to facilitate a consensus-based approach. Federal

and state officials attempted to play this role, but their claims of neutrality – that they were neither "for nor against" a sanctuary designation – were not trusted by most participants. And while they did their best under difficult circumstances, they were not generally trained in the art and skill of process design and facilitation of large-scale, potentially volatile public initiatives.

5.1.4 Conclusion
By all interviewees' accounts the effort to designate the Northwest Straits a national marine sanctuary was a resounding failure. Not only did the designation fail, the process also fueled antigovernment flames and became an issue that divided communities and strained relationships. But while the effects of the effort still echo through the region, like most failures, the initiative and its fallout have inspired some success, at least from a policy and political perspective: the San Juan County BRZs and other county-led programs now in place. With the notable exception of several tribes whose federal rights make them uncomfortable with local resource management, most would say that things are better now because of increased focus brought to resource issues by sanctuary designation efforts.

Whatever the measure of success, however, much can be learned from the almost decade long attempt to establish a sanctuary in the Northwest Straits and its transformation into the Northwest Straits Commission and grassroots county initiatives. Some are obvious – determine ahead of time what problem a sanctuary is designed to address; establish clear goals and straw proposals; exercise effective leadership at the political and process levels – and some are not so obvious, such as the need to transform a distant, federal initiative into a locally-driven effort that inspires broad-based grassroots support. With these lessons in hand, perhaps future processes will achieve more effective, less divisive means of evaluating sanctuary designations.

5.2 California Marine Life Protection Act
See Figure 1 for the general location of this case study. Detailed maps are not provided because the draft MPA network has removed from consideration for the moment. The draft network included a large number of proposed areas along the length of the entire California coast.

5.2.1 Setting
The current effort to develop an extensive network of MPAs in California state waters was mandated by a specific piece of legislation, Assembly Bill 993 (Shelley), also termed the Marine Life Protection Act (MLPA), introduced in February 1999 and chaptered in October 1999. The language is now included in Chapter 10.5 of the California Fish and Game Code, Sections 2850 to 2863. The bill was sponsored (and largely drafted) by the Natural Resources Defense Council, and supported strongly by conservation, diving, scientific and educational groups. The MLPA was motivated in part by two precipitating events. The first was the release of a California Sea Grant report in 1997 that critiqued the existing system of MPAs in California state waters, concluding it was haphazard and in need of reorganization. The second, which occurred at about the same time, was the shut down of all commercial and recreational fishing in southern California for all six abalone species, following the collapse of these stocks. The scientific and policy discussions surrounding this event suggested that, in addition to improved management, a backup plan, in the form of protected areas, could be useful, particularly for sedentary species like abalone.

The MLPA's goal is to improve the array of MPAs in the state. However, wording within the act itself contributed to competing interpretations, among different stakeholder groups, about the outcome(s) the act was intended to accomplish. For example, Section 2851(h) states, "…it is necessary to modify the existing collection of MPAs to ensure that they are designed and managed according to clear, conservation-based goals and guidelines…". Section 2853 states the need to "reexamine and redesign California's MPA system…" and goes on to define a broad set of goals for the state (e.g., protect biodiversity, the integrity of marine ecosystem, natural heritage). While the act gives the Department of Fish and Game the authority to both implement new MPAs and remove existing ones, it does not

explicitly state that a significantly expanded, statewide network of MPAs should be established. The act also specified that a master plan team should be established to work closely with a range of stakeholder representatives to produce a draft proposal for a new MPA plan.

Following passage of the law, the California Department of Fish and Game (CDFG) empaneled a master plan team, made up of eight marine scientists from academia as well as state and federal resource agencies. The master plan team met periodically for a period of approximately 18 months to develop a draft proposal describing a network of MPAs of various types in state waters, distributed from Oregon in the north to Mexico in the south. It is important to note that, while the act states that the master plan team should work closely with stakeholder representatives, the team worked in relative isolation during the preliminary planning phase until a set of draft MPA proposals was made available on maps. The decision by the CDFG to take this approach set the stage for much of what followed.

The maps summarizing the draft proposal were met with a virtual firestorm of protest from a wide range of stakeholder groups. In a series of meetings throughout the state in late 2001, CDFG staff heard heated comments about the process used to develop the maps as well as detailed criticisms of the design of the MPA network itself. Comments on the process focused primarily on the fact that the scientists worked in virtual isolation from stakeholder groups and without their input. Criticisms of the design focused on the fact that it did not take advantage of detailed site-specific information held by stakeholders about habitat type and distribution or about patterns of recreational and commercial resource use. Even subsequent good-faith efforts to consult with stakeholders and to incorporate their perspectives into the proposed MPAs were overshadowed by the widespread concern over the apparently 'top down' agency process.

In response to these reactions from resource users, as well as to input from conservation groups involved in advocacy for MPAs, the CDFG regrouped and retracted the draft proposal. At the same time, collective action by key stakeholder groups induced the Legislature to extend the implementation timeline, giving the department additional time to develop a modified process. The department in early 2002 then constituted a set of regional stakeholder groups charged with developing MPA networks through a participatory stakeholder process. At present, this process has been suspended due to funding constraints and it is not clear whether or how the regional stakeholder groups will use the potentially useful scientific information collected and organized by the original master plan team. However, participants in the revamped process have stated that, because of the more direct stakeholder involvement, it was proceeding much more smoothly than the department's initial effort.

5.2.2 Major themes
The working out of a legislation-driven MPA designation process in a complex and large-scale policy environment is a major theme of the MLPA case study. The act described desired outcomes in very general terms and was drafted with input from only a segment of potentially affected user groups. A second important theme is that the state agency with responsibility for implementing the act was operating under severe limitations, both in terms of its inherent capacity for managing a complex stakeholder process and the funds available for staffing and support. One aspect of this second theme is that a traditional fish and game agency may face institutional challenges to implementing place-based conservation as an alternative means of achieving management objectives. These two themes contributed to a third key theme, which was the way in which science input in this process engendered intense conflict rather than resolving important design issues. Finally, this case study illustrates how an agency, given time and additional resources, learned from initial difficulties and was able to develop a potentially more productive stakeholder process.

5.2.3 Lessons learned

<u>Excluding stakeholders creates resistance and conflict</u>

The master plan team of marine scientists that produced the first set of draft proposals worked in isolation from stakeholders. Their task was not widely publicized and many stakeholder groups throughout the state were only vaguely aware of the master plan team's work. As a result, the publication of the initial draft proposal led to nearly universal feelings of shock and betrayal among key stakeholder groups, especially commercial fisherman. It would be hard to overstate the intensity of this response, which was magnified by the fact that resource user groups had not been consulted during the drafting of the MLPA itself. Fish and Game staff and master plan team members who attended the first set of local meetings following the release of the draft proposal describe this as the most difficult public process they had ever been involved in. While more effective communication between the department and stakeholder groups gradually resumed, all parties acknowledge that the residue of suspicion and bitterness was long lasting.

<u>Excluding stakeholders leads to flawed MPA designs</u>

Because the planning process was designed such that the master plan team of marine scientists met alone, they could not avail themselves of detailed information held by stakeholder groups. The master plan team made a good faith effort to gather and assimilate readily available information. However, in multiple meetings held between members of the master plan team and stakeholder groups after the release of the draft proposal, it became clear that the size and placement of MPAs were often based on generalizations and assumptions that were not always accurate. For example, proposed sites did not reflect finer-scale information about patterns of recreational and commercial fishing that could have helped minimize economic impacts while still meeting resource protection goals. As another example, because of the plan team's working assumption that similar habitats had similar populations of fish, proposed sites missed opportunities to maximize potential for recovery and minimize economic impacts. The discussions at these meetings made clear that, as the next point describes, scientists should not be asked to craft MPA designs in isolation from stakeholders.

<u>Scientists should not be sequestered</u>

The makeup of the master plan team and the approach it took to developing the initial draft proposal was based on CDFG managers' desire to jumpstart effective stakeholder involvement by presenting a set of maps that could serve as the focus of review, comment, and design. This situation was very different from the role scientists played in the Channel Islands process, where the science panel was tasked with developing overall guidelines that framed the design work of the stakeholder group. However, when scientists are separated from other stakeholders in a context where the product they produce will potentially have direct impacts on other stakeholders, several predictable consequences result. First, as the previous lesson describes, the product can be flawed, lessening the credibility of the process as a whole. Second, awareness that scientists are working alone and out of view can trigger a perception that this is an elitist process, amplifying stakeholders' complaint that their knowledge has been devalued, thus obstructing collaboration. Third, exclusion often leads to anger and resentment which can obscure the value that does exist in the product of the scientists' work. A process with a separate scientific planning team might have worked if the team had been charged with developing a strictly ecological preliminary design, all stakeholders had understood the planning team's role, and there had been a clearly defined process for involving stakeholders in the next steps. However, even this approach would still have failed to incorporate stakeholders' ecological knowledge (see previous lesson).

<u>Maps by themselves can provoke conflict</u>

The draft maps produced by the master plan team were released by the department of Fish and Game with little or no preparation of the audience of stakeholder groups. The process by which the maps were created was not sufficiently explained, nor was the fact that the department considered the maps as a starting point for discussion and revision. Instead, all too predictably, stakeholders reacted to the maps as something that was being done to them, as opposed to something they were being asked to participate in.

The fact that the maps clearly did not reflect stakeholders' detailed knowledge of many of the proposed MPA areas merely amplified this perception. Where maps are developed collaboratively, as occurred in the Tortugas and Channel Islands processes, they can contribute to trust building and provide an effective framework for productive negotiation. Where they are developed out of view and presented without adequate preparation, they produce the opposite.

Process experts should be involved in process design and implementation

The reaction of stakeholder groups made it clear to many participants that process design experts should have been consulted from the very beginning of the process. In hindsight, Department of Fish and Game staff point out that training as a biologist does not prepare someone to deal with complex and potentially contentious stakeholder processes. Thus, managers appear to have overestimated the capacity of the department to successfully design and administer the necessary planning, consultation, and negotiation activities required by the MLPA. To some extent, a tight budget for the process may have made it easier for managers to assume that department staff could handle the process of soliciting, organizing, and responding to stakeholders' comments and then incorporating these into a revised set of maps. From a strictly technical perspective, this was probably true. However, department staff now acknowledge that professional facilitators would have greatly improved the process by helping to avoid pitfalls and to more quickly reopen productive channels of communication with stakeholders. To their credit, department of Fish and Game managers recognized their lack of expertise and hired professional facilitators to run the second round of meetings with stakeholder groups. By all reports, these meetings were proceeding relatively well before they were suspended due to budget constraints.

Be willing to be flexible

The MLPA process is an excellent illustration of the value of flexibility. After the first round of disastrous statewide stakeholder meetings, the Department of Fish and Game pulled back and regrouped. Based on their own first-hand experience and input from key stakeholder groups (primarily conservation groups, commercial fishermen, and ports), the department pulled the original set of maps off the table, redesigned the process, and retained skilled facilitators. Department staff recognized that relationships had been damaged and worked hard to rebuild them. The importance of the department's acknowledgement of the problem should not be minimized. It can often be difficult for institutions, as well as individuals, to publicly admit to problems, recognize the need for policy changes, and then commit to a new approach. The fact that the department did so, even while receiving substantial criticism, was seen by some parties as admirable, although others saw it as a sign of weakness in the face of controversy. In any event, the department's willingness to reassess methods while still pursuing the goals of the MLPA appears to have been a productive strategy. The master plan team also made a substantial contribution to the department's ability to shift direction. Several plan team members (all of whom had volunteered their time from the beginning of the process) attended multiple meetings with stakeholder groups to solicit their input and reopen lines of communication. Without that effort at bridge building, the department's efforts alone may not have been effective. It is important to note, however, that any future role for the master plan team at this point is uncertain. There is little funding to support their continued participation and no formal commitment to use the information they developed.

Goals should be clearly and consistently articulated

The goals of the MLPA process were insufficiently explicit in two ways. First, the language in the legislation is somewhat ambiguous. It clearly mentions the need for reorganizing the existing set of MPAs in state waters but is much less clear about the creation of new MPAs. This provided one basis for criticism of and resistance to the process once the draft proposal was released and stakeholder groups obtained their first view of the proposed network of new MPAs. Second, the MLPA refers to both biodiversity conservation and fishery related goals, but does not explain how these are to be implemented and balanced or traded off against each other. While it is not unusual for legislation to leave such details to implementing regulations and/or policies, the Department of Fish and Game did not take control of the

message regarding the specific goals of the MLPA and the network of MPAs. As one example, after the release of the original draft maps, scientists on the master plan team explained in local meetings that the focus of the MPA network was subtidal rocky reef habitats, a focus that stakeholder groups were not widely aware of. As another example, discussion about the goals and merits of the MPA network was often dominated by advocacy groups on one side or another of the issue, while the CDFG's voice was drowned out. The department's lack of message control, combined with the incompletely specified goals, resulted in the relationship between conservation and fisheries goals becoming confused in public discussion and advocacy.

<u>Acquiring site-specific information from fisherman can be challenging</u>
While it was clear that master plan team's design efforts could have benefited significantly from detailed site-specific input from resource users, especially fishermen, obtaining such information can be difficult. Many fishermen were quite forthcoming in the various sets of meetings related to the MLPA process, and readily shared information about the specific locations of fishing areas, the distribution and behavior of fish populations, and the relationship between ocean conditions and fish distribution and abundance. However, significant numbers of fisherman are typically extremely reluctant to share such knowledge, for a number of reasons. Fishermen are deeply concerned that such information can be used against them. A frequently voiced suspicion was that information about the location of high quality fishing areas would simply be used to site MPAs that would put these areas off limits to fishing. Another concern is that, where detailed information is not widely known among fishermen, sharing such information in a public process can be a competitive disadvantage. Finally, there is a widespread perception among fishermen that their knowledge is considered, by conservation advocates, scientists, and fisheries managers, to be less valuable or trustworthy than scientists' knowledge. And, in fact, the process by which the master plan team produced the first draft proposal tended to reinforce this perception. As in all complex situations, these concerns were neither all true nor all false, but they did color many fishermen's perceptions and influence their behavior.

5.2.4 Conclusion
The stakeholder process derived from the MLPA is widely considered to have been a failure in its initial phase but to have set the stage for a potentially more successful outcome in its second phase. The primary proximate causes for the high level of conflict that marked the first phase, following the release of the draft proposal, were:
- The ambiguous nature of the proposed network's goals,
- The exclusion of stakeholders from the master plan team,
- The release of the draft proposal maps without adequate preparation, and
- The absence of trained facilitators and process experts.

These proximate causes stemmed from an underlying set of ultimate causes, primary among them:
- The short timeframe imposed by the MLPA,
- The mismatch between the institutional capacity of the Department of Fish and Game and the needs of the situation,
- The larger context of adversarial relationships between fishermen and many conservation advocates, and
- Inadequate funding for the department's efforts.

While the MLPA process may yet produce its desired result, namely an integrated and well-designed network of MPAs in state waters, the path it has taken to date has been full of conflict, some of which may have been unavoidable. A key lesson to draw from this is the importance of attention to the human dynamics side of stakeholder processes.

5.3 Channel Islands Marine Reserves
Figure 4 shows the location and extent of the marine reserves in state waters off the coast of southern California.

Figure 4. Location of marine reserves around the Channel Islands in southern California.
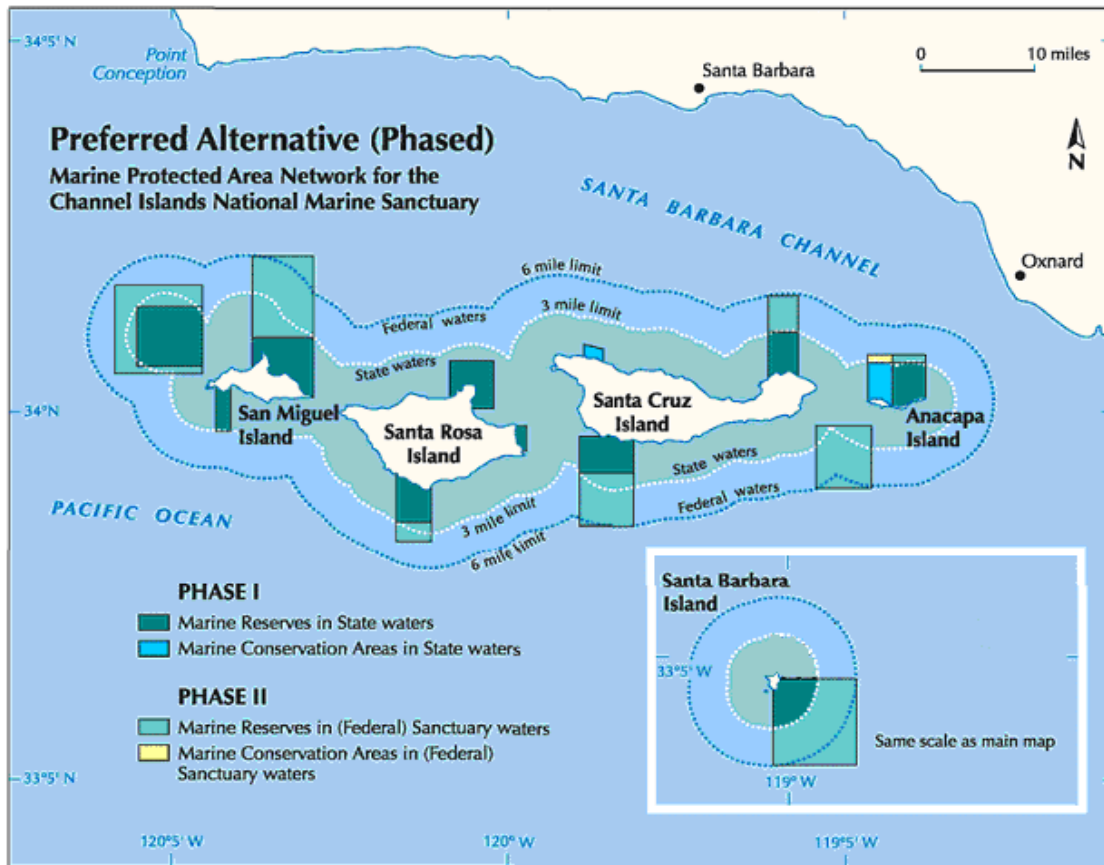
5.3 1 Setting
The Channel Islands are a chain of islands off the coast of southern California that are home to both the Channel Islands National Park and the Channel Islands National Marine Sanctuary. The islands provide extensive recreational opportunities (e.g., sportfishing, sightseeing) to a large urban population and are also fished commercially for a wide range of species. In addition, the islands are near major transit lanes for shipping in and out of the Ports of Los Angeles and Long Beach, as well as to military training and weapons testing activities at U.S. Navy facilities at Port Hueneme and Point Mugu. The marine resources of the Islands and their adjacent waters are managed by a variety of state and federal jurisdictions, many of which overlap, including the California Department of Fish and Game, the California State Lands Commission, the National Marine Sanctuary Program, the National Parks Service, the National Marine Fisheries Service, and the U.S. Coast Guard.

The effort to designate MPAs in the Channel Islands followed a complex path. It was initiated in 1998 by a group of recreational fishermen who approached the California Fish and Game Commission, concerned about potential overutilization of fish stocks around the islands. They submitted a proposal to close 20 percent of a one-mile (1.6 km) wide zone surrounding the northern Channel Islands to all fishing. After

failing to interest the commission in this initial proposal, they solicited the support of the Channel Islands Marine Resources Restoration Committee, a group of recreational fishermen and other citizens from southern California, as well as the Channel Islands National Park. When informed by the commission that a federal agency (i.e., the National Park Service) did not have jurisdiction over resource use in state waters (a judgment based on a 1978 U. S. Supreme Court decision related to the Submerged Lands Act), the Park Service then joined with the CDFG, recreational fishermen, and conservation groups to resubmit the original proposal to the Fish and Game Commission.

Finally, in late summer of 1999, the commission charged the CDFG to determine how to address the proposal for a no-take reserve. At the next commission meeting, Patty Wolf, a CDFG manager, and Ed Cassano, the Superintendant of the Channel Islands National Marine Sanctuary, proposed a structure for a multi-stakeholder public process that became the Marine Reserves Working Group (MRWG). The process included a multi-stakeholder group, the MRWG, supported by a Science Advisory Panel and a Socioeconomic Advisory Panel. The process envisioned the MRWG making a recommendation on reserves to the Sanctuary Advisory Council, which would then use this as the basis of their recommendation to the sanctuary and the CDFG. These two agencies would then make their recommendation on a preferred alternative to the Fish and Game Commission, which had the authority to make a final decision about implementation in state waters. The development of reserves in state and federal waters was split into two separate processes because of differences in jurisdication in state and federal waters (the process for federal waters is not yet complete).

It is important to note that the Fish and Game Commission did not provide the MRWG with clear goals or objectives, but rather a very general charge to examine the proposed no-take zone. The MRWG thus spent its first several meetings determining their goals and objectives. While several objectives were agreed on, three tended to dominate subsequent discussion and negotiation about reserve design:

- Protect ecosystem biodiversity
- Maintain long-term socioeconomic viability
- Achieve sustainable fisheries.

(These are shortened versions of the objectives. For the complete statement of objectives, see MPA Process Review (NOAA 2003.))

The MRWG process took place against a backdrop of increased concerns about the status of west coast fish stocks, especially the rockfish complex, and growing interest in and advocacy for the use of no-take MPAs as conservation and fishery management tools. While it came close, the MRWG did not reach complete consensus on a reserve design. However, the alternatives the MRWG developed helped form the basis for the CDFG's and the sanctuary's recommendation to the Fish and Game Commission for a network of reserves in state waters. These were approved and implemented in 2002 and a formal planning process is currently underway to designate a complementary set of reserves in federal waters. However, the Ventura County Commercial Fishermen's Association has filed suit against the California Fish and Game Commission challenging the legitimacy of the reserves in state waters on procedural grounds related to the California Environmental Quality Act (CEQA), as well as statutory and constitutional grounds.. In brief, the CEQA claim identifies several points, such as failure to adequately address mitigating negative consequences of the reserve; the statutory claim identifies procedural failures, and the constitutional claim argues that the agency does not have authority to restrict fishing in the manner it did.

The procedural steps taken to create the Channel Islands marine reserves are set out in detail in MPA Process Review (NOAA 2003).

5.3.2 Major themes
The search for consensus among stakeholders in the MRWG process is a major theme of the Channel Islands case study. The attempt to reach consensus was complicated by the concentration of resource use by many user groups within a small area, as well as by the complexity of the institutional setting, which involved multiple state and federal agencies. In particular, a federal agency (the sanctuary) was acting in an advisory role to a state body (Fish and Game Commission) with ultimate decision-making authority for final approval of any proposed reserves. Secondary themes in this case included the high potential for conflict, which stemmed from the lack of "wiggle room" in the relatively small area, and the way in which science advice set the boundary conditions within which the MRWG members negotiated for consensus.

5.3.3 Lessons learned
Allocate adequate time for up-front assessment, planning, and goal setting
The original charge to the MRWG to consider the use of marine reserves was somewhat vague and did not provide explicit guidance. However, many MRWG members interpreted this wording to mean that a decision about whether or not to implement reserves had not yet been made and that it was therefore possible the MRWG could decide not to implement reserves. Over time, this goal shifted to a focus on determining where reserves should be placed and how large they should be. While there was general agreement among our sources that the basic goal had shifted, there was no such agreement about how, when, or exactly why this occurred. Some believed the science panel's conclusion that 35 – 50% of the state waters around the Islands should be protected was instrumental, but others simply expressed puzzlement. This percentage approach was based on estimates of what percentage of fish spawning biomass should be protected to ensure sustainable yields, assuming no effective fisheries management outside reserve boundaries. This approach, and its embedded assumptions, was criticized by fisheries scientists external to the MRWG process, contributing to the skepticism among many stakeholders about the scientific recommendation. Whatever the case, several MRWG members felt the MRWG's decision-making role had been eroded or usurped, in part because the original charge from the Fish and Game Commision and the MRWG's own statement of goals had been so vague.

The relationships between the MRWG and its two advisory panels (socioeconomic and science) were quite different and were not clearly defined at the outset (see following). The science panel actually framed the constraints (the percentage of area to be set aside) within which the MRWG found itself operating. To some extent this may have limited the MRWG's ability to consider incremental approaches that did not immediately meet the science panel's criterion. The socioeconomic panel, in contrast, did not set boundary conditions but instead developed economic data on fisheries and non-consumptive uses around the Islands and helped create tools to analyze the economic impacts of alternative reserve designs. While it is often useful for the roles of the parties to a planning process to evolve naturally over time, no evidence was found that roles in the Channel Islands process were explicitly considered, evaluated, and adjusted along the way.

Provide for ample communication with involved scientists
While much of the discussion about stakeholder planning processes refers to the role of science, the role of scientists themselves, where they fit in the organizational structure and how they communicate with others in the planning process, is also important. The Channel Islands process, in contrast to that in the Tortugas, established a distinct science panel that met separately from the MRWG. Contacts expressed a wide variety of perceptions and opinions on the role and functionality of the science panel. These spanned the range from it was an effective, science-driven process, though it answered questions the MRWG did not ask, to it reflected the viewpoint of a few strong advocates of reserves. This range of opinions reflects, in part, the relatively limited opportunity for communication between the MRWG and the science panel. Most such communication occurred through a single contact point. There were thus very few instances in which MRWG and science panel members met jointly to clarify questions and probe the basis for and

implications of scientific advice, which, over time, contributed to concerns among some stakeholder groups about the nature of the information exchange with the MRWG.

The science panel met separately from the MRWG, by desig, in order to enable the scientists to conduct vigorous and highly technical discussions without the need to slow down and explain the issues to laypersons. This benefit was counterbalanced by the perception of many outside the science panel that they were being actively excluded from these discussions.

Package key assumptions with science advice
Especially where the science recommendations play a dominant role and where they are developed in a process separate from the stakeholder group, the key assumptions underlying the recommendations should be made explicitly clear and shared widely. This occurred to some extent in written materials developed by the science panel. However, the limited opportunities for MRWG members to interact directly with the science panel restricted the MRWG's ability to probe these assumptions more vigorously. As a result, the science advice became, for all intents and purposes, one-dimensional, i.e., achieve the 35 – 50% set aside goal. The MRWG therefore lost opportunities to develop additional, potentially useful design scenarios. For example, the history of the process through its own minutes and the recollections of participants shows that the MRWG never explicitly examined the implications of relaxing the science panel's simplifying assumption that there was no effective fisheries management outside the proposed reserves.

Build experimental evaluation into MPA design
There are three distinct issues related to the evaluation of MPA designs and performance. The first is whether the design properly applies current scientific knowledge to the performance goals in order to maximize chances of success. The second is whether there is adequate monitoring of actual performance, for example, in terms of biodiversity or spawning biomass within the MPA or of fishery yield outside the boundary. The third is the extent to which the management system can adjust MPA design over time as monitoring information becomes available.

In the Channel Islands process, there was no formal examination of the science panel's recommendations during the period when the recommendations were strongly influencing the MRWG's goal setting. Neither these recommendations nor the design itself attempted to explicitly create experimental situations that would, over the course of time, allow for testing key expectations about reserve performance on both conservation and fisheries goals. The size and location of individual reserve areas were left to negotiation among MRWG members, as long as the basic scientific contraints (i.e., percentage of area, representation of habitats) were met. While this allowed for maximum flexibility in dealing with the socioeconomic impacts and other interests of the MRWG members, it also represented a lost opportunity for the reserves to act as a real-world adaptive management experiment. Statements by several MRWG members, as well as the broader literature on environmental monitoring and much of the published discussion on MPAs, emphasize the importance of truly experimental monitoring designs that incorporates key comparisons and controls. Finally, there was were no specific features in the longer-term management plan that described how an adaptive management process might operate.

Consider outcomes other than consensus
Because of their desire to reach consensus, the MRWG members, at the outset of their work, agreed to a groundrule stating that no single member would hold veto power. Instead, a member would be obliged to suggest an alternative to a proposal he or she objected to or else resign. However, this groundrule proved difficult to consistently enforce, and the MRWG process did not achieve the desired consensus when a key stakeholder group declined to agree to the reserve design supported by the other MRWG members. While a representative of this stakeholder group maintains that there was simply not enough time to resolve their concerns about the placement of closed areas, other MRWG members perceived their

objections as gaming behavior and complained that the key groundrule was not enforced to the degree it should have been. Thus, while consensus is widely considered to be an ideal goal, MRWG members and experts in decision processes pointed out that a goal of consensus can be exceptionally difficult to achieve, can lengthen the process significantly, and opens the door to several kinds of potentially destructive gaming behavior. Thus, alternative endpoints (e.g., majority, super-majority) should be explicitly considered.

Clarify dual roles and avoid where possible
The convening agency should think carefully about whether it should also act as a voting stakeholder. In the Channel Islands, these sanctuary convened and staffed the process and was ultimately responsible for providing recommendations to the Fish and Game Commission. However, the sanctuary superintendent also had a voting seat on the MRWG. This led to a perceived conflict of interest, and some stakeholders drew the conclusion that the sanctuary had a particular outcome in mind from the beginning and was working to achieve that by manipulating the process. The sanctuary's dual role led to further resentment among some sectors when, subsequent to the MRWG's failure to reach consensus, the sanctuary then developed a set of recommendations and forwarded them to the Fish and Game Commission. While this was well within the scope of the original agreement between the commission and the sanctuary, the sanctuary's participation as an active member of the MRWG had created an impression among some participants that it was deferring completely to the MRWG process. Thus, when the MRWG did not reach consensus and the sanctuary reverted to its alternate role, some participants felt betrayed. One key participant suggested that the sanctuary should have more frequently reminded MRWG members that it would take on its other role if the MRWG process did not produce a consensus recommendation.

Build maps collaboratively
Maps can be a useful and constructive tool for exploring alternate scenarios, especially if they can be created and manipulated directly by stakeholders. The sanctuary developed a GIS mapping tool, populated with actual data on habitats, the distribution of fishing effort, and the economic value of catch in different areas around the Islands. This tool was used by different stakeholder groups to generate additional alternatives in an attempt, late in the process, to bridge gaps between different positions on the MRWG. All the participant groups agreed that this mapping tool was useful, although, in this case, participants primarily talked about the value of the maps as a negotiating tool. They were willing to actively use it for this purpose because the underlying data had been identified and developed through a transparent and collaborative process. However, while the participants agreed they learned a lot through the process of developing the data needed for the maps, only a few referred specifically to this process as having helped to improve trust among the MRWG members and their constituencies.

Include the fisheries management system
Whenever an ocean area is set aside from extractive uses, for whatever purpose, there are potential impacts on recreational and commercial fishing activities. This case study emphasizes the importance of integrating reserve design with the fisheries management system. The fact that the analyses underlying the reserve design did not account for existing fisheries management regulations, including other extensive closures, ended up amplifying resistance and undermining the credibility of the reserve design with fishermen, the Pacific Fisheries Management Council, and the state and federal fisheries agencies. Some science panel members explained the general exclusion of fisheries management policies from their analyses by pointing out that catch limits and closures implemented by fisheries management agencies (both state and federal) were not permanent and could be revoked at any time. In response, some MRWG members pointed out that accounting for these policies in some way could have provided the "slack" needed to develop and consider phased or adaptive reserve designs that might could have improved the chances for consensus. Especially where a key goal is to promote sustainable fisheries, it is vitally important to include fisheries management and stock assessment expertise in the relevant working groups and to ensure that fisheries management agencies, who will be responsible in whole or in part for

implementing policies regarding fishing, are fully involved and committed to the process. This was particularly true in the Channel Islands case, where the reserve designation process in state waters was to be followed closely by a parallel process in federal waters, in which NMFS and the Pacific Fishery Management Council would play a central role.

Implement monitoring simultaneously with the reserve
Monitoring is crucial for determining if reserves are achieving their expected outcomes and, from a technical perspective, such information is clearly needed for adapting and improving reserve designs. In addition, from the perspective of stakeholder processes, monitoring is essential for assuring stakeholders that the economic sacrifices they are willing to make are ultimately worthwhile. In the Channel Islands, the recreational and commercial fishing stakeholder groups were asked to accept significant losses of near-term income in order to implement the reserves. There was an implied compact in much of the information put forward to support implementation, i.e., that setting aside areas now would lead to "more fish in the future." While there were several mechanisms suggested for how this might occur (e.g., larval export, spillover of adult fish), neither the functioning of these mechanisms nor the degree to which they in fact would improve stocks have been documented in the Channel Islands or fully validated in the broader scientific literature. In hindsight, some contacts in conservation organizations stated that the potential fishery benefits of the reserves were probably oversold. Thus, fishing constituencies were intent on the use of monitoring to assess reserve performance and many fishermen have expressed bitterness over the fact that an effective monitoring program was not put into place at the time the reserves were implemented. While the Channel Islands National Park has conducted a long-term monitoring program in the nearshore zone around the Islands, this has not included the fishery stocks of interest to recreational and commercial fishermen. After the reserves were established, the CDFG and the CINMS held a workshop to design a comprehensive monitoring program. Both agencies are moving toward implementing the resulting program now.

Consider the long term, both past and future
This case extends back at least to 1978, when a U.S. Supreme Court decision gave the state the authority, under the federal Submerged Lands Act, to manage the seabed out to three miles. This was the reason the original impetus for reserve planning originated with the California Fish and Game Commission, and why the final decision about implementing reserves in state waters was made by the commission. In addition, events have continued to move forward since the designation of reserves in state waters in 2002. For example, planning is underway to design a complementary set of marine reserves in the federal waters portion of the CINMS, there are ongoing efforts to find funding for monitoring, local fishermen have both filed suit against the Fish and Game Commission and organized collaborative and community-based data gathering and management initiatives, and new efforts have begun to better integrate reserves science and fisheries management. Thus, while the designation of reserves in state waters is a significant event, it remains a solution in flux in a dynamic scientific, social, and policy context. It is part of an ongoing process that can have unpredictable outcomes or side effects, as well as unintended consequences. It is therefore difficult to judge, within the somewhat arbitrary temporal boundaries of a given stakeholder process, the relative degree of success or failure, or even what success and failure mean and to whom.

5.3.4 Conclusion
The stakeholder process in the Channel Islands is considered both a success and a failure, depending on which stakeholder group one talks to and on what criteria are used in the evaluation. The following sets of statements summarize these divergent perceptions; while each statement reflects the "success" or "failure" point of view, no statement is either true or false in an absolute sense.

It is considered a success because it:
• Ultimately led to the implementation of a network of reserves,
• Developed new approaches for applying reserve theory to reserve design,

- Used science advice as the basis for the MRWG's design negotiations,
- Used concrete economic data from stakeholders to estimate the economic effects of alternative reserve designs, and
- Created a mapping tool that helped stakeholders evaluate the biological and economic implications of multiple design scenarios.

It is considered a failure because it:
- Did not adequately consider the complex set of roles and relationships involved in the process,
- Did not reach consensus on a single design alternative,
- Changed goals without the full agreement of all stakeholders,
- Used fishery benefits arguments without fully exploring the full range of fisheries science issues,
- Was driven by science advice that was interpreted as an inflexible goal,
- Limited communication between the MRWG and the science panel, and
- Did not implement an effective monitoring program.

Thus, one important conclusion from the Channel Islands stakeholder process is that identifying consensus as the single criterion of a successful process can promote unrealistic expectations, provide an opportunity for what can be perceived as gaming behavior, and leave the process without the ability to capture the progress toward agreement that has been made.

5.4 Gulf of Mexico grouper closures
Figure 5 shows the location of the two grouper closures in the Gulf of Mexico off the coast of Florida.

Figure 5. The location of grouper closures in the Gulf of Mexico.

A: Swanson and Madison site;
B: Steamboat Lumps

Source: (www.research.fsu.edu/researchr/2000/abstracts/images/gulf.jpg)

5.4.1 Setting

Gag grouper are among the most economically important fish in the Gulf of Mexico, targeted by both commercial and recreational fishermen. Gag grouper live in sea grass beds as juveniles and on coral and rocky reefs as adults. Two noteworthy characteristics of gag grouper are their spawning aggregations and their change from female to male over the course of their lifetimes. Spawning aggregations occur at the same sites year after year, and can attract thousands of fish. Fishermen have long been aware of this behavior, and have often capitalized on it, catching their quota over a relatively small area. These characteristics make gag grouper particularly vulnerable to fishing, and in 1998 the National Marine Fisheries Service reported the species was approaching an overfished condition. This status triggered a requirement for action to prevent overfishing.

In early 1999, environmental advocates asked the Gulf of Mexico Fishery Management Council to consider protection for spawning aggregation sites, in addition to other management measures the council was considering. Advocates claimed that gag, like other groupers and snappers, came together at identified sites in the Gulf for spawning, and that these sites were targets of intense fishing pressure from both commercial and recreational sectors. The council had already begun consideration of numerous other measures in response to the status designation and an overall decline in the gag population. Proposals included changes in the total allowable catch, minimum size limits, reduction in the recreational bag limit, closures during peak spawning, and closures at aggregation sites. Proponents of closed areas argued that catching adult fish at an aggregation site before they have a chance to spawn would make it more difficult to prevent overfishing, or to rebuild an overfished stock.

Florida State University scientists had conducted long-term studies on several Gulf of Mexico species showing that extensive fishing pressure had caused changes in the ratio of male gag to female gag at aggregation sites. The council had already acted to protect mutton snapper spawning aggregations at Riley's Hump near the Dry Tortugas, and was about to launch a series of public workshops to discuss whether marine reserves would be useful as a fishery management tool in federal waters of the Gulf of Mexico.

Gag grouper are included in a fishery management plan covering all reef fish in the Gulf of Mexico. The plan was first adopted in 1984 and amended numerous times thereafter. The prescribed process for amending a federal fishery management plan is set out in regulation at 50 CFR 600, Part D, and is further explained in guidelines developed by the National Marine Fisheries Service and provided to all fishery management councils. A brief summary of the process is shown in Figure 6. In the gag grouper process in 1999 – 2000, the Gulf Council was proposing a regulatory amendment, rather than a fishery management plan amendment. Regulatory amendments are aimed at amending specific regulations rather than fishery management plans, and are allowed when addressing new information, but still consistent with the overall FMP. This is the process the Gulf Council was using to change the rules relating to gag grouper after it was designated as approaching an overfished condition. Although regulatory amendments can be completed in a shorter time than amending a fishery management plan, they still require adherence to rulemaking procedure. Comment periods are shorter, agency review periods are shorter, and in some cases, certain steps can be waived. The guidelines for the process of a regulatory amendment are set out in Appendix C.

The procedural steps taken to create the Gulf of Mexico grouper closures are set out in detail in MPA Process Review (NOAA 2003).

Figure 6. Graphical overview of the process for amending federal fishery management plans.
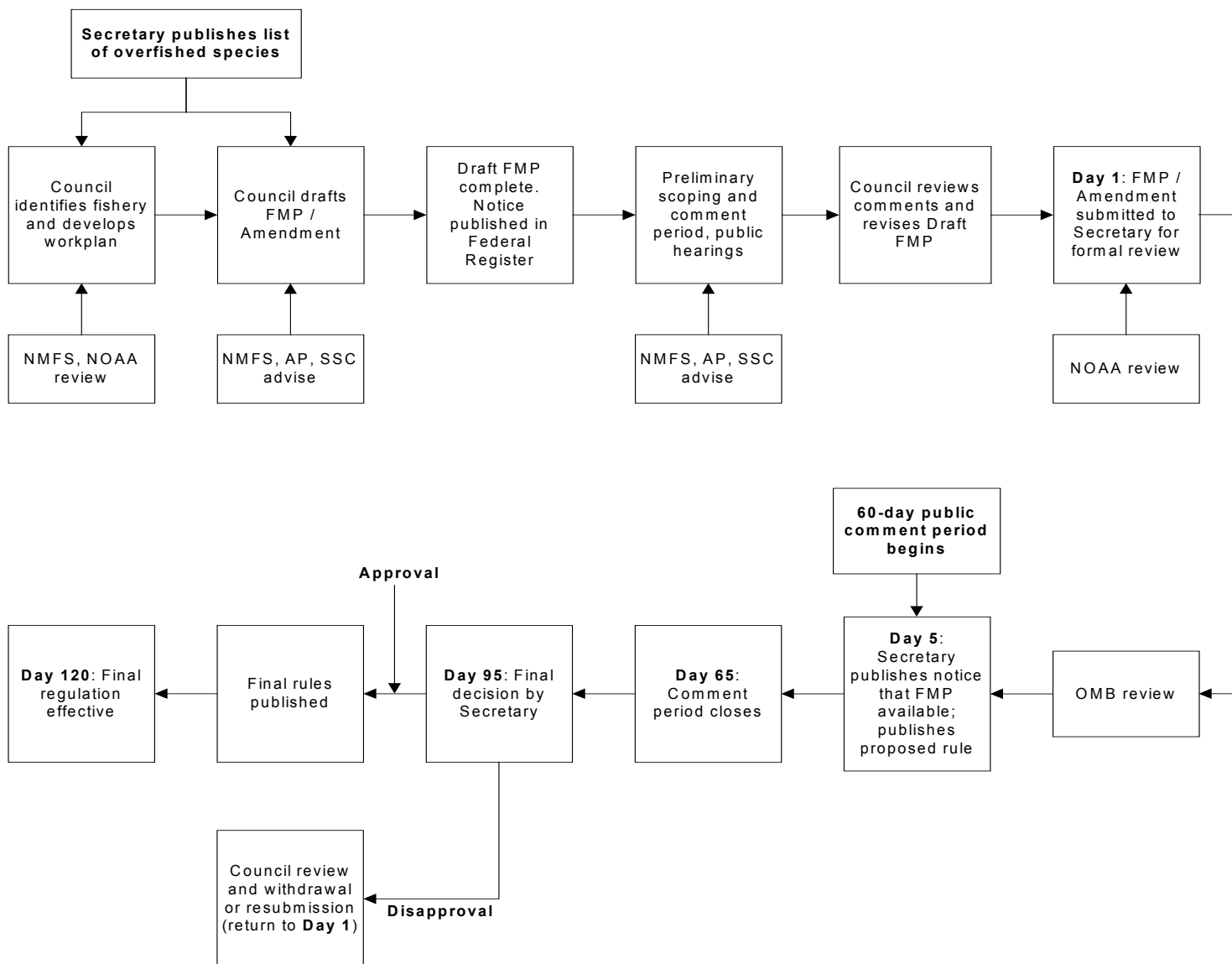
After the first presentation of proposed gag grouper measures in January 1999, which included possible area or seasonal closures, the council in March proposed closing one large contiguous area of 1451.5 km^2 (560.4 mi^2) to reef fishing to protect gag grouper. The recommendation was the result of discussions in the council's science committees that focused on both fish behavior at aggregation sites and overfishing concerns. Initial discussion centered on whether experimental closed aggregation sites could protect male gag grouper. Subsequent consideration brought in concerns about the overfished condition of gag grouper, and centered on seasonal closures to reduce landings. The six contiguous rectangular blocks were cut back from eight potential reserve sites the council had considered, some covering as much as 1868 km^2 (721 mi^2). The evolution of the closures over time and the perceptions of participants of their purpose, demonstrate the confusion that can arise when objectives are fluid. A council member directly involved in the proposal said the goal of the closures was for information-gathering purposes. A council news release claimed the proposed closures were to protect spawning aggregations. Recreational interests thought the closures were targeted only at commercial longliners. At some point in the process, each of these observations was correct.

The proposal was modified to merge the separate blocks, and at the recommendation of enforcement officers, all fishing—not just commercial longlining—was to be banned. Voting on the proposed amendment was put off from a May meeting until July. Battles on scientific and political fronts heated up over the summer as commercial and recreational fishermen joined forces to lobby against the closures and attack the scientific information on grouper aggregations. By the time the council took up the proposal in July, a council proponent of the measure was denied a second term, the council refused to consider nearly 500 letters and faxes in support of the closure[1], and the only sites left on the table were two spots—Madison-Swanson and Steamboat Lumps—totaling 682 km^2 (263 mi^2) —about half what scientists recommended was necessary to protect gag grouper, and what one council member described as "marginal" for protecting gag grouper. They also put a four-year sunset provision on the closure, and applied it to all fishing, not just bottom fishing. Recreational fishermen were angered that the closure applied to them, and eventually sued.[2] Conservation advocates were pleased that the council created a reserve at all, but called the closed areas too small to do any good. By the time the final rule was implemented in June of 2000, new stock assessments indicated not only gag, but also black and red grouper, were overfished and "the commercial season was under way with no protection for the fish during the time they might replenish."

The procedural steps leading to eventual designation of the Madison-Swanson and Steamboat Lumps area closures are set out in detail in MPA Process Review (NOAA 2003).

5.4.2 Major themes
When an MPA is considered for a fishery management purpose, such as rebuilding an overfished stock or protecting a vulnerable portion of a population from overfishing, the same interest group considerations and pressures arise as would in consideration of conventional management strategies. What are the potential gear group or fishing sector conflicts? What sectors will be closed out of the fishery? Will there

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[1] Several conservation groups that advocated the closures requested their members to support the action with letters and faxes to the council. Rather than provide copies of all the correspondence, council staff provided members with only one copy of similar, faxed letters and a notation of the number of similar letters received. At its July 1999 meeting, the council declined to consider the submissions. Subsequently the groups requested the council to adopt a standard procedure by which it would consider faxed and emailed comments.

[2] The recreational interests argued that closure to fishing for highly migratory species was unfair and was not related to protection of the deepwater gag grouper. A settlement agreement between the Coastal Conservation Association and NMFS allowed anglers to troll for highly migratory species (HMS, billfish, sharks, tunas) and required NOAA Fisheries to undertake a research project to investigate the potential impacts of recreational trolling on other, deeper water species.

be a benefit in the mid to long term and has it been demonstrated to user groups to their satisfaction? In the case of the grouper closures, the major themes were ones that are familiar in fishery management decision making:

- Scientific evidence of a problem was presented, but not thoroughly accepted by Council decision makers or user groups
- Proponents of a new idea got too far out in front of conventional practice
- One or more gear groups felt they were unfairly affected by the proposal and opposed it
- When the council process was not going their way, participants stepped outside it and used political tools.

5.4.3 Lessons learned
<u>Consider using processes that are already part of fishery management</u>
The regional fishery management councils use numerous mechanisms to engage stakeholders in their decision making.[3]   First, councils are by law made up of stakeholders. In addition to voting membership on a council, stakeholders may participate in advisory panels, scientific and statistical committees, and other committees the council may convene for specific purposes. Further, the process by which councils develop and amend fishery management plans or recommend changes in the regulations that implement such plans, encourage stakeholder participation at public hearings, in notice and comment rulemaking and other participation requirements are set out in the Magnuson-Stevens Fishery Management Act (16 USC 1801, Pub. L. 94-265 Oct. 11, 1996) regulations, rules of administrative procedure, guidelines and operating procedures promulgated by the National Marine Fisheries Service and the councils themselves. All these procedures encourage and safeguard the voice of stakeholders in fishery management decisions, thus providing a ready-made framework for addressing MPA planning.

The Gulf Council had been thinking about marine reserves and their application to fishery management well before the warning about the status change in the gag grouper population. They convened a special ad hoc Marine Reserves Scientific and Statistical Committee (SSC), made up predominantly of scientists, in 1998. (See MPA Process Review (NOAA 2003) for details on the results of this committee's work.) This was in addition to the advisory panel and scientific and statistical committees on reef fish, which also had examined closed areas in relation to specific reef species under management. The ad hoc committee, although not directly involved in the gag grouper closure process, did organize a series of workshops on the use of marine reserves as a fishery management tool, and contributed to the discussion of the addition of Riley's Hump to the Tortugas reserve system (see Tortugas case study). The Council did have a history of using area closures in other management efforts, but often it was gear specific (and sometimes to avoid gear conflicts) or to protect very fragile habitat such as coral reefs. No-take marine reserves were not regularly used and had not previously been embraced by the majority of stakeholders. The process for considering marine reserves for gag and other grouper followed the normal regulatory amendment process of the Council.

Environmental group participants in the grouper closure process reported that it was somewhat of a surprise that marine reserves were considered as a management tool for gag at the time of the regulatory amendment, even though for several years there had been reports and concerns about the practice of fishing on spawning aggregations. In contrast, user group participants in the gag grouper deliberations seemed to think that there was a gradual lead-up to the notion, and by the time it was proposed by one of the advisory panel members, the idea was recognized as a viable strategy to address the decline in the stock, even if it did not garner enthusiastic support. "The closures were driven by the Stock Assessment

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[3] It should be noted here that "decisions" at the council are recommendations to the Secretary of Commerce (NOAA Fisheries), who is the decision maker with authority to issue regulations and approve fishery management plans or amendments thereto. The councils, although they "decide" on proposals, are by law advisory to the Secretary.

Panel recommendation. If the council did not go to a closed area, there were going to be other restrictions. It was driven by the stock assessment and the scientific and statistical committee's recommendation that there should be one."

Scientific uncertainty is a double-edged sword
Although the earliest formulation of the purpose of the grouper closed area was to investigate scientific questions, scientific uncertainty can also be used as a basis for fighting or delaying an MPA process. Upoin closer examination, there was general agreement among scientists, managers, fishermen and advocates that fishing on spawning sites was risky, there was not a clear commitment about whether closed areas were the way to address the overfishing status of the overall gag grouper population or the decline in the proportion of males to less than 10 percent of the population. Members of the council's SSC viewed the closure proposal as a means to explore several unanswered questions. It was anticipated to be a short-term experiment, not a permanent reserve. From this perspective, closing the areas would allow the council to look at three questions:

- Do males stay on the aggregation sites year round? If so, this is a bad thing because the females leave?
- If you close the spawning sites year round, can you recover the sex ratio (*i.e.* build up the proportion of males)?
- If the proportion of males declines, does that mean that females miss spawning opportunities?

Conservation advocates, on the other hand, were convinced that studies on other species that formed spawning aggregations were sufficient evidence on which to proceed to close the grouper spawning sites. They saw the closures as a conservation measure that would protect spawning and contribute to rebuilding.

The science underlying the decision to close the gag spawning areas became a point of contention and challenges to it were used as a delaying tactic to put off the vote on the closed areas. A university scientist upon whose research the sites had been chosen was pitted against a scientist hired by fishing groups opposed to the closures. The two debated in front of an audience at a public workshop. One participant observed that "scientific disagreements occur in every field and can be productive, but allowing the comments of a single dissenting scientist to derail or delay needed management measures was not justified. The information had been published in peer reviewed journals and reviewed by the stock assessment panel."

Upon closer examination, it seems that opponents of the reserve were trying to stake out political ground through the science. Scientific disputes are commonplace in fishery management, especially when interpretation of stock assessment or abundance data means the difference between fishing or not fishing in an area. However, in contrast to cases of comparable disagreement, the council's own SSC was not used as the venue to discuss and argue about the science. They had already looked at the evidence and recommended the closure, and the council accepted and voted on their recommendation. But objections from the minority on the council generated enough momentum to persuade the council to revisit its decision. The claims of the minority had not only to do with "best available science," but with fairness and equity in distribution of socioeconomic impact of the closures. When stakes get this high, no amount of process is likely to prevent an attack on science.

Clearly defining objectives may be difficult if circumstances evolve
Different sets of actors in the gag grouper closures had different objectives. As policy changed based on pressure from stakeholder groups, opposition arose to new objectives (stop overfishing) where there had been none to the original proposed scientific investigation into male gag behavior.

The Council's goal—prevent overfishing on gag—was clear from the start, but the means of getting there varied among the SSC, council members, environmental advocates and user groups. Although it was not a foregone conclusion that reserves for grouper would be designated, it was clear that some type of management action was needed to prevent overfishing, particularly of gag and scamp. Once the marine reserve proposal was put forth, the questions on the table were: where, how large, how long, and closed to whom?

As in most resource management disputes, the devil is in the details. The initial proposal to close the area just to commercial bottom fishing was met with opposition unless recreational fishing was prohibited also. Recreational fishermen who were initially in support of the closures when they didn't think their troll fisheries would be affected now became opposed. Although it was not the intent of the council to close the area to surface trolling, enforcement experts made what one member described as a "compelling case" to close the area to all fishing for ease of enforcement. The recreational fishing community felt defrauded by this action and claimed the council was losing sight of the main management goal.

Further complicating the decision to close the area to all fishing was the fact that the council did not have management jurisdiction to regulate fishing for highly migratory species, one of the main activities by recreational users in the proposed areas. This legal reality gave credibility to threats of litigation by recreational interests, and contributed to the council decision to revisit its decision on the closure.

The Council initially voted for one large closure then revoked it at a subsequent meeting because one stakeholder group (commercial fishing) rallied very hard. Many participants considered this susceptibility to political pressure a large fault with the process, which in their view lacked a plan for building agreement among affected parties. The original area (double the size of the existing separate closed areas) was likely more inclusive of the better spawning sites. Now, in retrospect, some feel (including scientists) that at least one of the existing closed areas is not in the right location. As originally envisioned, the closure covered a variety of areas, including some that may now be considered 'better' for the species. A second stakeholder group (recreational fishing) resorted to a lawsuit against NOAA Fisheries because they felt the restrictions on trolling and other recreational fishing was not justified by the science nor enforcement needs. The way the Council came to its decision, at the end of a process, not early on, has further polarized this recreational fishing organization and tainted their attitude toward all marine reserves in the region (including the Tortugas Ecological Reserve.)

New tools may require new processes for consideration
Although fishery management processes, whether plan development or regulatory, do have public involvement aspects built in, they are not necessarily analogous to the kind of longer-term, consensus building processes used in some MPA designations. Once the process gets started, there are deadlines and timetables within which decisions must be made. Moreover, public participation (once a proposal is out of an advisory panel and into the council for decision) is in the style of providing comments at a public hearing, or submitting written comments to the council. Ultimately, the voting members—who may be representing a particular gear or interest group—make a choice, and the majority rules. This is in stark contrast to the Tortugas process, which provided a lengthy time period for affected interests to negotiate.

Participants in the gag grouper case used many critical words to describe what they did not like about the process: "haphazard," "fraudulent," "back room," "ill-behaved," "back pedaling," and "fumbling." These words came from commercial fishermen, recreational fishermen, conservation advocates, council members, and scientists. Some suggested that earlier involvement of all the affected parties, a clearer description of what was being proposed, and a mechanism for stakeholders to help develop the proposal rather than just react to it, would all have helped.

Even though all these critics had experienced wins and losses in the council allocation and TAC-setting process over the years, the action on the grouper closures seemed particularly offensive, even though it followed what was normal council procedure—with the possible exception of the vote reconsideration. Process managers may want to consider that participants are accustomed to the adversarial nature of rulemaking and accompanying debate over conventional measures such as allocation disputes. In contrast, the open-ended options for site designations and similar choices in MPA development require longer-term participation and willingness to stay with the process. As such, the positive experience of the participatory process might deserve more attention for no-take reserves than for the application of other management tools. It is also possible that because many of the participants also experienced the Tortugas 2000 process, they were making comparisons and looking for procedural steps such as facilitation, collaborative information gathering or map making, and mediation. It is noteworthy that the outcome of the Tortugas process was able to withstand a last-minute challenge by one interest group.

Instead of working with the competing interests, or using conflict resolution strategies such as mediation, negotiation or facilitation, the council sent all the stakeholders into a side room to "hash it out." The questions posed were 'where does it go' and 'what makes sense.' No one facilitated the discussion, and participants reported angry exchanges and near walkoutsfolks, though this turmoil led to a bit of progress. This may have been an instance where facilitation or ground rules or appointment of an ad hoc committee would have contributed to a better experience for participants. More importantly, at this stage, there were affected stakeholders who were not only not "in the room," they were not engaged in the process yet. In the end, the failure to incorporate these views led to a successful challenge, and council decisions were not just attacked, but revisited and changed.

Watch for opportunities for collaborative data collection
One positive outcome of the gag grouper closures was the attention to the importance of scientific monitoring. In a subsequent amendment to the Reef Fish Management Plan, not only were the closures continued but the council is conducting studies to determine if the original three scientific questions are answerable. Several research projects have been supported and are allowing scientists to address these questions. In a recent article reviewing these and other Gulf of Mexico closures, scientists writing in Fisheries Magazine note they found few MPA regulations that called for performance evaluation as a condition of implementation. They point out that monitoring is essential to assess whether management measures are effective or need to adapt to new information (Coleman et al. 2004).

More importantly, particularly from the perspective of the participants, the research efforts are encouraging fishermen to work with scientists and have generated positive interaction. From the start, interactions between scientists and fishermen were important. Scientists knew where to look for aggregations based on fishermen's knowledge. If fishermen had not shared their knowledge, scientists would never have determined where aggregations were occurring, and what type of behavioral interactions were taking place.

Finally, establishing partnerships to collect information and monitor the condition of the MPA once designated can cement support for a site, or at a minimum defuse opposition. Successful methods for designing cooperative data collection projects between fishermen and government agencies have been reviewed by Bernstein and Iudicello (NFCC 2003) and the National Research Council (NAS 2003). Opportunities process managers can watch for include:

- Identifying partners (institutional and non-governmental) and their roles within the proposed area
- Potential for cooperative research or data collection before or after MPA designation processes
- Voluntary monitoring and data collection, or use of fishermen (or other stakeholders) in cooperative data collection projects can contribute to support of the designation as well as provide information for monitoring and evaluation.

5.4.4. Conclusion

The designation and implementation of the Madison-Swanson and Steamboat Lumps marine reserves for groupers followed the normal amendment process that the Council uses. However, this process, often driven by regulatory calendars and timetables, can be unsatisfactory to many. Although it was a proactive move to consider the potential use of a marine reserves as a management tool for some groupers in response to populations approaching an overfished status, it was not necessarily deliberate or planned. There was a lack of consideration of how to deal with the potential controversy that the proposal might elicit, and not all affected interests were brought into the process at the beginning. As each successive stakeholder group became aware of the effects that modifications in the closure proposals would have on their activities, the process was jolted by a whole new set of players, objectives and tactics.

The Council process is contentious on many fishery regulatory issues, not just creation of marine protected areas. It is a process that operates on its own statutory timetables, involves a lot of "pushing and pulling," and is politicized. Many stakeholders believe that behind-the-scenes discussions and deal making often occur and that their input is often disregarded. But while these criticisms are made of the councils in general, and arise during every reauthorization of the Magnuson-Stevens Act, there are a few approaches and tactics that could be employed to improve in MPA discussions even if the fundamental nature and structure of the council process remains the same. Clear intent that MPA consideration is on the table, specific proposals for sites or specific requests for information about sites, use of ad hoc groups in protected area discussions that bring in additional stakeholders who are not on the council, or employment of independent third-party convenors or facilitators could all foster processes that occur within the council framework. These actions would not necessarily make consideration of MPAs in the fishery context less controversial, but they could provide tools for managing the controversy and make the process less subject to challenge at the end.

5.5 Tortugas 2000 Ecological Reserve
Figure 7 shows the location and extent of the Tortugas Ecological Reserve in the Florida Keys.

Figure 7. Boundary of the Tortugas Ecological Reserve in the Florida Keys.
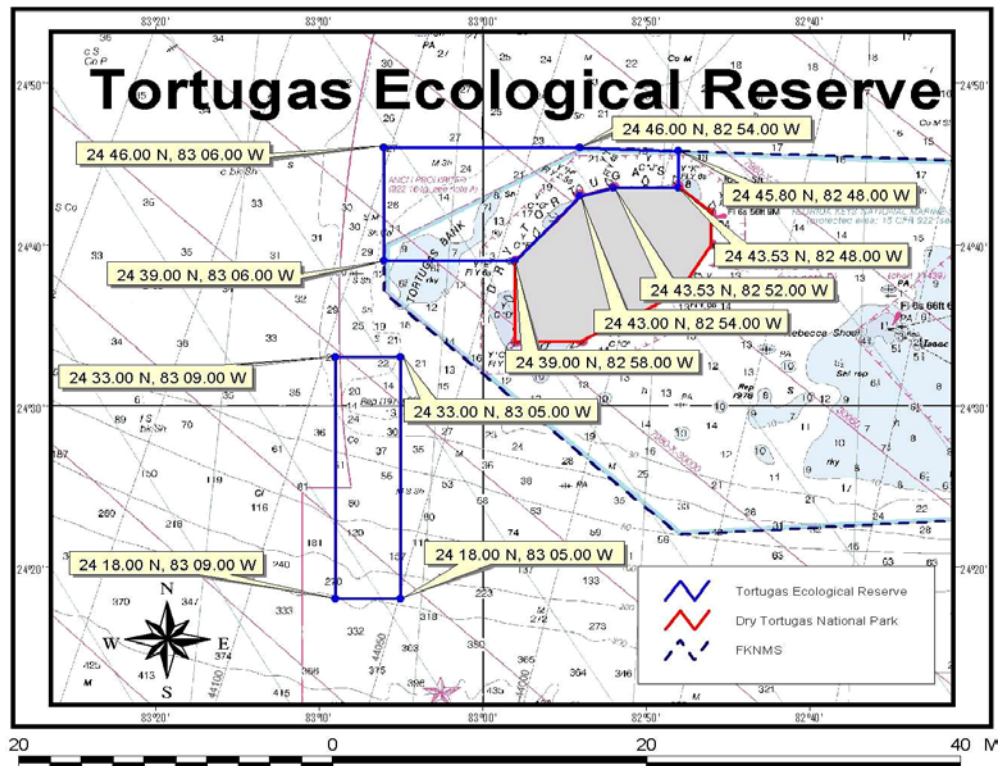
Source: (*www.fknms.nos.noaa.gov/graphics/maps/tortugas.jpg*)

5.5.1 Setting
The Dry Tortugas (the Tortugas) form a cluster of remote islands located in the Gulf of Mexico approximately 113 km (70 mi) west of Key West, Florida. Due to the area's unique and biologically diverse marine habitats, including coral reefs and banks, seagrass meadows, and rookery islands, the islands have attracted visitors for many years. The Tortugas have long been frequented by the diving community and have supported diverse commercial and recreational fishing activities. In 1992, the Dry Tortugas National Park was established to protect a 259 km^2 (100 mi^2) park of marine resources and islands, as well as preserve historic Fort Jefferson, built on the largest island. Through three tiers of regulations that apply to different areas in the region, various commercial and recreational activities are either prohibited or limited. (For more detailed information on what is and is not allowed in the Tortugas, see http://floridakeys.noaa.gov/regs/FinalFSEIS/pdf).

The Tortugas are also located at the western edge of the 9800 square km Florida Keys National Marine Sanctuary (FKNMS or the sanctuary), created by Congress in 1990 (Public Law 101-605). Managed under cooperative agreement between the State of Florida and NOAA, FKNMS is unique in its size and for its first use of a zoning network designed to protect diverse habitats while allowing compatible public use and activities to continue. In 1997, a management plan established and implemented five types of zones throughout the sanctuary, including 'ecological reserves,' which are protected 'no-take' zones in which extractive activities are prohibited.

During the management plan development and consideration, the Tortugas were proposed for an ecological reserve. Highly controversial, the concept was widely rejected for a number of reasons. Chief among these were the fact that significant coral resources were not included in the proposed boundaries and fears that the reserve would cause economic harm to commercial fishing interests and other stakeholder groups. This and other opposition was largely fueled by significant confusion and uncertainty regarding the scope and impact of the reserve. There was also widespread concern among reserve proponents regarding whether and to what extent the jurisdictional boundaries between the National Park Service and National Marine Sanctuary Program would arbitrarily limit the potential extent of ecologically significant areas.

The unsuccessful seven-year effort to garner support for an ecological reserve in the Tortugas was not the end of the story. Committed to some protection scheme for the Tortugas and listening intently to comments received during the vetting process, FKNMS managers worked together with the National Park Service to determine which areas of the Tortugas region would benefit from zoning protection, and what particular management strategies would work best. A FKNMS/National Park collaborative process was initiated in 1998 and became known as "Tortugas 2000."

Building upon the frequently contentious eight-plus years of experience with FKNMS, Tortugas 2000 was launched with the establishment of a broad-based, 25 member ad hoc Working Group. Authorized by the FKNMS Sanctuary Advisory Panel (SAC), the Working Group was led by a facilitator and worked quickly. Over the course of just five meetings, the Working Group established and weighted criteria to determine the size and location of zoning areas, assessed scientific and economic information in GIS format, and came to consensus on the specific location, size and boundaries of two ecological reserves to recommend for approval by the SAC. Following the approval by the SAC, support for the reserves was also obtained from the Gulf of Mexico Fishery Management Council, Florida Fish and Wildlife Commission, State of Florida, and NOAA. The north and south Tortugas Ecological Reserve was fully implemented in July 2001 (see Process Review (NOAA 2003) for more detail).

The procedural steps taken to create the Tortugas Ecological Reserve are set out in detail in MPA Process Review (NOAA 2003).

5.5.2 Major themes
Several major themes emerge from an analysis of the Tortugas 2000 process. First and foremost, the establishment of the Tortugas Ecological Reserve demonstrates the nearly universal truth that MPA processes can never be viewed separate and apart from the events leading up to them. In this sense the past is never past, it is present, as Tortugas 2000 was shaped by relationships and stakeholder perceptions grounded in earlier failed efforts to establish significant ecological reserves in the area. These already-formed relationships and frames of reference – when combined with shared mandates among various government agencies, broad stakeholder participation, and a skilled facilitator that worked with and built upon this confluence of history, relationships, and government mandates – set the stage for a relatively lightening fast series of decisions that led to a robust, widely supported outcome.

5.5.3 Lessons learned
Don't repeat the past – learn from it
Like many similar efforts, the Tortugas 2000 process was defined by what came before: in this case, the highly contentious establishment of the adjacent FKNMS and the failed attempt to include more reserves in the area. As a result, there was time to analyze the missteps that occurred during the initial development of the marine zoning network and to reflect upon the public comments received when an ecological reserve for the Tortugas region was first proposed in 1997.

More specifically, participants reported two major factors that helped to set the stage positively for Tortugas 2000. First, organizers recognized that it was important to establish a Working Group that was as broadly representative as possible – more so than prior advisory or working groups. For example, five separate fishing interests were identified and represented (commercial, handline lobster, Cuban-American, charter, spear, and recreational), ensuring that more nuanced perspectives were fully heard and incorporated into the development of proposals. The absence of some of these groups from the initial effort to designate reserves was reported to hamper that process.

The second factor is directly related to FKNMS, for even though the lengthy effort to adopt a management plan (which required multiple federal and state approvals) did not include all the ecological reserves that were proposed, it did engage most of the affected interest groups and create a placeholder for some kind of area in the Tortugas. Significantly, the original reserves concept was completely withdrawn, providing stakeholders with a virtual blank slate from which to work. The act of "starting over" created significant good will as interest groups now felt empowered by their defeat of the initial efforts, more in control of their destiny, and more confident of their ability to create a reserve derived from stakeholder prerogatives. These carrots, when combined with the perception that the existing placeholder would resurface if the Working Group did not come up with a viable plan, was strong motivation for success.

Use a professional facilitator
The Tortugas 2000 process benefited greatly from the participation of a professional facilitator, although the decision to use a facilitator was made after the process had begun, not at the outset. The facilitator was viewed as a "neutral party" by all stakeholders, particularly those on the Working Group. Compared to very large metropolitan areas, the Florida Keys comprise a relatively small community where people know each other and, for better and for worse, inevitably bring those relationships into planning processes. In addition, it was only a few years before this that the same stakeholders were hashing out the details in the overall FKNMS Management Plan, and lines between competing interests were drawn in the sand. Thus it was critical that a facilitator who was not part of the existing institutional structure quickly gain trust and bring a fresh perspective and approach.

The majority of Working Group members and staff expressed support for the role of the facilitator and the structure of their meetings. Bringing to bear his expertise on the process, the facilitator was instrumental in helping participants identify core interests that underlay their stated positions. He also quickly designed and implemented an effective consensus-building process, ensuring that all members were engaged and involved and that decisions were credible and robust. Because he was clearly not identified with any agency history or position, he was able to provide the kind of neutrality (in terms of both process and outcome) that government representatives typically cannot. This combination of factors helped to ensure that the opportunity for collaboration and consensus building was fully exploited.

Plan ahead and organize
Ironically, a significant reason for the success of Tortugas 2000 – the use of an outside facilitator – was also a source of challenge because the facilitator was brought in relatively late in the process. The decision to use a facilitator was made after the process had begun, and he was contracted just one week before the first meeting of the Working Group. Because this was hardly enough time for a professional third party to become educated on the issues and the parties involved, he started at a disadvantage and the process lacked an initial assessment by a neutral third party or by someone with process expertise prior to initiation.

The facilitator's late arrival also meant that he could not participate in developing a thorough process for identifying candidates for the Working Group. As a result, some stakeholders were overlooked and had to be added later in the process. According to many, it was difficult to add new members after the group had been working together and a level of trust had been built. People generally like to "stake out their own

territory" early, particularly on contentious issues, and a skilled facilitator can help avoid positional approaches that can stagnate a process if not addressed early on. Most professional facilitators will not have direct previous experience with stakeholder groups relevant to a specific process. Nevertheless, their knowledge of processes to assess stakeholder interests and ensure broad representation is fundamental to success.

Inclusive stakeholder process breeds success
As previously mentioned, the structure and composition of the Working Group was a significant factor in the success of the reserve initiative. The Working Group started with eight members of the SAC, and other individuals were identified to fill the remaining categories. In addition, the Working Group also included representatives from each of seven overlapping jurisdictions involved in the Tortugas, as well as scientists. Rather than organize constituents into separate individual panels or groups, as often occurs in similar processes, participants were integrated to facilitate communication and trust building between factions.

Other aspects of the process also facilitated meaningful stakeholder participation and buy in. For example, multiple representatives were identified if one member could not represent the entire "category." This meant recognizing that commercial fisherman were not a monolithic interest, but instead had several subgroups that each required a distinct voice. As the process unfolded, several other members were added when additional gaps in representation became evident.

Stakeholder representatives must have authority and be accountable
To ensure reliable decisions were made, it was also important that each Working Group member had authority to actively represent his or her stakeholder group. As such, members were identified and acknowledged as leaders to those they intended to represent, and were held accountable for their commitments. Each member was asked if he or she could, in fact, speak for a constituency, and efforts were made throughout the process to ensure that members were interacting and receiving feedback from those they represented.

Build trust and sustain it by adhering to agreed upon processes and ground rules
Trust among participants is essential to any successful decision-making process, and, in the words of one participant, "takes time to build and can be lost in an instant." In Tortugas 2000, trust was stressed as essential to success by everyone interviewed, and the perceived breach of that trust among some participants almost derailed the process.

The challenge to trust in the Tortugas process occurred after a methodical approach had been used to winnow twelve specific geographic proposals down to two, when several Working Group members met separately to attempt to work out differences and develop a new proposal. For those involved it was a positive experience, but for those not involved, the separate meeting represented a significant breach of trust. People felt left out, annoyed that a decision was reached without participation of the larger group and outside the established consensus-building process. The resulting proposal was not significantly different from another one, but because of the deviation from the established process and resulting undermining of trust, achieving consensus to include the proposal in the final deliberations was far more difficult than it would otherwise have been. Though ultimately successful, this experience underscores how critical it is to adhere to established ground rules and avoid behavior or tactics that exclude participants, no matter how innocent or noble the intent may be.

Clearly identify and agree on goals early
Quite different from most MPA processes, the premise of the Tortugas 2000 process was that an ecological reserve would be established somewhere within the Dry Tortugas region. The intent was to support other goals such as fisheries management, but always within the context of an "ecological

reserve." Working Group efforts focused on size, location, and conditions of the ecological reserve, but not whether a reserve was appropriate in the first place. Thus the goal – to designate reserves in the Tortugas – was not questioned because the goal was broadly perceived as mandated by federal law, and, as a result, the process focused on the more productive question of "how" to construct a reserve rather than the often more divisive threshold question of "whether or not" such a reserve was appropriate.

The more focused ecosystem based goal was also achieved through public outreach efforts engaged in by proponents of the reserve. Beginning early with the initial designation of the sanctuary and carrying their message through development of the management plan to local, state, and federal decision makers, the public relations campaign meant that grass roots efforts in support of the broad goal of a reserve were well under way by the time Tortugas 2000 was launched.

Specific instruction was provided early in the process to build upon and refine consensus on this broad goal, and was critical to maintaining a common focus. For example, the Working Group was told to ignore jurisdictional boundaries, ignore existing authorities, and work instead on what was needed to meet established ecological and fisheries criteria. This approach resulted in buy in by all stakeholders, who looked at issues holistically, supported the concept of an ecosystem approach, and focused clearly and collaboratively on resources rather than on which participants might not support their interests.

Both traditional science and fishermen's knowledge were equally important
Everyone agreed that the preparation and presentation of numerous types of technical information was integral to the Working Group's ability to make sound recommendations. The information included oceanic, biological, socioeconomic, and fisheries information presented by scientists and stakeholders. While the majority of scientific information was provided during two special forum presentations, scientists sat next to fishermen, conservationists, and managers throughout the process. The resulting ability of scientists and stakeholders to continuously interact and provide immediate feedback on issues raised around the table helped to build the sense that scientists were there to help the process rather than merely act as another stakeholder.

The informational forums allowed community members and other stakeholders to share their knowledge and experience with the Working Group, managers, and scientists. This broad-based information exchange was extremely beneficial to the process. In essence, the value of the community input was equal to that of traditional scientists; the fact that anecdotal stakeholder knowledge was used directly and given equal weight was key to subsequent discussions and consensus building. Fishermen reported feeling more involved as compared to other processes, and that their "unscientific" but no less valuable knowledge was respected.

GIS is valuable, but manual map making is more appropriate in some cases
GIS was used very interactively during Working Group sessions and was uniformly praised. The ability to quickly and graphically portray new information empowered the Working Group to make decisions. An extensive database was compiled and information was quickly processed for presentation. In particular, for the first time data showed use patterns in addition to biological information. This allowed the Working Group to better identify what needed to be protected, and balance those protections with fishery uses.

When it came to recording individual preferences for potential boundaries, however, the old fashioned approach proved far better than GIS. A manual method using an acetate overlay on top of the grid cell was employed, and resulted in participants working together over paper charts, sharing stories and perspectives and, according to one observer, avoiding the negative effect GIS can have on people's ability to have a direct sense of ownership over the map building process. Each Working Group member drew out preferred boundary configuration, and the overlays were shared with the group via overhead, or

provided to staff to use in GIS products. This more intimate, hands-on, and interactive technique for recording boundaries proved successful. In the Tortugas process, GIS was useful for sharing and displaying data, but having members draw on hard-copy maps was the best approach for exploring individuals' ideas about appropriate boundaries.

<u>Public input was innovative and was solicited throughout the process</u>
Several participants pointed to the interaction between Working Group members and other stakeholders as essential to the consensus-building process. During Working Group meetings, members were able to confer directly with members of their stakeholder group to solicit immediate input when necessary. During break out sessions, the public was invited to sit as a "second tier" around the Working Group members. Or, members could go elsewhere to caucus. Whatever the case, the opportunity for a free and rapid flow of information between members and observers allowed for a full range of perspectives to be incorporated into the discussion. Because of the broad support for this approach – as many as 50 people surrounded Working Group members during their meetings – very little additional work was required to solicit stakeholder buy-in when decisions were made.

The National Park Service had a simultaneous management planning process underway for the Tortugas National Park, that paralleled the Tortugas 2000 effort. It was important to managers that the simultaneous efforts not confuse the public, thus they were coordinated as much as possible. This included holding public hearings jointly. The format was not the traditional one, with one speaker at the podium at a time, each with only three or five minutes to state a position. After initial presentations, the room was divided by topic, and individuals could present comments in one of several ways: they could talk into a microphone, write out comments, dictate their comments to staff, or write them up on newsprint on the wall. Comments could be given anonymously, the public could ask questions, and the entire process was relatively informal and non-threatening to those unaccustomed to or uncomfortable with more structured, formal approaches.

While some fisheries representatives did not like the rather unorthodox process because they were used to speaking at a podium, the majority felt that it was more inclusive, and far less intimidating. The podium format focuses attention on those few who may be more eloquent or feel very comfortable speaking before audiences, and overshadows those less comfortable.

<u>Don't start drawing lines prematurely</u>
From the start, many of the users (particularly fishermen) wanted to know where managers thought the ecological reserve boundaries should be. They were familiar with other management processes where several options – with maps – were presented and debated, rather than created with their input. To their credit, the sanctuary managers remained silent, empowering and ultimately compelling stakeholders to do the work of determining the reserve parameters. Managers would not even offer ballpark estimates of the size or location that should be protected, nor what the regulations should contain – in public or private. This approach may not work in other cases where trust is not established and where stakeholders may not be as familiar with the geographic area or relevant resources. Here managers benefited from lessons learned from their earlier efforts, and understood that speculating on the potential boundaries would taint the process and put stakeholders on the defensive, trying to protect what they may have considered their turf or territory.

The majority of stakeholders saw the wisdom in this particular part of the process, while a handful had some misgivings, thinking it protracted the overall efforts. Whatever the perspective, participants unanimously agreed that their input had real meaning and that there was no hidden agenda or predetermined outcome on the part of the managers. Interestingly, the resulting ecological reserve was much larger than any of the managers individually anticipated.

5.5.4 Conclusion

Almost everyone involved agreed that the Tortugas 2000 process represents how a successful consensus building process can work when a skilled facilitator is paired with motivated participants in an environment of trust and empowered by a clear mandate. Building upon efforts leading up to the process and the wise decision among sanctuary managers to not attempt to predetermine or shape the outcome, participants were free to be proactive and creative rather than reactive and defensive.

Success in the Tortugas may also be attributed in part to the fact that most participants had some first hand experience with no-take reserves, and thus perhaps feared the concept less than in other regions. Moreover, trust was established and more positional bargaining avoided with agreements such as the one between fishermen, who agreed not to "whack and hack" proposals, and conservationists who agreed not to "pad and add." As a result of a successful collaborative process, the building of trust among diverse stakeholders, and demonstrably positive ecological measures, even those who initially opposed reserves are now some of their biggest supporters.

5.6 Horseshoe Crab Reserve

Figure 8 shows the location and extent of the Carl N. Schuster Jr. Horseshoe Crab Reserve off the mouth of Delaware Bay.

Figure 8. Location and extent of the Carl N. Schuster Jr. Horseshoe Crab Reserve.
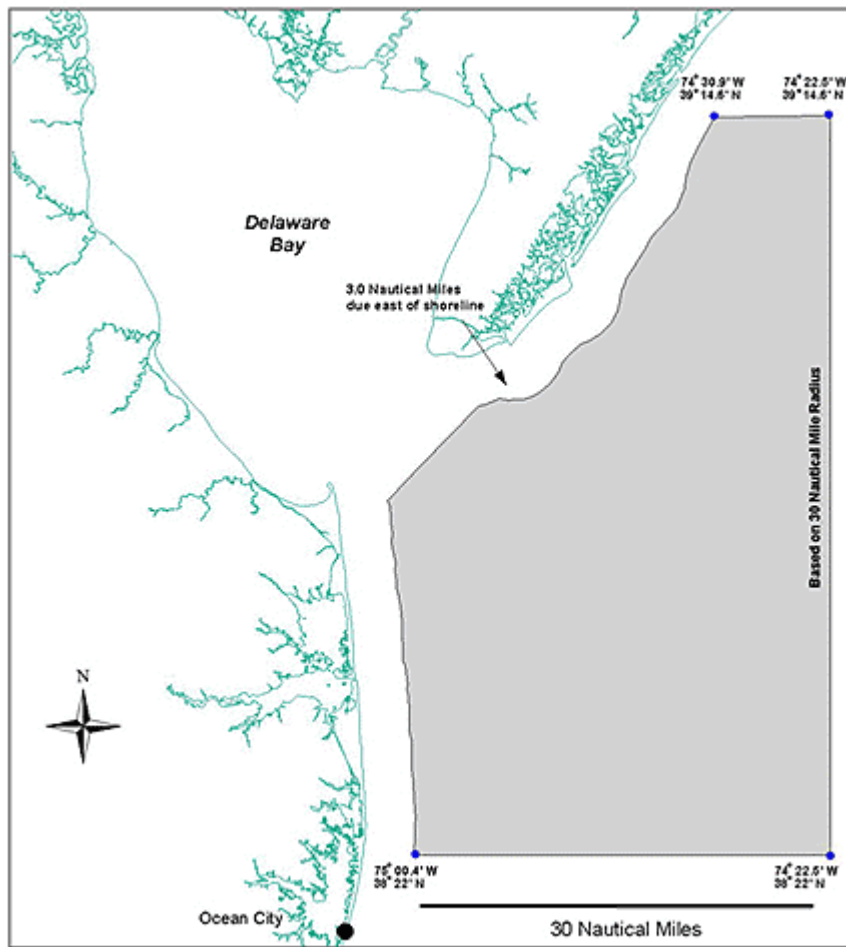
Source: (*www.nmfs.noaa.gov/horseshoecrb_map.htm*)

5.6.1 Setting

The Delaware Bay is home to many fish, marine mammal and bird species as well as miles of popular recreation beaches. It also is on the flight path of northward migrating shorebirds, and has been heralded as the second largest stopover location in the western hemisphere. The reason the Bay is so attractive to the birds is that it is the site of one of the largest concentrations of spawning horseshoe crabs along the Atlantic coast. The birds feed on eggs turned up from buried horseshoe crab nests. Thus fueled, migrating birds such as red knots, semipalmated sandpipers, ruddy turnstones and sanderlings are able to continue their long distance flights to the arctic.

Horseshoe crabs are an ancient species, more closely related to spiders or ticks than true crabs. Their glossy brown "shells" (really a chitinous exoskeleton shed during molting) are a familiar feature of Atlantic beaches, where they have been around for 300 million years without much evolutionary change. Horseshoe crabs are found on the ocean bottom from northern Maine to the Yucatan Peninsula, but are most abundant on the Atlantic coast between New Jersey and Virginia, with the Delaware Bay at the center of distribution. In the spring, adult crabs migrate to beach areas to spawn, during high tides of the full moon. They lay their eggs in clusters on protected sandy beaches. Juveniles remain in the estuarine environment until they reach maturity at about 10 years.

A fishery in the 1800s harvested horseshoe crabs in the millions for fertilizer and livestock feed, but demand for those uses waned. By the 1960s, the annual catch was reported at only 42,000 crabs. Catches fluctuated in response to demand throughout the 1970s and 1980s, ranging from lows of 11,900 pounds to highs of 1 million pounds for use as bait for eel and whelk fisheries and for biomedical research. In recent years, these uses have been valued at more than $50 million annually.

Horseshoe crabs, particularly females, are cut up to bait pots used to catch American eels. A boom in eel prices and the concomitant increase in fishing effort in the 1990s created a related increase in the horseshoe crab fishery along the mid-Atlantic coast. Egg-bearing females for bait were fetching 75 cents to a dollar. In addition, the biomedical industry collects horseshoe crabs for their blue, copper-based blood, which contains a clotting agent. The substance is used to support the production of Limulus Amoebocyte Lysate (LAL), which makes it possible to detect toxins caused by bacteria in human patients, drugs and intravenous devices. Medical collections on the east coast take between 200,000 and 250,000 crabs per year, bleed them, and return them to the ocean within 72 hours of capture. It is estimated that about 10 percent do not survive capture.

As a result of this increased demand, catches quadrupled between 1993 and 1996, reaching highs of 5 and 6 million pounds in 1996 and 1997. Crab landings were reported in states that previously had no horseshoe crab fishery. By 1997, concern over what appeared to be declining crab numbers and the relationship between the crab and eel fisheries led the Atlantic States Marine Fisheries Commission to begin developing management plans for both species. Some scientists reported a decline of as much as 90 percent over a decade.

At the same time, bird watchers and other environmental advocates noticed a decline in the spring shorebird population, and connected it with the horseshoe crab fisheries, which take place mostly during the crabs' spawning season when they can be caught easily and cheaply—the same season the birds rely on crab eggs. These groups used newsletters, websites and other outlets to make claims about declines in horseshoe crabs and the detrimental effect it had on shorebirds. These groups also encouraged members to attend fishery management meetings, write to government officials, and take other actions to protect shorebird populations by calling for reductions in fishing mortality on crabs. They also collected information on crab abundance, and sponsored studies.

A plan to manage the species along the entire coast was approved by the Atlantic States Marine Fisheries Commission in 1998.[4] Before the interstate plan was developed, the states each managed the species in their waters. Since there was no fishery in federal waters, none of the federal fishery management councils on the east coast had adopted management measures. New Jersey, Delaware and Maryland already had taken action to reduce catches in their waters, and the Fishery Management Plan (FMP) maintained those measures and called for a cap on landings of crab for bait by 2000. While participants in the fishery management planning process were debating proposed measures to reduce catches, the state of Virginia allowed crab landings in its waters in 1999 to climb 26 times higher than the prior average. By this time landings from federal waters were increasing as well.

One of the arguments against catch reductions was the limited amount of information about the status of the stock, so the FMP called for a comprehensive monitoring program to gain better data on both catches and abundance. Despite opposition from the fishing community and arguments that there was not enough information to support cutting back landings, the ASMFC management board approved the state-by-state cap on bait landings in February 2000. They recommended a 25 percent reduction coastwide, and let Maryland, Delaware and New Jersey maintain their more stringent catch reductions. Participants observed that no one was satisfied with the plan. The mid-Atlantic states, conservation groups and bird advocates thought it didn't go far enough. The southern states were not convinced of the need for any catch reduction at all.

It was at the conclusion of this multi-year fishery management planning process, which had included fishermen, the biomedical industry, fish conservation advocates, state managers and—for the first time— bird watchers, that Carl Schuster, a retired professor and horseshoe crab researcher, stood up to remind the board that while they had protected the horseshoe crabs by reducing landings, they had not protected the "heart of the spawning population" at the center of Delaware Bay. He suggested a closed area.

Even though there had been no suggestion of a closed area throughout the multi-year process that led up to the plan amendment, Schuster's proposal during a public hearing on the final horseshoe crab plan amendment was seized by the management board as an opportunity to do more. They handed off the development of the closed area to the federal government, calling for a sanctuary in federal waters outside Delaware Bay.

What started as a straightforward fishery management process to reduce fishing mortality through reduced Total Allowable Catch and allocation took a turn toward place-based management. What started as interstate management in nearshore waters from Virginia to New Jersey took a leap outside three miles and into federal waters. When shorebird advocates began showing up at Atlantic States Marine Fishery Commission meetings they were viewed as outsiders; not really "stakeholders" in the fishery management process. However, not only did these groups continue to stay active at the commission level and develop grass roots support, they developed a campaign at the Washington, D.C. NOAA headquarters level.

The actual designation of the horseshoe crab sanctuary was accomplished through notice and comment rulemaking, an administrative process that unfolds through published notices in the Federal Register and comment periods for public reaction to the proposed action in the notice. Although notice and comment rulemaking often includes public hearings (and in this case did) it is more the playground of lawyers, lobbyists and interest groups than the rough and tumble of the state commission or federal council process. It is governed by strict rules of administrative procedure including deadlines and prohibitions on *ex parte* communication. Nevertheless, the proposal to designate the sanctuary went from the advance

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[4] The Atlantic States Marine Fisheries Commission, made up of the 15 Atlantic states, coordinates among the states and develops fishery management plans for species that occur in more than one state. Eighteen species-specific boards meet four or more times per year, and develop proposals for the Commission, which meets twice a year.

notice of proposed rulemaking to final rule in what could be considered record time for an action of its magnitude: 10 months from start to finish. Between the first proposed rule in May 2000 and the final rule published in February 2001, the rulemaking process carved out an exemption to allow collection of crabs in the closed area for biomedical purposes, and to allow whelk vessels to fish with pots and gillnets in the area while carrying horseshoe crabs as bait. The procedural steps that were taken leading to eventual designation of the Carl N. Shuster, Jr. Horseshoe Crab Reserve are set out in detail in MPA Process Review (NOAA 2003). The reserve, which encompasses nearly 3,900 km^2 (1,500 mi^2) of federal waters off the mouth of the Delaware Bay, was established on March 7, 2001.

The procedural steps taken to create the Carl N. Schuster Jr. Horseshoe Crab Reserve are set out in detail in MPA Process Review (NOAA 2003).

5.6.2 Major themes
The interplay between conventional fishery management approaches to protect or recover a depleted stock and the use of a closed area as a conservation tool to accomplish that purpose is a major theme of both the horseshoe crab sanctuary and the grouper closures. The horseshoe crab sanctuary process is further distinguished by its beginnings as a state fishery management issue inside coastal waters, and eventual metamorphosis into a closed area in federal waters. Federal notice and comment rulemaking is an unusual course for MPA designation and may result, despite strict procedural rules aimed at guarding the public interest, in a process that is not conducive to engaging the general public. This type of decision process is often marked by formalized exchanges of documents in response to Federal Register notices, constrained responses on the part of agency managers, and conducted by lawyers or association representatives specializing in regulatory decision making. Also noteworthy in this case is that the stakeholder participation was actually developed through the fishery management process, not the MPA designation process. However, the working relationships, knowledge base, and interest group advocacy that evolved through the development of the horseshoe crab fishery management plan and amendment carried over into the rulemaking process. Agency managers took on the role of communicating with interest and constituent groups to get feedback as the proposal took shape, even though there were only three scoping meetings, very sparsely attended, to serve as venues for stakeholder participation. The lack of scientific information on stock abundance, and on the potential for the closed area to contribute to spawning or to reduce mortality, appeared not to matter in this designation. Although the lack of data was a major point of contention in the FMP process and the decision to cut catches to reduce mortality, once the play moved into designation of a closed area, it became a non-issue because the fishery sector in Virginia most opposed to catch limitations was not at all affected by the closure.

5.6.3 Lessons learned
Relationships in other venues carry over to MPA process
Motivation and leadership for the designation of an MPA may come from an unexpected quarter. Shorebird conservation groups were new players on the fishery management scene, drawn into the process by the connection between shorebird declines and horseshoe crab declines. They worked in the horseshoe crab management process within the ASMFC for several years. Although at the beginning they were not familiar with the fishery management system, or the way science was used to provide a basis for management actions, they stuck it out and won the respect of "old hands" during development of the amendment to the FMP. This stature won these advocates a place at the table during the subsequent federal rulemaking process. This setting was more familiar to advocacy groups, and they used campaign techniques and grassroots membership activism to muster support for the sanctuary and to push the process. The biomedical industry also was a new player, with a $75 million product on the line. They came to the table as a highly educated and well-financed interest group. At the outset these groups were strangers to the eel, conch and horseshoe crab fishermen of New Jersey, Delaware, Maryland and Virginia. One state participant noted that the interactions were not pleasant at the outset, with groups of stakeholders having different agendas and goals. But through the open FMP process over a two-year

period, groups began to understand the different points of view and why they were held. "It led to meaningful conversation, compromise, and agreement about where they wanted to go. Stakeholders still had their opinions, but at least they were able to come to a compromise. It was worthwhile to spend the energy up front [in the horseshoe crab plan amendment process] to get to that level."

Science matters, but perception may matter more
In the period between the passage of the ASMFC plan amendment reducing horseshoe crab mortality coastwide and the designation of the sanctuary, Virginia continued to balk at a reduction in its crab catch, with officials claiming there was no scientific basis for the quota. Although the horseshoe crab fishery showed classic signs of a fishery headed for trouble (declining catches in some areas, increase in landings in others, displacement of effort from closed areas to unregulated federal waters) there was no stock assessment showing an actual decline. Only one trawl survey in Delaware Bay showed some declines in catches. Nor was there much evidence of the connection between the crabs and the shorebirds. During the 1990s, data on crab abundance was collected, but "not in a statistical manner. Most of the studies were conducted by nonprofit groups with lots of energy, but not much knowledge about statistically valid design." But even though stock assessment scientists were not willing to make a definitive call about the status and abundance of horseshoe crabs, or any relationship to the decline in shorebird populations, shorebird advocacy groups were. They published their own studies, made information available on websites, talked to newspaper reporters and circulated newsletters and action alerts. Once the story of the interwoven "crash" of horseshoe crabs and shorebirds was in the public consciousness, it was difficult to undo the perception, even after scientists who reviewed the available data found there was not enough to support any such conclusions. State managers relied on taking a precautionary approach in the face of uncertainty. NOAA's justification for the sanctuary was based on the precautionary approach as well as the shift of landings from state to federal waters. Not knowing proved as persuasive as knowing.

All politics is local
As New Jersey and Delaware reduced catches in their horseshoe crab fisheries in 1997 and 1998, effort moved to Maryland and Virginia. Ports that had never recorded any landings were showing substantial horseshoe crab catches. Maryland reduced its fishery, cutting catches by 72 percent. Despite requests by shorebird advocates to the ASMFC to step in and impose some coastwide discipline on the horseshoe crab fisheries, the commission opted to set a reference period for landings and call for monitoring of catches. In 1999 Virginia catches climbed to 26 times higher than previous averages, eliciting strong criticism from conservation advocates. By the end of 1999, ASMFC put a fishery management proposal on the table, calling for a coastwide quota with state-by-state caps. Virginia opposed catch reduction and the state quota, and even though the commission passed it in 2000, Virginia set its own state quota at more than double what was called for in the plan.

It was against this backdrop that managers in Virginia were able to support the idea of the sanctuary. One participant observes that they seized on the idea because it would not affect their fishery and they could repair relations with the environmental groups that criticized the state so harshly for its refusal to reduce crab catches. "Maryland, Delaware and New Jersey were wondering what happened? They had a cap *and* a reserve, while the other states had neither."

Meanwhile in Delaware, the governor was pushing hard for the sanctuary. A participant pointed out it was a good issue for the governor's campaign for the U.S. Senate, both environmentally and economically, since Delaware's beach-related tourism (including bird watching) is a significant part of the state's economy. One of the participants in the rulemaking observed that the candidate was the same party as the federal administration at the time, making the Department of Commerce receptive to the proposal. High-level promises and media announcements put the pressure on to get the sanctuary designated.

The governor won his senate race, but the federal administration changed, bringing with it new policies and a moratorium on all pending regulations—especially environmental ones. But the combination of positive public support from the scoping and public comment periods, the exemptions that accommodated economic interests, and the public relations benefit of taking a pro-environmental action all paved the way to allowing the rule creating the sanctuary to be published as final.

Follow the rules
Participants in the federal notice and comment rule-making process had different ideas at the outset. Environmental advocates, including Delaware's governor, wanted the sanctuary created through an emergency action, shortening the timelines for notice, assessment, scoping and comment. But NOAA stuck with the rules of procedure and went through a full rulemaking. Even though they did not prepare a complete environmental impact statement, they prepared a careful and thorough environmental assessment (EA). In the absence of much data from the fishery, the EA incorporated a broad literature review and a socioeconomic study that had recently been done by the U.S. Fish and Wildlife Service, as well as survey data to back up the Delaware Bay information. The agency addressed all the comments received during scoping. They responded to all comments from the comment period. "We resisted doing the rule on an emergency basis and it paid off in the end." The new administration seized upon the sanctuary as a pro-environmental action, completed with good public process, with little impact on economic interests. It sailed through to much fanfare and positive press.

Moving between management regimes requires careful interagency negotiation
The Carl Schuster Horseshoe Crab Reserve was not designated through a fishery management process, though it was clearly for a fishery management purpose—reducing horseshoe crab mortality—and arose in that context at the conclusion of a fishery management plan amendment process. What worked for state managers and federal officials conducting the rulemaking process that created the sanctuary was tight focus, close communication, and careful negotiation. All state fishery managers sit on the ASMFC, as do representatives from the National Marine Fisheries Service and the U.S. Fish and Wildlife Service. Therefore all the key players were participants in the interstate process that led to the horseshoe crab plan amendment and thus had a venue for negotiation. When the commission made its recommendation to the Department of Commerce requesting the closed area in federal waters, the action was handed off, but the players overlapped. In the course of developing the proposed rule, federal agency officials stayed in close contact with state managers, met with state agencies, the Coast Guard and the Fish and Wildlife Service. The size, configuration and location of the reserve were negotiated carefully among all these agencies because those parameters were directly linked to its enforceability and the user groups who would be affected. In addition, the staff developing the rule briefed officials at NMFS, NOAA and even the Secretary of Commerce. There were no surprises as the rule made its way through the process, despite intense advocacy by interest groups. All these actions took advantage of established relationships, recognized and capitalized on overlapping authority and jurisdiction, and cleared the way for approval by the ultimate agency decision maker.

Venerable leaders can make a difference
A respected scientist as "leader" can provide a focal point. Dr. Carl Schuster, a retired professor and horseshoe crab biologist was so highly regarded by all parties that no one questioned his proposal for a sanctuary at what would have been, from anyone else, "too late in the process." Although in this case such leadership came from a scientist, figures from other sectors could provide the "respected elder" role as well.

Fair treatment of economic interests can quell opposition
Working with stakeholders to draw boundaries and craft exceptions contributed to acceptance. The crab sanctuary includes exemptions for two affected user groups, but not all. The economic impact on a small group of Maryland watermen who trawled for flounder in the area, and kept horseshoe crabs taken as

bycatch, was seen as too small to justify an exemption. Whelk fishermen who use crab for bait are allowed into the area, as is the fishery for biomedical purposes. The latter activity involves capturing the crabs, bleeding them, and returning them to the water. These exemptions were created in the course of the rulemaking process, through responses to the first proposal and revisions to the final rule.

Though the balance between fairly drawn, rational exceptions and changing an MPA proposal in response to every special interest is a precarious one, process managers ignore economic interests at their peril. In this case, the procedural safeguards of federal rulemaking assured that the quite narrow exemptions were developed with equity and due process.

Keep the boundary lines simple and enforceable.
Because the request from the ASMFC to NOAA called for an area "in a 30-mile [48 km] radius" of the mouth of Delaware Bay, originally the agency proposed an arc, using the radius from the center of the mouth of Delaware Bay. But after consultation with the U.S. Coast Guard, they squared up the corners to make the area easier to enforce.

Base boundary lines on data
 The proposed rule provided three options: one with a 15-mile (24 km) radius, the preferred alternative at 30 miles (48 km), and one at 60 miles 96 km). The agency was able to show with data that most of the crabs were caught along the shelf, and that a 30-mile (48 km) radius would protect them.

5.6.4 Conclusion
Designation of a protected area for horseshoe crabs in Delaware Bay took a route different than the other cases in this review. Federal notice and comment rulemaking is a tightly constrained process that is not comparable to the more complex and multi-issue negotiations and consensus building that took place, for example, in Tortugas 2000 or the Channel Islands Marine Reserve Working Group. However, it worked in this instance because agency staff who managed the rulemaking process took advantage of several years of stakeholder participation that preceded their action, kept stringently to procedural rules including regulatory and economic review and environmental assessment, took advantage of relationships with other federal agencies and state resource managers, and kept not only stakeholders but decision makers in the loop through the entire process.

6.0 Summary of Findings

The overall goal of this evaluation is to identify best practices that can assist agency managers and planners in improving stakeholder processes used to design and implement MPAs. The case studies clearly provide a wealth of specific lessons that form the basis for broadly applicable generalizations and recommendations. However, the case studies just as clearly show that one uniform or consistent set of approaches will not fit all situations. Thus, while the evaluation's basic intent is to move from the specific to the ideal (i.e., here is what actually happened and here are some ways it might have been made more effective), there is an equal emphasis on identifying the contexts that suggest when one approach would be preferred over another. In addition, the case studies demonstrate that the effectiveness of individual design elements or tactics is strongly dependent on the choice and application of other design elements. The findings and recommendations below therefore depend heavily on cross comparisons of lessons from multiple case studies and are often framed in "if – then" terms (as in, "if" this set of circumstances exists, "then" proceed this way and not that way).

The findings below are organized in terms of the four main process themes used to structure the core evaluation questions:

- Setting the stage
- Working with stakeholders
- Decision making
- Evaluation.

Each theme includes broadly applicable lessons, differences and similarities in lessons learned across multiple case studies, and context-based recommendations for future efforts.

6.1 Setting the stage
Initial process design is, or should be, dominated by the legal mandate and policy direction, local marine management and conservation history, goal setting, the selection of stakeholder participants, and the establishment of the structure of stakeholder groups and the rules governing their interactions. The case studies vary widely in terms of these features, as summarized in Table 1. It is important to note that these features are not all controllable to the extent process planners might desire.

Table 1. Factors involved in setting the stage for the processes in each of the case studies.

Case	History	Goals	Participants	Group structure	Rules
San Juan County/Northwest Straits bottomfish recovery zones	Earlier failed federal effort Local resentment against ambitious efforts motivated by external forces	Original federal effort not specific Focused tightly on groundfish in subsequent local effort	Local governments, agencies, residents	Federal/State led public meetings to vet sanctuary led to county-formed Marine Resources Committees and umbrella NW Straits Commission	None formalized
Marine Life Protection Act	Report criticizing the existing MPA system in state Advocacy promoring MPAs Concern re stock declines	Established in law but specific outcomes ambiguous	State agency staff Scientists Ad hoc stakeholder groups, then regional planning teams	Science team working in isolation with inadequate resources Stakeholder feedback in us vs. them setting, then regionally independent multistakeholder teams	None formalized
Channel Islands	1970s Supreme Court case re state jurisdiction Proposal from sport fishers Assertion of state authority by F&G Commission Agreement between state and federal agencies Advocacy re MPAs Concern re stock declines	Initially vague, then focused on achieving specific percentage set-aside	All major stakeholders	Stakeholder group advised by separate science and socioeconomic panels meeting in parallel	Formal and explicit groundrules
Gulf Grouper	Emerging concerns re changes in population abundance and structure	Catch reduction measures PLUS focus on protecting spawning aggregations	Customary Council participants	Customary Council bodies	Customary Council process
Tortugas	Earlier sanctuary designation Earlier reserve designation effort unsuccessful	Initially vague, then focused on protecting specific habitats	All major stakeholders	Single multistakeholder group	Formal and explicit groundrules
Horseshoe Crab	Emerging concerns re decline in crab stocks and effects on shorebirds	Reducing stock decline by reducing catches and allocating reductions equitably, then protect specific, known crab spawning habitat	State and federal managers, biomedical industry, shorebird advocates and fishermen	Customary ASMFC bodies	Formal and explicit groundrules re: • ASMFC process • Federal rule making process Informal negotiations among stakeholders

6.1.1 History
The history of events leading up to the designation effort in each case study varied widely and, in some instances, exerted a dominant influence on the process as well as on the eventual outcome. For example, the successful implementation of voluntary groundfish closures in the San Juan County case was preceded by – and, by many accounts, would not have happened without – a lengthy and ultimately unsuccessful effort to designate a national marine sanctuary in the area. The fact that the sanctuary process was initiated and promoted from outside the region, combined with its poorly articulated goals and inconsistent federal and state leadership, led to a deep-seated local suspicion of any MPA effort not locally originated and led. Past history also affected stakeholders' attitudes toward MPAs in the Tortugas case, where the often-contentious establishment of the Florida Keys National Marine Sanctuary and management plan helped to clarify issues, highlight pitfalls to avoid, and identify local leaders capable of managing a designation process.

The MLPA case provides an example of how a designation effort can itself create history that strongly influences stakeholder attitudes and subsequent changes to the overall process design. Resentment at the initial phase of this process (in which a planning team of scientists developed an initial set of maps in isolation) was so extreme that the lead agency halted the effort and then restarted it with a new process design.

History can thus be critically important and the nature of its influence will differ from process to process. Early planning efforts must therefore include a thorough assessment of past history and its potential effects on stakeholder perceptions and the goals they will agree to, as well as on their willingness to participate in any planning process, and the sorts of process structures and groundrules they will accept. This assessment should include an evaluation of the sorts of leverage, both positive and negative, that history can provide. For example, in the San Juan County case, strong resistance to any outside, federally led effort meant that stakeholders were more receptive to a local, grassroots process. As another example, in the Gulf Grouper case, the Council's experience with negotiating fishery management provisions provided a ready model, though not necessarily an elegant one, for crafting an agreement on a closure to protect grouper spawning aggregations. As a rule of thumb, past history will always provide insight into the current situation, as well as guidance on achieving leverage (either from going with or against the grain of past events). The key is knowing how to interpret that history to achieve one's ends.

6.1.2 Motivations, goals, and overlapping jurisdictions
It is a truism that collaborative stakeholder processes depend on clear and broadly accepted goals and objectives for their success. However, the case studies demonstrate that, for a variety of reasons, achieving such clarity and acceptance is often considerably harder than it seems. Further, goals that seem explicit in the abstract can turn out to be vague, ambiguous, or mutable in practice. The articulation and ongoing management of goals and objectives was one of the most challenging elements in several of the case studies examined.

One potential source of confusion about goals and objectives is the fact that, depending on the impetus for a particular MPA designation effort, there may be quite different goals associated with the enabling legislation, with the individual MPA itself, and with the process used to establish the MPA. The linkage between fundamental enabling legislation and the goals of a specific MPA is often not explicitly considered, with the result that the process design does not target primary goals and objectives. This failure can be even more problematic where the enabling legislation is vague, such as in the MLPA, where stakeholders' interpretations of the act's intent were at odds and the Department of Fish and Game failed to establish control of the message. This difficulty can be compounded by the interplay of local, state, regional, and federal authorities.

The Channel Islands case study provides a useful illustration of these issues, including the impact of overlapping state and federal authorities, which stemmed from the presence of both a national park and a national marine sanctuary around the Islands, as well as a U.S. Supreme Court decision in 1978 that affirmed California's authority to manage submerged lands under the Submerged Lands Act. Thus, while the Channel Islands National Marine Sanctuary had a fundamental interest in marine resources within the sanctuary boundary, it did not have sole authority to manage activities in the marine environment in state waters. These overlapping authorities were resolved in the Channel Islands case by identifying the national marine sanctuary as the lead agency for developing a recommended MPA design in state waters, which would then, in cooperation with the state Department of Fish and Game, be submitted to the California Fish and Game Commission for final approval.

The broad (and somewhat vague) set of goals defined by the Channel Islands Marine Reserves Working Group (MRWG) thus did not fit comfortably within the responsibilities of any single agency, a situation complicated by the fact that working relationships among the three federal agencies (National Marine Sanctuary Program, National Park Service, National Marine Fisheries Service) with responsibilities relevant to the MRWG process were not always smooth. Thus, for example, the MRWG's goal of enhancing sustainable fisheries was not a goal of the Sanctuaries Act, though it was a major goal of the Fish and Game Commission. In addition, some stakeholders commented that the fundamental tension between sustainable use and complete protection in various agency perspectives was never resolved. Key participants in the MRWG process said that, in hindsight, more attention should have been paid to identifying and resolving this network of overlapping responsibilities and establishing more explicit processes for communication, especially between the state and federal agencies involved.

A similar situation occurred in the federal sanctuary designation effort in the Northwest Straits, where uncertain and potentially conflicting goals between various federal and state agencies confused stakeholders and undermined their confidence in government's ability to successfully lead the effort. Indeed, the inability of government agencies to agree on what the goals of the sanctuary effort should be, or even whether a sanctuary was necessary or appropriate, was cited as a major factor in its demise. "A strong federal-state partnership never materialized," one participant lamented, and agencies charged with vetting the process were left "largely on their own" in the face of increasing public hostility.

In the Tortugas, the other case study with a web of interacting agency responsibilities, a long history of ongoing processes to consider and develop marine zoning plans and protected areas had resulted in a more coordinated set of interagency working relationships. This, in turn, helped the working group develop a more coherent set of goals founded explicitly on the guiding and broadly accepted notion that ecological reserves would be established in the region. Here, too, the process was made complex by a combination of state and federal waters, national park, and required approvals by the fishery management council, governor and cabinet. These relationships were tested during the designation of the Florida Keys National Marine Sanctuary and development of the management plan, so participants had more experience with each other and each others' institutional requirements.

In contrast, lines of authority were simpler in other case studies. For example, the San Juan County bottomfish recovery zones (BRZ) were developed and implemented entirely by county commissioners working in collaboration with grassroots participants energized by the deep desire to demonstrate that a federal sanctuary was not necessary to achieve resource protection. United by a common goal to avoid federal or state regulation, the BRZ process focused tightly on goals important to local participants and the unwavering commitment to succeed. This was in stark contrast to the earlier federal effort to designate a sanctuary in the region, whose goals were so vague that even proponents could not articulate what a sanctuary would mean for the region.

In a manner analogous to the local San Juan County process, the grouper closures in the Gulf of Mexico were considered and resolved within the context of the existing fishery management council decision process. In the Horseshoe Crab case, authority was passed in sequence from the states to an interstate body to federal managers. There, too, they were resolved within an existing fishery management process. While this process is not necessarily suitable for broader ecosystem management concerns, in cases such as these, where the concern is single species management, the existing fisheries management system can be a useful vehicle.

Despite its importance, the relative complexity of a designation process's management structure is not the only determinant of whether clear and explicit goals and objectives can readily be developed. Two other factors play a key role. The first is the nature of the immediate motivation or impetus for the effort. The second is the design of and the preparation for the planning process itself. As discussed below and in Section 6.1.3, these two factors interact strongly.

The original impetus for the designation efforts considered differed widely. In two cases, grouper and horseshoe crab, the impetus was a change in resource status that triggered a statutory requirement for action to reduce fishing mortality. Even though resource protection was also a motivation in the San Juan County case, more compelling was the desire to do something specifically local, and this was reflected in the goal to protect a specific resource of local importance. Not insignificantly, both San Juan County and Tortugas 2000 were also motivated by the real or perceived notion that, in the words of one participant that reflect the sentiment of many, "if we didn't do it the feds would do it to us." In contrast, the Channel Islands effort was initiated by a request from sportfishing interests to set aside 20 percentof the area around the Islands. This request was made in a policy environment characterized by active advocacy efforts in California to use reserves to compensate for perceived failures of the conventional fishery management system, efforts that also gave rise to the MLPA. The goals in both the Channel Islands and MLPA cases were thus broad and somewhat vague (e.g., in the Channel Islands to achieve "sustainable fisheries by integrating marine reserves into fisheries management" and in the MLPA to improve the management of California's MPA system).

Defining precise goals will not always be possible, however, nor will such a narrow focus be suitable in all circumstances. A comparison among the San Juan County, Channel Islands, MLPA, and Tortugas cases provides useful rules of thumb for situations that involve broader and less well defined motivations and/or goals. In all four cases, the designation effort stemmed from desires to protect broad aspects of habitat and fisheries, as opposed, for example, to a perceived need to safeguard a specific spawning area. While the Tortugas and San Juan County working groups achieved consensus on a system of closures, the Channel Islands and MLPA processes did not, and left residues of conflict and mistrust that are still being worked out, particularly for the Channel Islands case, in a variety of legal and management arenas.

The histories of both the San Juan County and Tortugas designation efforts show, however, that their ultimate success was preceded by failures analogous in many ways to those of the other two cases. A primary difference, apparent in hindsight (Figure 9), is that the San Juan County and Tortugas efforts had the time (although for somewhat different reasons) to move from earlier efforts characterized by diffuse goals and lack of agreement to more specific and tangible goals that formed the basis for an effective consensus. As one key result, participants in both processes were motivated to support the reserve design because they perceived clear potential benefits to their specific interests. In contrast, participants in the Channel Islands and MLPA processes were presented only with more global benefits that they were skeptical of and/or had difficulty translating into personal terms. Consequently, many resources users were motivated largely by fears of economic loss and focused their efforts on spreading the expected economic pain as equitably as possible. In such situations, it is not uncommon to hear participants comment that "reserves are a solution in search of a problem." Future designation efforts motivated by less specific, or more general, goals should therefore either state explicit goals and benefits as a starting

point or, if this is not possible, allow the necessary time and process for these to mature to a stage that supports design efforts based on more concrete goals that embody and reflect participants' specific interests.

Figure 9. Qualitative representation of the relationship between the specificity of a designation effort's goals and the length of time involved in the process.
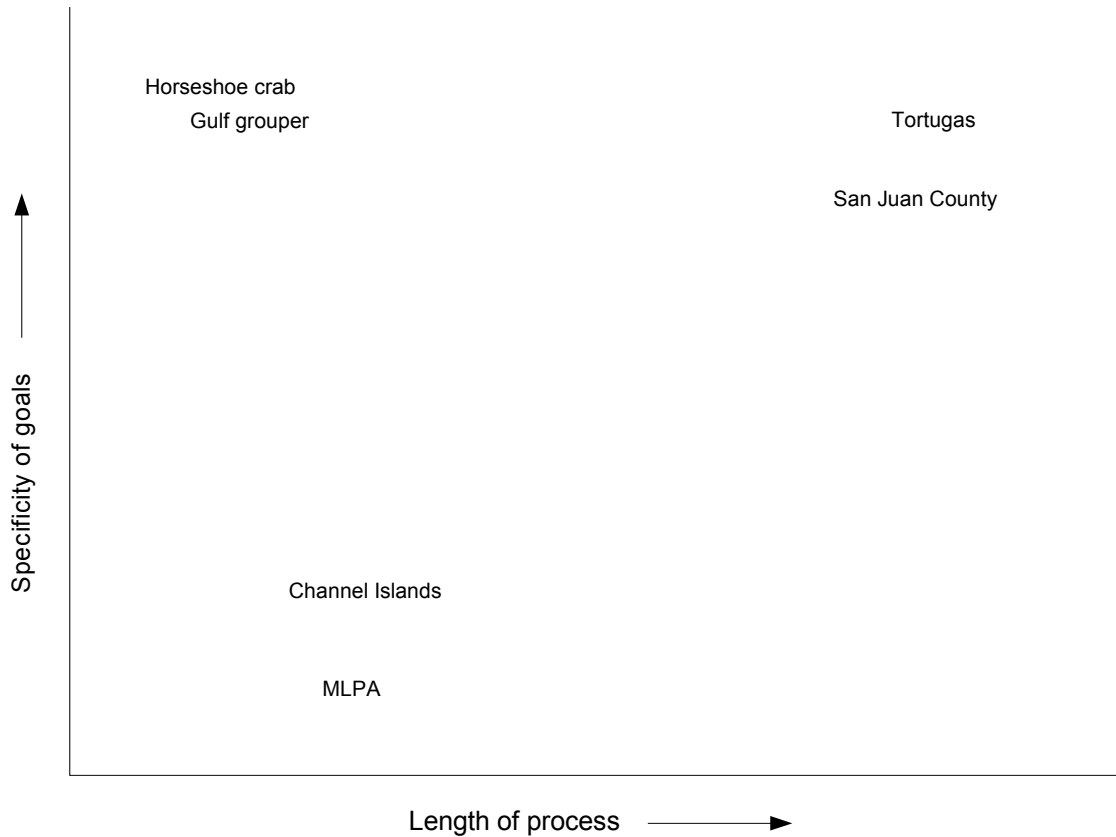
Even if it possible to distinguish and plan for use of an MPA as tool (means) versus MPA as goal (end), convenors and process managers should look at the full array of decision tools that are available and not feel locked into a complex consensus (Tortugas/Channel Islands) model or a rigid fishery management model. It may be possible to use some aspects of the more complex collaborative processes within the constraints of fishery management. For example, fishery management council structure allows for the creation of ad hoc committees, task forces, or workshops that fall outside the rigid timing that constrains plan amendment or regulatory change. If facilitation or other tools from collaborative process would be useful in this context, the planner can make such choices. By the same token, application of deadlines from aspects of agency decision or rulemaking (NEPA timelines, or other procedural frameworks) could assist the planner in constraining what might otherwise be an open-ended process without any predictable deadline. The interplay of process complexity and time is shown in Figure 9. The lesson of the diverse case studies is that each instance has attributes that require the planner to make distinctions and design the process to the circumstances. One process will not fit all situations.

6.1.3 Planning, structure, and participation
The effect of history on a particular MPA designation process, as well as issues related to motivation and goals, are typically dealt with in an initial planning effort that details the structure and groundrules of the planning process, as well as the participants to be involved. There is an extensive literature on planning

for collaborative processes in a wide range of resource management, land use, and regulatory contexts, all of which are relevant in some way to MPA designation processes. Rather than attempting to summarize and/or repeat it here, this section focuses instead on lessons to be learned from the specific circumstances of each case study.

The case studies differed widely in terms both of the amount and kind of up-front assessment and process design employed and the structures of the processes used in the planning efforts themselves. None of the six case studies conducted what could be considered a best-practices assessment and design effort, conducted by practitioners with specific expertise in process design. Instead, the stakeholder processes were typically designed by agency staff, with a greater or lesser degree of input from professional facilitators. For example, staff of the California Department of Fish and Game developed the MLPA process and stated in hindsight that they would have benefited greatly from expert process design input. Similarly, the Channel Islands MRWG effort was designed primarily by sanctuary staff, with little if any input from the professional facilitators hired to run the process. And the effort to designate a sanctuary in the Northwest Straits was run entirely by state and federal employees with no formal training in process design. In contrast, in the Tortugas 2000 process, even though the professional facilitator was brought in after the meetings had begun, his expertise contributed substantially to the creation of a process that moved forward to a conclusion most of the participants agreed was fair and successful

Table 2 presents a brief summary of key issues that should be assessed in planning an MPA designation stakeholder process. In Table 2:

- **Motivations** refers to the incentives that influence behavior,
- **History** refers to past events that have shaped the situation, including the roles, relationships, and perceptions of stakeholders,
- **Leadership** refers to leadership both within stakeholder groups, of the process as a whole, and at different levels within involved agencies,
- **Goals** refers to the specific goals of the process and how they are communicated
- **Structure** refers to the process design, including number and kinds of stakeholder and advisory groups,
- **Science** refers to the nature of available scientific information and to the role of science and scientists, and
- **Timeframe** includes schedule, deadlines, pacing

Table 2. Key issues to be assessed in planning for an MPA designation stakeholder process.

	Stakeholders	Structure	Science	Timeframe
Motivations	Perspectives, motivations, goals	How the structure is influenced or affects by different motivations	Whether new information leads scientists to make recommendation	How emerging or new perspectives can change timeframe
Relationships	Relationships among stakeholders	How the structure recognizes and capitalizes on relationships (opinion leaders, constituents) and between process manager and stakeholder	How science is used in the process How scientists relate to other each other and to other stakeholders	When in the process new information or research results become available
History	Who has been involved Past history of interaction	How well the structure leverages history of past events, interactions	Experience of participants with science in past decisions	How schedule and pacing take account of history
Knowledge	Relative distribution of different kinds of knowledge among stakeholders	How well the structure incorporates tools to teach/learn	Degree of knowledge about systems and processes directly related to problem/goals	Potential for new knowledge to be created within set timeframe
Skill	Relative distribution of process, content, organizational, campaign skills among stakeholders	How skill sets of process managers match up to requirements of the structure	Whether science skills match requirements of goals	Whether timeframe accommodates lack of skill or time for getting up to speed, for both managers and other stakeholders
Leadership	Leadership characteristics and potential within stakeholder groups Whether stakeholder representatives represent the entire sector or a subset	How authority is defined and distributed How structure is affected by leaders' influence How structure affects existing leadership	Senior or venerable scientists or other authorities as leaders	When in the process is leadership most critical? From what sectors?
Goals	Whether goals reflect stakeholder concerns Whether goals identify tangible benefits to stakeholders Whether stakeholders are involved in developing goals Whether stakeholders know source of goals they did not develop	Whether the structure is appropriate to the goals How the structure influences or is influenced by mandated goals	Whether goals reflect current science How goals depend on science to be measured or achieved Whether science is being used to develop and address goals or counter opposition	Whether schedule allows for needed evolution of goals

Partly as the result of the lack of input from process design specialists, some of the case studies encountered difficulties that stemmed directly from the process structure and/or groundrules. For example, the sanctuary designation effort that preceded the more local San Juan County process was characterized, in addition to extremely vague goals, by an inconsistent level of involvement by NOAA staff, poor follow through, erratic and confusing communication with stakeholders, and a poorly defined process. It therefore appeared to local stakeholders to be a fitful effort, managed from a distance by staff without a solid commitment to the process. As another example, the MLPA managers designed a process (Table 1) that involved an independent and isolated science team with the responsibility of developing the first draft of a proposed statewide network of MPAs. Because of its relatively small size and isolation, the science team had inadequate information about the distribution of habitats, resources, and fishing effort. Thus, the initial proposals produced by the science team, far from being received as a starting point for productive discussion, provoked fierce criticism and opposition from stakeholders who felt excluded and who could point to significant gaps and errors in the maps.

The Channel Islands MRWG process also included a separate science panel, structured to provide science advice to the stakeholder group that was meeting in parallel. This structure avoided the problems encountered by the MLPA process because it left the responsibility of map making to the stakeholder panel and had the two groups meeting in parallel. However, the Channel Islands structure engendered other problems. While one of the explicit goals of the MRWG was "to achieve sustainable fisheries by integrating marine reserves into fisheries management," the science panel included no scientists with expertise in stock assessment and other conventional fisheries management tools. In developing their recommendations, the science panel thus made the key simplifying assumption that there was no effective fisheries management in the area of interest, that is, as one panel member expressed it later, that "there was scorched earth outside the reserve." The absence of scientists with direct fisheries management expertise thus hindered the panel from developing more realistic assumptions, with the result that the science panel's recommendations were viewed with skepticism by many commercial and recreational fishermen, stock assessment scientists, and fisheries managers.

In addition, communication between the Channel Islands stakeholder panel (the MRWG) and the science panel flowed primarily through a single point of contact, who was widely perceived to be a strong advocate for the establishment of marine reserves. This separation between the two groups resulted in several MRWG members feeling that the science panel was not responsive to their concerns and, as one key MRWG member remarked, "The science panel kept answering questions we hadn't asked." While this sentiment was certainly not universally shared, the fact that much of the key scientific discussion occurred out of sight of MRWG members created a situation in which the most important scientific recommendation (i.e., to set aside a specific percentage of area) became a black box.

In contrast to the MLPA and Channel Islands cases, the multidisciplinary nature of the working group process in the Tortugas case, in which all stakeholders' knowledge was integrated and shared openly, worked to create a common body of knowledge and a collective starting point for discussion. This structure also served to build trust and understanding among participants who might have otherwise perceived their interests to be at odds. Because natural scientists and socioeconomic scientists worked as an integral part of the working group, stakeholders were able to more readily integrate their knowledge with formal scientific concepts and data. (The role of science and scientists is further addressed in the next section.)

In addition to demonstrating the need for careful up-front planning, the case studies also illustrate the importance of flexibility in adapting to unexpected events and opportunities. Thus, while the

MLPA case exemplifies the dangers of poor planning, it also illustrates how the Department of Fish and Game's willingness to reconfigure the entire MPA design process enabled it to potentially recover from its initial problems. In a different way, the horseshoe crab and Tortugas cases show how including new categories of stakeholder can expand the knowledge base, the range of options, and the support for reserve design. The addition of seabird advocates and the biomedical industry in the horseshoe crab case and Cuban American fishing interests in the latter, broadened the interest and audience for the process. The horseshoe crab case also illustrates how stakeholders took advantage of an unplanned suggestion for a spawning area reserve, moved the reserve designation from a state-level to a federal rule making context, and used an informal negotiation process to resolve the final design details. In this instance, adaptive process design worked largely because of the broad agreement that a problem existed, a narrow focus on a specific, scientifically supportable goal, and stakeholders' experience with and skill at ad hoc negotiation.

The case studies make clear that one process design will not fit all situations.. The amount of planning and structural process complexity varied widely across cases (Figure 10) and apparently had little direct relationship to overall success. Rather, a key correlate of success appears to be the extent to which the structure matched the fundamental purpose of the effort. For example, broad goals such as those articulated by the Channel Islands MRWG are extremely difficult to meet in a short period of time. Similarly, goals that depend heavily on science are difficult to meet in a structure that divides scientists from other stakeholders. As another example, it is possible to achieve tightly focused goals that are supported by a clear consensus about a problem or the strong desire to act (e.g., Gulf grouper and San Juan County), even when the process is as cumbersome as that in the regional fishery management councils. And finally, it can be useful to move the process from one venue to another, as occurred in the horseshoe crab case, as the nature of the problem shifts or evolves.

Figure 10. Qualitative depiction of the amount of planning and structural process complexity involved in each case study.

San Juan County	Gulf grouper Horseshoe crab	MLPA	Channel Islands Tortugas

————— Amount of planning —————▶
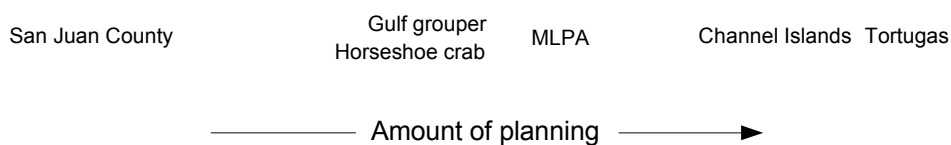
6.1.4 The role of science (and scientists)
The role of science is a recurring theme in all the case studies and deserves particular attention. It is important to consider not only the role of science (as abstract knowledge) but also that of scientists themselves. Not only are there often competing interpretations of available scientific evidence, but even widely accepted abstract knowledge is communicated, synthesized, and used by scientists. Their relationships (both structural and informal) to other stakeholders thus have a large influence on events. Because scientists are people, too, their role must be considered as carefully as that of other stakeholders and the process must be structured so that scientists play a constructive role.

The cases illustrate different approaches to building science and scientists into an MPA designation process (Table 3) and provide the basis for developing useful rules of thumb for process managers.

Table 3. Summary of the roles played by science and scientists in each case study.

Case	Structure	Science role	Scientists / stakeholder relationship	Maps
San Juan County (post sanctuary effort)	Scientists integrated into advisory group	Provide evidence in support; research inside zones	Worked collaboratively	Produced by stakeholders
Channel Islands	Separate science panel	Provide overall design target and boundary conditions	Worked separately but with some communication	Produced by stakeholders
MLPA	Separate plan team	Provide starting point for planning	Worked in isolation	First maps made by scientists
Gulf Grouper	Scientific and Statistical Committee initiated proposal	Provide justification in form of data; boundary information Described research to be done	Worked collaboratively with pro-reserve advocates	Produced by managers, stakeholders and scientists
Tortugas	Scientists integrated into stakeholder group	Provide design information	Worked collaboratively	Produced by stakeholders and scientists
Horseshoe Crab	Scientist initiated MPA proposal	Provide justification for MPA	Worked collaboratively	Produced by managers, stakeholders, and scientists

The previous section summarized some significant structural differences among the MLPA, Channel Islands, and Tortugas case studies in terms of the roles played by science and scientists. In addition, other features of the cases are worth noting.

In the Channel Islands case, the science panel was chaired by a political scientist, who was appointed chair by default because of his position on the sanctuary's Advisory Committee (SAC). While some science panel and MRWG members felt this enabled him to remain focused on more important and higher-level issues, others felt strongly that his lack of natural science knowledge enabled some stronger-willed members of the science panel to become de facto chairs and direct the panel's deliberations. Whatever the truth of the situation, it seems clear that process managers should have the ability to choose appropriate chairs or leaders of key advisory and stakeholder groups.

In many instances, "science" is understood to mean the "hard" biological and physical sciences, with the result that socioeconomic or cultural science are given less attention and resources. Thus, for example, the MLPA process made no provision for socioeconomic studies to assess the impacts of alternative reserve network designs, an omission that angered stakeholders and made it extremely difficult to assess the relative equity of competing proposals. And the lack of broad tribal scientific or cultural input into the San Juan County BRZ measures remains a major source of contention. Similarly, it was lack of consideration of socioeconomic impacts that contributed to the vulnerability of the grouper closure to legal challenge. In contrast, the Channel Islands process included a separate socioeconomic panel that conducted detailed data gathering and

analysis of alternative reserve designs. Because it worked closely with stakeholders, the socioeconomic panel generated none of the misgivings that some stakeholders held regarding the science panel's work. In the Horseshoe Crab process, the strength of a socioeconomic study and the inclusion of high economic profile interest groups helped get a new regulation past a federal administration with a declared antagonism to new environmental rules.

Decisions about how to use science and scientists must be carefully considered. It is essential to avoid stopping with superficial descriptions such as "science-driven process" but instead to push for explicit decisions about the role science and scientsts will play. There is no right answer, although there are some rules of thumb that jump out from the case studies, including:

- Remember that scientists are people, with motivations and biases like other stakeholders
- Do not assume that all scientists have equivalent expertise or similar views on key issues related to MPA design and management
- Do not separate scientists from other stakeholders
- If there must be a distinct science advisory group, then ensure stakeholders are evenly represented and provide for broad channels of communication to other stakeholder groups
- Do not have scientists alone make maps, even of seemingly noncontroversial features such as topography, oceanography, and habitat types
- Ensure that scientists are selected to match the overall goals (e.g., if rebuilding stocks is a major goal, then include stock assessment scientists)
- Be explicit about the role science will play in the process.

6.2 Process management
To the degree that planners can incorporate or anticipate most or many of the above considerations in the way they plan a stakeholder process, they can ease the job of process management. Process management is dominated by political and policy considerations, leadership issues, conflict management, and reserve design (i.e., map making) (Table 4). It can be helped or constrained by availability of resources, including the capacity of the staff managing the process, and the timing and pace of the process. If these considerations are not integrated during the work of setting the stage, they can become obstacles later. Similarly, if the role of science has been clearly delineated in the planning stage, dealings with science and scientists may not rise to a level that must to be "managed," but simply guided in accordance with the plan.

Table 4. Variation across the case studies in the major features of process management.

Case	Political considerations	Leadership	Conflict management	Map making
San Juan County	Sanctuary legislated by Congress and affected by lack of political leadership County activities motivated by desire to show grass roots success for Congressional delegation	Sanctuary suffered from lack of leadership to support process Effective leadership in opposition	No formal or effective conflict management in sanctuary process	Sanctuary maps were proposed but ineffective County maps made by stakeholders, who identified BRZs
MLPA	Goals and timeline set by law Context of active reserve advocacy	State agency with limited resources and capacity Fragmented leadership statewide in some stakeholder groups	Initial conflict a surprise, no provision for conflict management	Initially conducted by science team in isolation
Channel Islands	Context of active reserve advocacy Shared decision making between state and federal agencies	No single strong leader among stakeholders Science panel affected process through their strong design recommendation	Groundrules for consensus that were not consistenty enforced	Conducted by stakeholder group within % of area constraints established by science panel
Gulf Grouper	Context of active reserve advocacy Existing fishery management framework available History of allocation conflict	Fishery management council and well organized interest groups	Council votes on majority rule, no provision for conflict management	Conducted in public council process (in committees)
Tortugas	Reserves as unfinished business of sanctuary effort History of interstate allocation conflict	Strong and charismatic leadership, skilled facilitator	Groundrules for consensus consistently enforced	Stakeholders produced while working together around table
Horseshoe Crab	Growing concerns over the population and its links to shorebirds Context of environmental protection in political campaign	Scientists, state and federal managers, interest groups	Informal but within rules of administrative procedure and federal rulemaking	Conducted by federal agency staff in consultation with state resource managers and enforcement staff

6.2.1 Political ecology considerations
There are important economic, cultural, and institutional elements that influence how MPAs can be structured, how they will function, and, ultimately how successful they will be in achieving their objectives. Many of these human elements were to a large degree absent from the planning of the MPAs in the case studies, or became a consideration only after MPA boundaries, drawn by scientists and managers, gave rise to objections about their economic effects. The reported ecological and economic benefits of MPAs notwithstanding, the planning, design and designation of areas restricting some or all prior human uses becomes a progressively more political and economic activity (rather than a strictly scientific one) as planning proceeds, and as such requires an understanding of human behavior and institutions. "Political ecology" refers to institutional settings, such as other ongoing resource decision processes, as well as community or stakeholder group decision processes. An MPA process layered over the existing resource management and/or socioeconomic context without any particular accommodation to it is likely to create new costs and conflicts and to be vulnerable to human behavioral dynamics that can distort a design process and divert it from its stated objectives (Hanna 2003).

For example, the initial federal effort in the Northwest Straits failed to understand the political dynamic motivating much of the local resistance to the sanctuary designation effort. It thus missed an opportunity to build bridges to local constituencies by opening satellite offices in key strategic locations. At another level, an undercurrent of political tension between federal agencies participating on the Channel Islands MRWG hampered its ability to achieve its goal of integrating the reserve with existing fisheries management policies. Political considerations can also play an important role within interest groups, either enhancing or diminishing their relative power and/or effectiveness. Thus, sportfishing groups in California and Florida were united in their opposition to important aspects of the proposed closures around the Channel Islands and off the Florida coast, a reflection of their existing organization and leadership. Political considerations at the state and federal level can also affect an MPA planning process, as may have occurred in the horseshoe crab case where the Delaware governor's U.S. Senate campaign was perceived to have benefited from his strong support for the reserve.

The specifics of the political considerations in any one instance can be as varied as the participants involved and are almost guaranteed to vary markedly from process to process. This makes it difficult to develop simple process design guidance that fits all situations. However, an important design principle to remember is that politics exists and it matters greatly. MPA proponents and process managers ignore at their peril the human and institutional context within which MPAs will be designed and implemented. There is no such thing as a strictly "science-driven" process. Any process whose managers believe it is driven only by science run a large risk of being blindsided by the inevitable human and institutional reactions to perceived patterns of costs and benefits, on a variety of levels. However, given the sometimes dominant importance of political considerations, this should not be interpreted as recommending a duplicitous or manipulative process design and management approach. Rather, planners and managers should treat political ecology as the natural expression of inevitable human and interest group dynamics that reflect stakeholders' genuine interests and perceptions.

6.2.2 Constructive partnerships
One way to try to anticipate and perhaps even avoid having interest groups use stakeholder process for political ends is the formation of constructive partnerships with affected parties. For example, establishing partnerships to collect information and monitor the condition of the MPA once designated can contribute to buy-in. In the cases of the gag grouper closures, the Tortugas, and the San Juan County BRZs, the knowledge of fishermen was used to develop site proposals at the outset. After the designation of the gag closure areas, the challenge from commercial

fishermen was turned into a cooperative data collection effort to look at the effect of pelagic trolling in the closed area. The work of a university scientist with eel and whelk fishermen on the Atlantic coast led to successful development of bait bags that eased the loss of the reserve area for horseshoe crab catches. Successful methods for designing cooperative data collection projects between fishermen and government agencies have been reviewed by Bernstein and Iudicello (NFCC 2003) and the National Research Council (NAS 2003).

Constructive partnerships can provide opportunities for interagency communication and work as well. This not only can avoid the stakeholder conflicts inherent in closing areas of the ocean to prior uses, it could avoid additional conflicts that arise when other managers—in fisheries, coastal development, community planning, transportation—begin to work on their respective pieces of the puzzle. Goals developed by cooperating partners could provide a framework for planning at many levels as well as opportunities for coordinating inter/intra-agency information and research. For example, NMFS was able to use a socioeconomic study conducted for the U.S. Fish and Wildlife Service in making its argument to close the horseshoe crab area in Delaware Bay.

6.2.3 Leadership
Effective leadership of MPA stakeholder processes is widely recognized to be critically important and its essential elements difficult to define. Nevertheless, participants in the case studies were clear in their judgments about when effective leadership had (or had not) been exercised.

In the early federal effort to establish a sanctuary in the Northwest Straits, U.S. Representative Lowry provided the initial high-level political leadership that helped to jump-start the process. However, after that, there was an apparent absence of consistent leadership and commitment from both state and federal elected and/or appointed officials. This was paralleled by an equally debilitating perception of a lack of consistent leadership at the process level, related to facilitation and conflict management of a large-scale and potentially volatile initiative. In contrast, the later county-led effort to establish bottomfish recovery zones was led collectively but effectively by county commissioners, building on a broad base of popular antipathy for any process led from outside the region.

In the MLPA case, the state agency's lack of institutional capacity ("we're biologists, not facilitators") hamstrung agency managers' ability to provide effective leadership for the process of designing a statewide network of MPAs. In this case, managers' efforts to provide leadership were counterproductive until they had accumulated enough practical experience to begin making more informed decisions about the process design. They were provided the breathing space to do so by the collaborative action of several stakeholder groups that persuaded the California Legislature to extend the deadline for establishing the MPA network. However, at a more fundamental level, the initial decision to place (or leave) biologists without process design knowledge in charge of MLPA implementation indicated that at the policy-making levels of the agency there was insufficient understanding of the potential for conflict and controversy in this process.

Somewhat different leadership issues arose in the Channel Islands case. The sanctuary convened the MPA process but also had a voting seat on the stakeholder group (MRWG), a potential conflict of interest that engendered an undercurrent of suspicion among some participants about the sanctuary's motives. In the Tortugas, in contrast, a charismatic and popular leader helped inspire collaboration while a strong and skilled facilitator shaped and implemented an effective process.

De facto leadership can also come from unexpected quarters, as the role of scientists in two case studies illustrates. In the horseshoe crab case, Dr. Carl Schuster, a widely respected scientist, pointed out that the "heart of the spawning population" at the center of Delaware Bay had not been protected and suggested a closed area. His stature and credibility were such that this suggestion was sufficient to initiate the successful effort to designate the reserve, even though the idea of a closed area had not entered any of the previous years' discussions about reducing fishing mortality. In the Channel Islands case, the science panel's recommendation that a minimum area be set aside in the reserve framed the MRWG's map making and negotiations throughout the remainder of the process.

In addition to leadership at the larger political and process management levels, leadership at the interest group level also played an important role in several cases. Unless stakeholder representatives can speak for their constituents, and communicate to them what is occurring in the process, they will be ineffective. While representatives' ability to usefully communicate with their constituents can be constrained by resources (e.g., time and money for outreach), their perceived stature in their community is typically even more important. In the early stages of the effort to designate a sanctuary in the Northwest Straits, leadership from national environmental groups was not well received in the region. Although these groups did much of the communication and advocacy at the sanctuary program level, they were not seen as "speaking for" local residents who would be affected by a designation, largely regardless of their view of the proposal.

Two other factors were apparent from the case studies. First, the scope of action of stakeholder representatives is limited by their constituencies' willingness to modify their own positions. For example, one group of commercial fishermen in the Channel Islands process disavowed their representative when he moved too far out in front of them. Similarly, commercial fishing representatives on the Gulf council who initially went along with the notion of closures for gag grouper were overtaken by grassroots efforts by their constituents who were opposed to the notion. Second, the most visible person, such as a stakeholder representative, may not be the actual leader. Other people who work more in the background may exert more influence. It is an essential part of the political scoping process to identify these leaders.

The case studies make clear that there is no one locus of leadership sufficient for complex MPA designation processes. Rather, leadership is needed at the following levels, at a minimum:

- The political level that initiates the process, ensures that adequate resources and institutional support are available, and, if appropriate, uses the bully pulpit to inspire public support
- The upper levels of involved agencies that ensure a practical approach to planning and a consistent commitment and follow through on decisions
- The process level where facilitation, negotiation, and conflict management skills are crucial, and their consistent management essential
- The interest group level, where perceived stature, relationships with constituents, and communication skills are important.

In addition to a multilayered model of leadership, some of the cases showed that the locus of leadership can shift as the process evolves through different phases. Thus, the characteristics needed for the start-up and organizational phase are different from those needed for the negotiation and closure phase. For example, while Dr. Carl Schuster provided needed leadership to initiate planning for the horseshoe crab reserve, it was the Department of Commerce that managed the mechanics of the federal rule making process that implemented the reserve.

The management literature is replete with treatises on leadership in a wide variety of management contexts, many of them directly relevant to the process of MPA design, which is typically characterized by uncertainty, shifting circumstances, and stakeholders with their own power base. A set of leadership traits considered valuable in such situations includes:

- Intelligent and highly skilled leaders with a penchant for boldness and initiative
- A tolerance for errors as an essential part of a leader's learning process
- An ability to generate trust through confidence building and familiarity
- Relationship building based on honesty and frankness
- The primacy of the human element (as opposed to technology or rigid procedures) in decision making and leadership
- An understanding that effective communication is based on mutual understanding, built through shared experience
- A willingness to foster communication through long-term working relationships and direct, face-to-face contact
- An ability and willingness to demonstrate personal leadership through physical presence and involvement
- An understanding that MPA decision-making environments are typically chaotic, uncertain, and changing
- An ability to demonstrate flexibility, adaptability, and opportunism in taking advantage of changing situations.

Effective leadership is essential not only for initiating MPA design processes but for managing the conflict that inevitably arises.

6.2.4 Managing conflict

Conflict is unavoidable in any process that involves investigating and selecting new ways to manage and use natural resources. By their very nature these processes threaten the status quo, the practices, ways of life, and belief systems that have, sometimes for generations, defined and shaped individuals and communities. Whether one is a commercial fisherman, a Native American with treaty rights, a federal resource manager, or an environmental activist, the stakes involved are inextricably connected to deeply held values. And whether conscious or not, these values frequently inspire more reactive, positional bargaining, and seemingly intractable conflict.

While conflict may be unavoidable and even welcomed – a pearl is created by grains of sand rubbing against each other, the old adage goes – it does not have to dominate a process or necessarily cause it to degenerate into a series of counterproductive, polarizing, and divisive encounters. If managed carefully and strategically, conflict can be transformed into an opportunity to explore new ways of bringing people and communities together for common purposes (See e.g., Wondolleck and Yaffee 2000). Each circumstance is different, but, generally speaking, there are three levels at which value-laden conflicts can be addressed (Susskind and Field 1996).

First, skilled facilitation can assist stakeholders to discover and agree on shared principles and values. In the MPA context, these will typically focus on the desired status of resources. This may be as simple as agreeing that fish stocks are not as robust as they once were, or agreement that participants want to ensure their grandchildren enjoy the same opportunities they have had. Or perhaps the shared value is autonomy – the desire to create bottoms up, grassroots solutions to commonly understood problems. However, shared principles alone will not avoid conflict if the

available implementation alternatives result in fundamentally different costs and benefits for various stakeholder groups.

The second level involves reaching agreement on processes for relating to each other, making decisions, gathering and releasing information, and managing disagreements. The experience of developing these processes can build relationships and trust, often transforming the way participants view each other, their values, and their positions. Without agreement on how participants will behave, the process manager faces the risk of end runs, release of information prior to agreement by parties seeking competitive advantage, or repudiation of the ultimate outcome.

The third level entails ongoing and fundamental shifts in participants' view of themselves and their values as specific decisions are framed and negotiated. This can occur over time as individuals work closely with their opponents, identifying and solving problems based on shared principles, breaking down stereotypes and discarding false constructs. In practice, this is a very difficult step to accomplish because it involves an altered sense of the way people view themselves in relation to an issue or problem. Because of this difficulty, there are often limits on the degree to which participants' core views will shift throughout a process. However, the environment for making such shifts can be improved by carefully selecting peripheral issues to focus on early in the process where values overlap.

The San Juan County case study illustrates a process that became mired in value-based conflict over the designation of a national marine sanctuary in the region. With one camp adamantly opposed to the federalization of resource management and the other skeptical of local communities' ability and willingness to adequately protect resources, the process degenerated into reactive, positional standoffs. Despite its failure, however, the sanctuary process planted important seeds of future success. Motivated by the possibility of outside control of local resources, communities organized around the shared principle of autonomy and began to discover that they in fact had more in common than they thought. The groundfish resource was in trouble, they agreed, and they began working to identify problems and devise solutions.

Similarly, earlier efforts that fell short in the Florida Keys National Marine Sanctuary designation process laid the groundwork for the eventual success of the Tortugas reserve. These helped to clarify objectives, build relationships among key stakeholders, develop local leadership, and resolve sources of resistance. An analogous situation may be evolving in the MLPA process, in which agency managers and stakeholders learned from the initial failure and revised the planning process around a set of multidisciplinary regional stakeholder groups. The common, and important, theme in these three cases is that "the story is never over." Because MPAs are place-based, the resource issues and the community of stakeholders remain in place, with some necessity for interaction, even after a particular effort fails. This provides ongoing opportunities for learning from mistakes and for making multiple approaches to the problem of MPA designation.

The Tortugas and Channel Islands cases provide another informative insight into conflict management, and the way in which the structure of the process can foster self management of potentially disruptive conflicts. The planning process in both cases strove for consensus and both faced last-minute resistance from sportfishing stakeholders. In the Channel Islands case, this prevented consensus in the MRWG, with the result that the sanctuary manager developed recommendations based on the MRWG's work and forwarded them to the state Fish and Game Commission for approval. In contrast, other stakeholders in the Tortugas effort were reported to have quashed the last-minute resistance in that instance to arrive at a consensus. While the exact

reasons for group behavior in complex situations are often impossible to determine, it may be that:

- The Tortugas process, which included all stakeholders (including scientists) in one workgroup, bonded the stakeholder group more tightly and developed a confidence that stemmed from having worked through the science first hand. In contrast, the Channel Islands MRWG did not have as much first-hand experience with the science because the science panel was a separate entity,
- The number of affected parties in the Tortugas process was smaller and more localized than in the Channel Islands, or
- There may have been social mechanisms available to the Tortugas participants (perhaps because of the small size and physical insularity of the Keys) that were not available to stakeholders in the Channel Islands. Thus, given that the sportfishing resistance in the Tortugas process apparently originated with organizations headquartered outside the Keys, there may have been more of a natural us vs. them reaction to outsiders that wasn't as strong in the Channel Islands.

A useful lesson from this comparison is that the opportunities and tools for managing conflict in a particular situation depend in part on the intersection between the design of the process itself and the local sociology of the stakeholder communities.

6.2.5 The role of maps and map making
There are three important aspects to maps – the process by which they are made, the information they contain, and how, when, and by whom they are used, which can include the following:

- Organizing available information and identifying data gaps
- Starting discussion
- Defining proposals and alternatives
- Negotiating
- Framing "what-if" scenarios
- Analyzing logistical implications for implementation.

The three aspects of map making are not completely independent. For example, maps made without input from all stakeholders (as in the MLPA case) will contain only limited information. Maps made without input from enforcement agencies can end up being changed so substantially for enforcement purposes that they undo carefully negotiated boundaries. Conversely, if maps are intended to contain as much useful information as possible, then only a collaborative process will create the trust necessary for participants to open up their databanks (as in the Tortugas case). Similarly, maps intended to be used as conversation starters should be produced with a different process than maps intended as negotiating tools. For the former, sufficient preparation is required so the maps are not misinterpreted when they are produced (as occurred in the MLPA case). It can also be more productive to have stakeholders build such initial maps themselves. For maps intended as negotiating tools, participants must have been involved enough in the map production to trust the information they contain.

When in the overall process maps are produced and/or revealed depends on the three aspects listed above. There is no one correct time to produce maps. In the Tortugas process, maps were used early and successfully as conversation starters and to elicit information from resource users. Maps intended as a serious negotiating tool might be produced later in the process, after stakeholders have explored their values, desired outcomes, and motivations, and after the

negotiating process has been decided on. On the other hand, maps intended to help in eliciting data can be developed early in the process.

The map-making and manipulation technology available also influences the way maps are produced and used. The GIS system available in the Channel Islands facilitated the use of maps as a negotiating tool. Similarly, GIS was used to provide several alternative choices for the Gulf Fishery Management Council in its selection of the size and location of closed areas to protect gag grouper. In contrast, the static nature of the maps produced in the MLPA process contributed to the perception that these were a done deal, despite the agency's statements to the contrary. Stakeholders had the experience of seeing fixed lines on maps and this dominated their perception, especially given the fact that the maps were produced in relative isolation by the science planning team.

The Tortugas process included a relatively structured procedure to organize the development of boundary alternatives. This involved splitting stakeholders into smaller groups, each containing a variety of stakeholders. Each group was then asked to develop alternative proposals and ranking criteria in accordance with that group's consensus of priorities. The process was used over and over until just two proposals were generated, and resulted in consensus among diverse stakeholders. A similarly structured process was used in the Channel Islands case, where the GIS system was used to estimate the economic impact on each user group of a large number of alternative reserve boundaries. These methods contrasted sharply with that used in the Gulf grouper case, where maps resulted from a comparatively unstructured negotiation process.

The cases do not suggest one particular approach to map making that fits all situations. Rather, they emphasize the importance of recognizing the variety of purposes maps may serve, making clear and widely communicated decisions about the purpose(s) maps are meant to accomplish in any particular instance, and ensuring that the process structure supports that purpose.

6.2.6 Planning resources
Stakeholder processes can absorb as many resources as agencies make available. Although all the money in the budget won't necessarily guarantee a perfect process, a total absence of fiscal support and the technical and administrative resources it buys is a guarantee of dissatisfaction. Without going into extensive detail on all aspects of the resources needed to support a stakeholder process (agency staffing, participant travel and per diem, communication, facilities, technical support, information management and so forth), it is useful to highlight a few resource issues that relate specifically to the capacity and skill sets of process managers.

Taking a stakeholder process from initial MPA proposal through discussion, conflict management, conclusion, recommendation, and follow up is not a set of tasks to be tossed lightly into the "other duties as assigned" category. Managing a stakeholder process is time consuming and requires intensive, hands-on work that will be difficult to wedge into the normal tasks of managing a sanctuary or a fishery. More importantly, the set of skills required to plan and conduct meetings, help participants build trust, move a group toward consensus or away from conflict are not necessarily within the experience of ecologists, stock assessment scientists, ship captains, regulatory specialists, or similar resource management backgrounds.

Criticisms that arise when resource agencies try to manage stakeholder processes internally include:

- Insufficient front-end planning

- Dual roles of agency staff as convenors/facilitators, process participants, and ultimate decision makers
- Mistrust that agency staff will be able to set aside policy preferences or points of view and be neutral listeners
- Inadequate use of external resources including sources of funds, facilitation expertise, communications skills
- Conflicting pressures on staffers to protect resources and satisfy user groups
- Susceptibility to influence of campaigns by external groups.

The cases suggest a need for sufficient resources to engage an outside, professional facilitator, as well as agency commitment to permit involved staff the time needed to give full attention to process management. Resource management agencies typically have within their staffs more than just science skill sets. Constituent relations, education, policy, training, and technical assistance skills are often to be found among the agency's own personnel or within sister agencies. Even if these staff members are not directly conducting processes, they can provide a pool of expertise and advice for resource managers coming from a more traditional science background. In addition, many management agencies have access to technical assistance from the MPA Center's Training and Technical Assistance Institute or the U.S. Institute for Environmental Conflict Resolution.

6.3 Decision making
Virtually all MPAs in the United States stem from a statutory authority and sit within an overarching agency structure. More often than not, the end of a stakeholder process—even one resulting in a "decision"—is not where the decision to designate an MPA occurs. Just as important as being clear at the outset about goals and procedures is the need to be clear with stakeholders about downstream decision making. First, what kinds of decisions are they making, how they will make them, and are they decisions or recommendations? Second, if the latter, where do stakeholder decisions go and how they are treated? The answers to these two questions are important not only because they should shape the structure of the process and the kinds of skills needed to manage it, but also because there is nothing that destroys buy-in more than taking a group of stakeholders through a complex process and then having the ultimate decision appear to ignore what they produce or recommend by opting for a different solution. For example, one knowledgeable member of the Channel Islands MRWG commented, "There was some confusion about how much authority the MRWG actually had. It was advisory to an advisory group [the Sanctuary Advisory Committee] that was going to advise the sanctuary manager who was going to advise the Fish and Game Commission. People got really exercised about the MRWG and tended to think there was a lot more power and authority there than there actually was." That is not to say there may not be MPA designations where the process takes a less inclusive form, such as notice and comment rulemaking. However, if that is the procedural requirement, then stakeholders must be clearly informed. Table 5 illustrates degrees of control in the resource management agency or with stakeholders, and how the six cases fall along the spectrum.

Table 5. Types of decision-making processes possible in MPA designation efforts. Of the six case studies examined, the Gulf grouper and horseshoe crab cases fall into Category 2, the Channel Islands and Tortugas cases fall into Category 3, the San Juan County case falls into Category 4, and the MLPA case begain in Category 1 and then moved to Category 2.

Type of decision process	Communication style	Management style	Accountability	Authority	Stakeholder role
1. Management agency has authority, makes the decision, then informs stakeholders	Telling	Directing	Agency accountable and responsible	Management agency in control	Stakeholders are told about, but not involved in, decision making
2. Management agency gathers input from stakeholders before deciding	Selling	Coaching	Stakeholder input gathered as part of process	Management agency in control	Stakeholders are consulted and may have input into decision
3. Stakeholders decide and recommend actions for the agency to implement	Participating	Facilitating	Accountability is shared	Stakeholders set direction and agency takes action	Stakeholders provide decision to agency, which then implements
4. Stakeholders decide and act to implement	Delegating	Liaisoning	Stakeholders accountable and responsible	Stakeholders set direction and take action	Stakeholders decide and implement decision

Decision making occurs at numerous stages during MPA consideration, from initiation of a proposal to final designation and management. In the cases at hand, stakeholder groups were the source of proposals to create MPAs in San Juan County and the Florida Keys; scientists were the source of the closed area proposals in Delaware Bay and the Gulf of Mexico, recreational fishermen prompted consideration of MPAs in the Channel Islands, and conservation groups and resource management programs initiated the MLPA process on the California coast. In each of these cases, the proposal to consider an MPA was taken forward by decision makers (program managers) in the respective agencies.

In the Gulf grouper and horseshoe crab cases, the requirement for public participation and the nature of that process are laid out in fishery management statutes, regulations, and operating procedures of the councils and commissions. But even given the long history these bodies have, participants are not always clear on decision rules and process. During the debate over the gag grouper closures, for example, jurisdictional questions arose about highly migratory species and it was made clear the council did not have authority to manage them by closing an area. In addition, a controversy arose over the receipt and inclusion of public comments from outside the region, comments by email, or comments generated by activist campaigns. In the horseshoe crab process, new participants didn't understand the succession of steps, the way science was incorporated, or the risks of skipping procedural requirements in their preference for emergency action over rulemaking. While the gag grouper process was criticized by many for not being better organized, not having any mechanism to reach consensus, and not having a separate stakeholder process, it nevertheless used existing decision-making structures to achieve its goals. Thus, planners should not always assume, as the default option, that an MPA designation effort must necessarily have its own separate design process.

In contrast to the Gulf grouper and horseshoe crab cases, processes for the Channel Islands and Tortugas were created solely for the purpose of considering MPAs. The programmatic authority for sanctuary management in the Channel Islands allowed managers latitude in how they would approach revisions to the management plan. Similarly, the Tortugas 2000 group provides a textbook example of structured decision-making process. This, too was enabled by the authority in the sanctuary program, the statute creating the Florida Keys National Marine Sanctuary, and the sanctuary management plan.

Section 6.1, on stage-setting, emphasized the importance of clear goals. Goals may originate with either stakeholders or the agency, and may also stem from the legal authority for MPA designation or resource management. It is important that process managers make clear at the outset if the MPA designation relates to some statutory purpose, and to what degree that legal authority will guide (or constrain) decisions stakeholders want to make. For example, if the legal basis for a closed area is fishery management under the Magnuson-Stevens Fisheries Conservation and Management Act, stakeholders should recognize they are considering an MPA as a means to a fishery management end rather than a broad biodiversity protection goal, which would not be supported by the underlying authority. Conversely, programs that are authorized primarily to conserve ecosystem integrity and biodiversity, such as the National Marine Sanctuaries, are not intended nor necessarily equipped to devise and successfully pursue an MPA planning process focused on fisheries objectives.

Finally, it is crucial that stakeholders understand not only what decisions they may make, but also what happens after they make them. While it may not be necessary to educate stakeholders in all the arcane details of federal administrative procedure, it is useful to process managers and the participants in their stakeholder groups to have a grasp of "the black box" so they know what to

expect, know when and how to communicate to the next stage in the decision process, and do not have unreasonable or inaccurate expectations of decision outcomes.

For example, in the first attempt to create reserves within the Florida Keys National Marine Sanctuary, advocates had support from federal program managers, national interest groups and parts of Florida's congressional delegation. They pressed forward understanding the need for state approval, but without a complete grasp of the potential for local resistance. The campaign to set aside ecological reserves became wrapped up in state and local elections and the key decision makers turned out to be the governor and the state cabinet. In the second attempt, the Tortugas 2000 process carefully pulled all agency decision makers into the discussion at the beginning, not the end. In the Channel Islands process, even though sanctuary staff informed the MRWG participants that the sanctuary manager was required to make a recommendation to the Fish and Game Commission, even in the absence of a MRWG consensus, many participants were still outraged when that occurred. It is crucial to keep reminding participants what the decision process and timeline is, especially when a portion of it includes a consensus-based effort.

The authority for decision making about MPA designation may be dictated by national policy or set out in statute or other underlying legal framework. Requirements and procedures for stakeholder process may also stem from specific statutes, in addition to overarching procedural requirements on federal action such as those found in the Administrative Procedure Act, National Environmental Policy Act, executive orders, and other guidance. Decisions about designations are influenced by everything from presidential politics, to Congressional priorities, to local recreation preferences. The take-home message for process managers is not to try to control all these aspects, but to be aware of them and to shape and inform stakeholder processes to meet underlying structure and evolving circumstances. Figure 11 illustrates the susceptibility of decision making at every stage to both internal constraints and external influences.

Figure 11. Influences on Decision Making. A proposal to designate an MPA can originate with a change in resource status; arise through the underlying resource management authority, such as a mandated review process; be initiated by a constituent group or new scientific information. Stakeholder processes may be required public involvement steps in resource management statutes or administrative procedures, or could be convened by interested constituents, resource managers or third parties. Depending on their context, stakeholder processes may have mandates and constraints based in statute or regulation, and are subject to both internal (goals and motivations) and external influences. What is critical for design planners and managers to recognize and communicate to participants in such processes is that decision making authority to designate an MPA may lie elsewhere than the stakeholder process, and that once the outcome or recommendation of that process is passed on, there are mandates, constraints and influences on the final decision, just as there were in the stakeholder process.
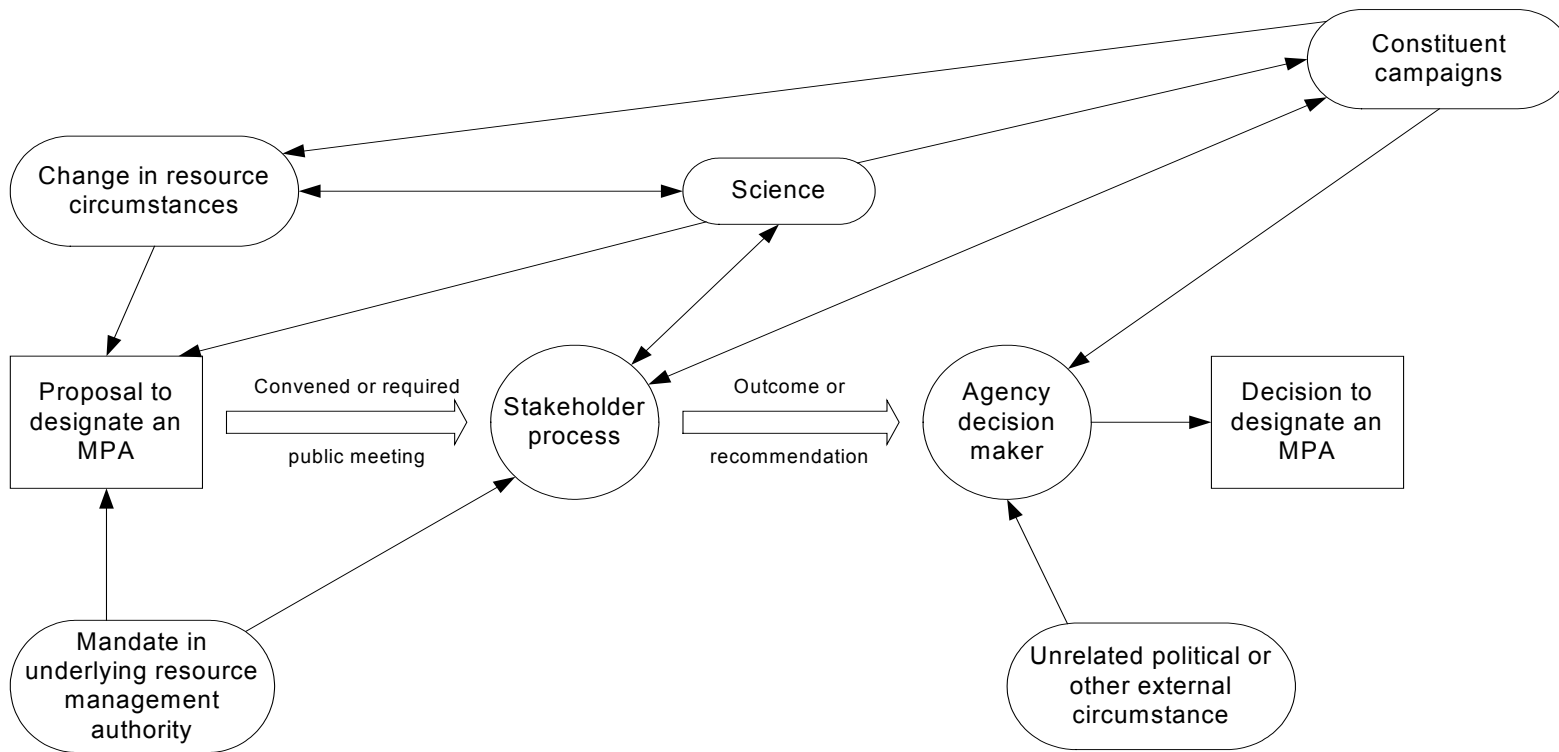
6.4 Evaluation

Some sort of evaluation and/or monitoring process is widely accepted as an essential part of virtually all management efforts, in both the business and resource management arenas. Without objective feedback, it is impossible to determine whether goals have been or are being met or whether the management process itself is efficient and effective. These two aspects of performance evaluation are somewhat different, and will be treated separately in the following subsections. Because none of the case studies has yet had the opportunity to demonstrate a functional monitoring and evaluation system, the following discussion summarizes fundamental principles essential to the design of such systems.

6.4.1 Evaluating process efficiency and effectiveness

An equivalently wide array of qualitative evaluation methods is available for determining the effectiveness of MPA design processes. However, these will be more difficult to apply than the quantitative monitoring methods just discussed. This is because it is extremely difficult to develop widely accepted criteria for process success, as the case studies amply illustrate. For example, the earlier federal effort to establish a sanctuary in the Northwest Straits was widely accounted a failure. Yet, without this prior failure, it is just as widely accepted that the subsequent locally-managed effort to designate bottomfish recovery zones would not have been successful. Similar patterns of relationship between later success and earlier failure can be found in the MLPA and Tortugas cases. The Gulf grouper case is seen by some participants and observers as a messy, conflict-ridden process that violated many best practices of collaborative management and problem solving, Yet, this is also an excellent example of the successful implementation of an MPA through the conventional fishery management process and, as such, is counted as an important success by other observers with a somewhat different perspective.

Despite these complications, there are some criteria that can help to assess whether an MPA designation process was effective, including:

- Did the process include an initial best-practices assessment by a neutral third party to identify relevant issues?
- Were the results of an initial assessment actually used in developing a process design?
- Did the process designate an MPA?
- Does the MPA adhere to the goals established by the designation process?
- Does the MPA design take account of the best available ecological, fisheries, and socioeconomic knowledge?
- What was the degree of support for the designation among stakeholders?
- Were relationships among stakeholders damaged to such an extent by the process that it undermined the possibility of future collaborative efforts to manage the MPA?
- Is there an evaluation strategy that will operate into the future?

An important lesson from the case studies is that evaluation should not be seen as a one-time effort. The case studies show that starting and ending dates for designation efforts are largely arbitrary. These efforts sit in a larger context defined by the ongoing relationships among stakeholders and the system(s) operating to manage resources. In this sense, these stories are never over.

6.4.2 Monitoring progress toward goals

The more clearly MPA goals are stated, the more straightforward it will be to measure progress toward them. For example, it will be conceptually simple to measure progress toward one of the primary goals of the Gulf grouper closure, i.e., restoration of normal sex ratios in the population.

On the other hand, progress toward the "sustainable fisheries" goal in the Channel Islands case will be difficult to measure because sustainable fisheries can be defined in so many different, and equally legitimate, ways.

A monitoring or evaluation system cannot create quantitative measures of progress where goals are vague, general, or open to widely differing interpretations. This is why best practices in monitoring program design (e.g., NRC 1990) emphasize the central importance of concrete objectives and testable questions and/or measurable targets. Where concrete objectives result from the MPA designation process, the methods described in NRC (1990) provide a useful guide to monitoring design. However, it is often the case that even concrete MPA goals may require long periods to achieve. In such cases, monitoring with an extremely long time horizon may not provide useful feedback in a reasonable length of time. If an MPA is not functioning as expected, then the sooner this information becomes available, the sooner productive adjustments to the MPA design can be made.

Where time horizons are long, monitoring can and should focus on interim benchmarks of progress that reflect an underlying mechanistic understanding about how the MPA is expected to produce its desired effect(s). For example, imagine an MPA that is intended to produce enhanced spillover of larvae to surrounding populations because of the presence of greater numbers of larger females. In this instance, managers should press for explicit predictions about both the timeframe and the magnitude of the following key benchmarks:

- Increased numbers of females in the MPA
- Increased size of females in the MPA
- Increased reproductive output of females in the MPA.

Even granted that exact predictions are not possible, expected ranges should be used as the basis for the statistical design of a monitoring program to determine whether these changes are occurring. If these interim changes do not occur, then there would be no chance that the MPA would operate as expected. MPAs designed to achieve concrete goals will (or should) always be based on some set of assumptions about the processes that will lead to these changes. Once these assumptions are made explicit, they can form the basis for establishing benchmarks than can be monitored for (see the discussion on conceptual models in Chapter 4 of NRC (1990)).

Where concrete goals cannot be established because of the nature of the MPA, then a secondary process may be required to develop criteria for a monitoring program. This is because an efficient monitoring program must focus on specific indicators and must be designed to detect some amount of change at some place and time. For example, the legislation (MLPA) mandating the statewide network of marine reserves in California merely called for improving the management of MPAs to achieve broadly stated resource conservation and protection goals. The science plan team that produced the initial design proposal, as well as the regional workgroups that extended the science team's efforts, have not gone beyond relatively simple statements about protecting specific habitat areas or avoiding excessive economic impact. Such goals are useful for MPA design but inadequate as the basis for monitoring. As another example, the Channel Islands National Park has conducted a long-term ecosystem monitoring program in many of the areas recently set aside in reserves in state waters. While suitable for tracking success in some respects, this program is not suitable for assessing progress toward the sustainable fisheries goal because it has not monitored commercially caught species.

6.4.3 A conceptual model for designing evaluation systems
Despite the complexity of ecological and institutional systems, a simple conceptual model can help determine if a monitoring/evaluation system is adequately designed. This model has three levels of design and three levels of measurement and is based on the core assumption that any evaluation must be based on an understanding of the system being measured. This understanding can range from completely qualitative to specifically quantitative (see discussion of conceptual models in Chapter 4 of NRC (1990)).

The three levels of design are:

- The ultimate intention or goal (e.g., Success is ….)
- The system we interact with
  - o The whole and its parts
  - o How things work
  - o Processes and feedbacks
- The mechanisms used to effect change
  - o Tracking milestones
  - o Measuring results of actions.

In other words, an MPA design, and the evaluation system used to assess its performance, should clearly define the goals, describe how the system (ecological or institutional) is thought to work, and define the mechanisms or actions that will be taken to achieve the goals.

Three levels of measurement correspond to each of these design levels:

- Measures of ultimate success (e.g., whether grouper sex ratios have returned to normal)
- Periodic assessments, as new knowledge is gained, of the adequacy of the underlying conceptual model(s)
- Monitoring of interim milestones or benchmarks to determine whether the system is moving as expected in response to the MPA.

This evaluation model, though simple in structure, will fit virtually all situations.

7.0 Findings and Recommendations

A case study analysis inevitably leads one to conclude that site-specific circumstances are different and that "all politics is local." But while process managers should remember that there is not one size or shape or type of stakeholder process that fits all MPA discussions, there are also some universal lessons that can be drawn from the events that took place in the six designations examined.

7.1 Setting the stage
7.1.1 History
Finding
Process planners ignore context and history at their peril. History is critically important and the nature of its influence will differ from instance to instance. As a rule of thumb, past history (e.g., with management agencies, other stakeholder groups) will always provide insight into the current situation, as well as guidance on achieving leverage (either from going with or against the grain of past events).

Recommendation
Early planning efforts must include a thorough assessment of past history and its potential effects on stakeholder perceptions and the goals they will agree to, as well as on their willingness to participate in any planning process, and the sorts of process structures and groundrules they will accept.

7.1.2 Motivation and goals
Finding
The immediate motivation or impetus for an MPA designation effort plays a key role in determining explicit goals and objectives.

Recommendation
Process managers must have a grasp of the underlying authority for a designation process, as well as the ability to articulate this authority and use it to frame the process as needed. More importantly, they must seek to ascertain what actions and interests are using authority. In other words, who or what is the driver? Change in resource status? Change in agency policy? Interest group campaign? Statutory deadline? In addition, they must have a vision of the process steps from beginning to end, not just the stakeholder participation stage.

Finding
Different stakeholder groups and individuals will may have divergent and sometimes mutually exclusive goals or desired outcomes for the process, and may have different motivations for participating.

Recommendation
Design and manage MPA processes with the expectation that stakeholder motivation and goals will differ, creating the potential for disagreement and/or conflict.

7.1.3 Process design
Finding
The lesson of the diverse case studies is that each instance has attributes that require the planner to make distinctions and design the process to the circumstances. One process design will not fit

all situations, i.e., one size does not fit all. The amount of planning and structural process complexity varied widely across cases and apparently had little direct relationship to overall success. Rather, a key correlate of success appears to be the extent to which the structure matched the fundamental purpose of the effort.

<u>Recommendation</u>
Processes should incorporate appropriate flexibility and adaptability. Convenors and process managers should look at the full array of decision tools that are available and not feel locked into a complex consensus model or a rigid fishery management model. It may be possible to use some aspects of the more complex collaborative processes within the constraints of fishery management, or to use the faster pace and deadlines of fishery management in a situation with broader goals. It can even be useful to consider moving the process from one venue to another as the nature of the problem shifts or evolves, which could involve adjusting the number and kinds of participants and/or meetings.

7.1.4 Science role
<u>Finding</u>
Any manager who believes a process is driven only by science runs a large risk of being blindsided by the inherent uncertainties and disputes within the science community and by the inevitable human and institutional reactions to perceived patterns of costs and benefits, on a variety of levels. Decisions about how to use science and scientists must be carefully considered. It is essential to avoid stopping with superficial descriptions such as "science-driven process" but instead to push for explicit decisions about the role science and scientsts will play.

<u>Recommendation</u>
- Remember that scientists are people, with motivations and biases like other stakeholders
- Do not separate scientists from other stakeholders; if there must be a distinct science advisory group, then provide for broad channels of communication to other stakeholder groups
- Do not have scientists alone make maps, even of seemingly non-controversial features such as topography, oceanography, and habitat types
- Ensure that scientists are selected to match the overall goals (e.g., if rebuilding stocks is a major goal, then include stock assessment scientists)
- Be explicit about the role science will play in the process.

7.2 Process management
7.2.1 Political ecology considerations
<u>Finding</u>
Even processes that have much to do with application of scientific information to resource questions are significantly affected by their political settings and the push and pull of how user groups perceive the potential impacts of the proposed MPA(s). Allocation, socioeconomic concerns and political considerations may take on a dominant importance.

<u>Recommendation</u>
Planners and managers should treat politics as the natural expression of inevitable human and interest group dynamics that reflect stakeholders' genuine interests and perceptions. They are part of the policy process and need to be recognized, accommodated and planned for. Such interest group dynamics often lead to conflict, which (see below) should be seen as a natural part of such complex processes.

7.2.2 Leadership

<u>Finding</u>

Effective leadership of MPA stakeholder processes is critically important, but its essential elements are hard to define. Participants are clear about when effective leadership has (or has not) been exercised. Further, there is no one locus of leadership sufficient for complex MPA designation processes.

<u>Recommendation</u>

Leadership is needed at the following levels, at a minimum:

- The political level that initiates the process and ensures that adequate resources and institutional support are available,
- The upper levels of involved agencies that ensure consistent commitment and follow through on decisions,
- The process level where facilitation, negotiation, and conflict management skills are crucial, and
- The interest group level, where perceived stature, relationships with constituents, and the effective framing, control, and communication of a core message are important.

7.2.3 Conflict management

<u>Finding</u>

Conflict in resource management decisions is unavoidable, but it does not have to dominate a process or cause it to degenerate into a series of counterproductive, polarizing, and divisive encounters. If managed carefully and strategically, conflict can be transformed into an opportunity to explore new ways of bringing people and communities together for common purposes. Opportunities and tools for managing conflict in a particular situation depend in part on the intersection between the design of the process itself and the local sociology of the stakeholder communities.

<u>Recommendation</u>

Each circumstance is different, but, generally speaking, there are three levels at which value-laden conflicts can be addressed, and this should be done through the use of skilled, experienced facilitators. They can:

- Assist stakeholders to discover and agree on shared principles and interests,
- Help participants reach agreement on processes for relating to each other, making decisions, gathering and releasing information, and managing disagreements, and
- Guide ongoing and fundamental shifts in participants' view of themselves and their values as specific decisions are framed and negotiated.

7.2.4 The role of maps and map making

<u>Finding</u>

It is important to recognize the variety of purposes maps may serve and to make clear and widely communicating decisions about which of these purpose(s) maps are meant to accomplish in any particular instance. The process structure should then be adapted to support that purpose.

<u>Recommendation</u>

Process planners should consider three important aspects to maps – the process by which they are made, the information they contain, and how, when, and by whom they are used. Possible applications include:

- Organizing available information and identifying data gaps
- Stimulating discussion
- Defining proposals and alternatives
- Supporting negotiation processes
- Framing "what-if" scenarios
- Analyzing logistical implications for implementation.

7.2.5 Resources
<u>Finding</u>
Stakeholder participation and process is an expensive, time-consuming, staff intensive undertaking. Attempting to conduct stakeholder processes in conjunction with ongoing programmatic or resource management responsibilities carries significant risk. Further, agency staff may have neither the capacity nor skill sets to conduct complex consensus or conflict resolution processes.

<u>Recommendation</u>
Always ensure that key program staff are formally assigned to manage the process from start to finish, and that they have the experience, stature and core skills needed to understand and influence its evolution, and to successfully flag and negotiate emerging issues with the program leadership. Where possible, use third-party process managers from the outset. If this is not possible with given resources, at a minimum use neutral third-party professional facilitators.

7.3 Decision making
7.3.1 Finding
Decision making occurs at numerous points in the MPA deliberation process, and it is critical that stakeholder participants understand the decision role they play, and what happens to their decisions or recommendations once their process is concluded.

7.3.2 Recommendation
Process planners should know the answers to the following questions, and be able to communicate them as needed to participants. This may need to be done at several points in the process to be sure stakeholders do not lose sight of where they fit in the overall resource management picture, or conceive unrealistic expectations about the outcome of their deliberations.

- If enabling legislation does not spell this out, is the process collaborative, consensus building, or just input for the agency?
- Where does the decision-making authority lie?
- How does the agency decision-making process work if there is already a local process underway?
- What are the timeframes for decision making?
- Is there a clear set of rules and process descriptions?
- Are there 'triggers' or milestones set up front?
- How do different groups see the components of the process?
- Where do decisions go, after constituents have been involved?
- How do agencies retain discretion on action if the process does not produce a usable outcome?

7.4 Evaluation

7.4.1 Finding

Despite its importance, MPA designation processes are inconsistent in the extent to which they develop and implement evaluation systems.

7.4.2 Recommendation

Evaluation should focus on both the degree to which an MPA is meeting its stated goals and on the effectiveness of the designation process itself. The clearer the MPA's goals are, the easier it will be to design an adequate monitoring system. Where goals are less clear, a secondary process may be required to establish interim and longer-term monitoring targets or benchmarks. A relatively simple model can be used to structure evaluation systems for both ecological and institutional evaluations.

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9.0 Appendices

9.1 Appendix A: List of acronyms

ASMFC   Atlantic States Marine Fisheries Commission
BRZ   Bottomfish recovery zone
CEQA   California Environmental Quality Act
CFR   Code of Federal Regulations
EA   Environmental Assessment
EO   Executive Order
FKNMS   Florida Keys National Marine Sanctuary
FMP   Fishery Management Plan
FR   Federal Register
GIS   Geographic Information System
MLPA   Marine Life Protection Act
MPA   Marine Protected Area
MRWG Marine Reserve Working Group
NAS   National Academy of Sciences
NEPA   National Environmental Policy Act
NFCC   National Fisheries Conservation Center
NGO   Non-governmental organization
NMFS   National Marine Fisheries Service
NOAA   National Oceanic and Atmospheric Administration
NRC   National Research Council
SAC   Sanctuary Advisory Council
SSC   Scientific and Statistical Committee
TAC   Total Allowable Catch

9.2 Appendix B: Introductory statement about the project
The National Marine Protected Areas Center (NMPAC) has initiated a project to evaluate six recent marine protected area (MPA) planning processes. The goal of this project is to identify "lessons learned" that can improve future and ongoing planning processes. This memo is to let you know that a contractor will be calling you to request a phone interview to discuss one or more of the six processes being evaluated. You have been selected as an interview candidate because of your unique experience with and perspective on one or more MPA planning process. We believe strongly in the value of learning from past MPA planning experiences, and hope you will participate in the project. We believe you can provide important insights that will help to improve future processes.

Project overview
The following six MPA designation processes were selected to represent a range of governmental levels and geographic regions:

- Carl N. Schuster Horseshoe Crab Reserve (Delaware Bay)
- Channel Islands Marine Reserves (California)
- Gulf of Mexico Grouper Closures (Gulf of Mexico)
- San Juan County Bottomfish Recovery Zones (Washington)
- Tortugas Ecological Reserve (Florida)

- Marine Life Protection Act (MLPA): Phase I (California).

The first phase of the Lessons Learned project, recently completed, objectively documented the establishment processes. (You may have been contacted sometime in the past year by Brie Kessler, who did this work.) This first phase included producing a timeline of events and identifying the various entities involved in each process. A report containing detailed case studies for five of the processes, as well as a shorter document providing summaries of all six processes, is available online at http://www.csc.noaa.gov/mpa/process.html. (A complete case study was not produced for the MLPA since this process is ongoing.)

The second phase of the project, now underway, involves interviewing participants to get individuals' subjective perception of what worked and what did not for each process. In addition to resource managers from involved agencies, a wide range of stakeholder groups, including commercial and recreational interests, environmental groups, and scientists will be interviewed. A final report will summarize strengths and weaknesses, and provide recommendations for future and ongoing MPA planning efforts. Primary audiences for this report are the National MPA Center and federal, state, local, and tribal resource agencies involved in MPA planning.

Project team
The National MPA Center is a partnership between the National Oceanic & Atmospheric Administration (NOAA) and the Department of the Interior (DOI). Since both of these agencies were involved in the processes being studied, the MPA Center has hired the National Fisheries Conservation Center (NFCC) and the Marine Resources Assessment Group (MRAG) Americas, Inc. to bring impartiality to the interview phase. These contractors have extensive experience in marine resource management topics, but were not directly involved in the processes under review. The following individuals (in alphabetical order) make up the joint NFCC/MRAG Americas team:

- Brock Bernstein (brockbernstein@sbcglobal.net)
- Heidi Lovett (heidi.lovett@mragamericas.com)
- Suzanne Martley (suzanneiudicello@rushmore.com)
- Graeme Parkes (graeme.parkes@mragamericas.com)
- Charlie Stringer (cmstringer@sbcglobal.net)

One of these individuals will be contacting you to request an interview. It is anticipated that interviews will take between a half hour and an hour. Interviews will take place over the course of the summer, and a final report is scheduled to be submitted by the end of September.

If you have any questions about the Lessons Learned project, please do not hesitate to contact us. We can be reached at the following numbers and e-mail addresses:

Heidi Recksiek, Training & Technical Assistance Coordinator, National MPA Center (843)740-1194; Heidi.Recksiek@noaa.gov

Dr. Charlie Wahle, Director, MPA Science Institute, National MPA Center (831)242-2052; Charles.Wahle@noaa.gov

Thank you in advance for time you devote to an interview, and we look forward to sharing the lessons learned. The findings of this project will inform future planning activities, and your input is a critical component of an effective assessment.

9.3 Appendix C: Guidelines for regulatory amendment

From: Operational Guidelines, Fishery Management Plan Process, National Marine Fisheries Service, May 1, 1997. Pages F4-F5.

Phase V: Continuing and contingency fishery management, 1. Continuing Fishery Management; Regulatory Amendments

Regulatory amendments amend regulations, not an FMP. Section 303(c)(2) of the Magnuson-Stevens Act provides that a Council shall submit proposed regulations the Council deems necessary or appropriate to modify regulations implementing an FMP/amendment at any time after the FMP/amendment is approved. A regulatory amendment is used to clarify Council intent or to interpret broad terms contained in approved FMPs; it may be used to implement a portion of an approved FMP/amendment that was reserved and the Council now desires NMFS to implement.

Regulatory amendments can be used when a Council believes a specific problem may occur in the fishery that would require addition to or amendment of the original regulations, but the exact nature of the event or the remedial action cannot be foreseen at the time the FMP is being prepared. An example is the concern that, with the growth of a fishery, a gear conflict might arise that could lead to serious disruption. In such cases, a Council may not be able to predict the nature, location, or magnitude of the event with sufficient certainty to describe the measures needed to address the problem, the effects of the regulatory change, or the criteria to be used with sufficient precision to use abbreviated rulemaking procedure. Nevertheless, there may be a need to act more reapidly than is possible through the FMP amendment process. The mechanism to use under these circumstances is a regulatory amendment, if the authority is provided for in the FMP.

Regulatory amendments must go through the normal rulemaking procedure, including determination of significance under E.O. 12866; time saved is derived from the fact that the change was anticipated within the scope of the FMP/amendment (thus obviating the necessity for the full FMP amendment process), and the comment period is normally 15 to 30 days, instead of the 60-day period set forth by the Magnuson-Stevens Act for FMP/amendments. However, a regulatory amendment submitted by a Council under section 303(c)(2) of the Magnuson-Stevens Act must be reviewed by NMFS according to statutory deadlines: 5 days to initiate evaluation of the proposed rule, 15 dys for F to make a consistency determination and clear the proposed rule, a standard 30-day public comment period, and publication of the final rule within 30 days after the close of the comment period on the proposed rule. An interim final rule may be used when a measure must be made effective immediately and, when justified, the advance period of public notice and comment and APA delayed effectiveness can be waived; however, public comment is requested upon publication of the interim final rule. A final rule, which responds to public comments, implements the final rule on a permanent basis, if still found necessary and appropriate.

The FMP and associated documents should define and analyze as completely as possible the problems foreseen; the kinds of actins that may be taken to overcome them; any criteria for action that may be foreseen; the economic, social, and environmental effects that may occur as a result; and the procedures that are to be used for taking the action. The implementing procedures should compensate for the fact that appropriate analysis and opportunity for public comment on the action may have been limited in the original FMP.