

Enforcing U.S. Marine Protected Areas:

Synthesis Report



Enforcing U.S. Marine Protected Areas: Synthesis Report
Prepared by the National Marine Protected Areas Center
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List of Acronyms

CINMS	Channel Islands National Marine Sanctuary
CINP	Channel Islands National Park
CSC	Coastal Services Center
DFG	Department of Fish and Game (California)
DOI	Department of the Interior
EFH	Essential Fish Habitat
ESA	Endangered Species Act
FKNMS	Florida Keys National Marine Sanctuary
FMC	Fisheries Management Council
FWCC	Fish and Wildlife Conservation Commission (Florida)
GCEL	NOAA's Office of General Counsel for Enforcement and Litigation
GCF	NOAA's Office of General Counsel for Fisheries
GCNR	NOAA's Office of General Counsel for Natural Resources
GCOS	NOAA's Office of General Counsel for Ocean Services
GIS	Geographic Information System
HAPC	Habitat Area of Particular Concern
MMPA	Marine Mammal Protection Act
MOA	Memorandum of Agreement
MOE	Measures of Effectiveness
MOU	Memorandum of Understanding
MPA	Marine Protected Area
MRWG	Marine Reserves Working Group
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
NEP	National Estuary Program
NERR	National Estuarine Research Reserve
NGO	Non-governmental Organization
NMSP	National Marine Sanctuary Program
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service
NPS	National Park Service
NWR	National Wildlife Refuge
OECA	Oculina Experimental Closed Area
OLE	NOAA Fisheries Office for Law Enforcement
SAC	Sanctuary Advisory Council
SAFMC	South Atlantic Fishery Management Council
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
VMS	Vessel Monitoring Systems

Executive Summary

Under Executive Order 13158, the National Marine Protected Areas Center is charged with facilitating the effective use of science, technology, training, and information in the planning, management, and evaluation of the nation's system of marine protected areas. The Center's goals are to 1) develop the framework for a national system of marine protected areas, 2) improve MPA stewardship and effectiveness; and 3) facilitate national and regional coordination of MPA activities (for more information, please refer to the MPA Center's website at www.mpa.gov). This report supports the MPA Center's goals by providing a synthesis of existing information relevant to the enforcement of marine protected areas in the United States, as well as new insights into the current challenges, needs, and suggestions of coastal and marine resource managers, enforcement agencies, attorneys, education/outreach specialists, and numerous other public and private stakeholders with respect to MPA enforcement. The report is intended to provide a foundation for future improvements in MPA implementation and coordination by providing a "snapshot" of current perspectives on MPA enforcement and compliance issues.

Section 1 provides a review of the available literature focusing on factors that are known to influence compliance with marine resource management programs. Research focused on marine fisheries management shows that compliance can be directly related to the balance between the anticipated payoff from a violation, likelihood of detection, and severity of penalties. However, many "normative" factors are also important determinants of compliance, including social pressures and the perceived legitimacy of management authorities and regulations.

Section 2 presents an overview of the current institutional arrangements and enforcement activities of federal, state, and territorial agencies with juris-

isdiction over marine protected areas in U.S. waters. A wide variety of federal area-based regulations that could be considered to be "MPAs" are authorized under at least seven federal laws, which fall under the jurisdiction of at least four federal agencies. State and local MPA systems and management authorities may be even more diverse. Partnerships, particularly between NOAA Fisheries and state marine enforcement agencies, play a key role in coordination for MPA enforcement.

Section 3 presents a review of the administrative case law resulting from federal enforcement actions for violations of MPA regulatory prohibitions. The vast majority of cases are settled prior to administrative hearings. Of the cases reviewed for this report, most were related to either the National Marine Sanctuaries Act (NMSA) or Magnuson-Stevens Fisheries Conservation and Management Act (Magnuson-Stevens Act) violations. Some issues that were examined in the cases were vessel owners' liability, operators' responsibility for understanding regulations, violators' inability to pay fines, repeat offenders, fishing on boundary lines, establishing proof of violations, and the use of covert operations.

Section 4 includes three detailed MPA enforcement case studies, which provide a number of insights into current practices, concerns, and needs at the site level. For each case study, numerous interviews were conducted with managers, enforcement officers and agents, attorneys, education/outreach specialists, and stakeholders. Interviewees commented on issues concerning enforcement assets, methods, partnerships, compliance, subzones and boundaries, penalties, and litigation.

Section 5 provides an overview of suggestions to improve protection of MPA resources provided by existing literature, case studies described in Section 4, and the numerous participants from public

and private interests from around the nation who agreed to be interviewed for this report. The suggestions fall within nine key areas:

- 1) Increasing and maintaining adequate enforcement “presence” within MPAs;
- 2) Promoting voluntary compliance;
- 3) Benefiting from technologies;
- 4) Strengthening partnerships;
- 5) Regulatory considerations for improved MPA enforceability;
- 6) Boundary and siting considerations for improved MPA enforceability;
- 7) Imposing sanctions through enforcement actions;
- 8) Improving the prosecution/litigation of MPA enforcement actions; and
- 9) Meeting science and information needs.

In general, study participants believed that compliance was generally high across existing MPA-related regulations. However, a need exists for increased investments in enforcement assets at both the state and federal levels. In addition, because many individual sites will continue to rely on a high level of voluntary compliance, increased efforts are needed in education/outreach and “interpretive enforcement,” with an emphasis on communicating clear rationale for MPA regulations. Vessel Monitoring Systems (VMS) and other remote monitoring technologies could play a key role in MPA enforcement, but their utility will depend upon their eventual distribution, as well as the number of uses allowed and regulatory exceptions found within MPAs. Finally, partnerships will continue to be critical in establishing sufficient enforcement presence and information sharing across the diverse range of U.S. marine protected areas.

Note:

Interviews and research for this study were conducted in the summer of 2004. Perceptions and facts may have changed significantly since that time. This report provides only a snapshot of evolving enforcement considerations to foster improved coordination and planning.

Introduction

In the United States, the establishment of protected areas in the marine environment has not been well coordinated between the various federal, state, and local agencies with jurisdiction over coastal waters and submerged lands. In addition, “marine protected areas” (MPAs) have been assigned diverse titles, and have employed a wide assortment of regulatory tools to manage a broad range of natural and cultural resources (Agardy 2000; Davis, Lopez and Finch 2004). For these reasons, an Executive Order was issued in May 2000 that calls upon federal, state, local, and tribal governments and the private sector to work together to develop an improved, national system of marine protected areas (E.O. 13158, Appendix A; refer also to www.mpa.gov). Under the Executive Order, a marine protected area is defined 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.” The National Marine Protected Areas Center was established by the Executive Order and mandated to assist with its implementation.

Enforcement, or “the application of a set of legal tools, both informal and formal, designed to impose legal sanction to ensure a defined set of requirements is complied with” (Wasserman 1990), is a key determinant in the successful implementation of marine protected areas (National Research Council 2001). Sufficient regulatory authority and enforcement are critical to maintaining the cooperation of affected stakeholders. However, the enforcement of MPAs can be more difficult than their land-based counterparts due to unseen boundaries, an unlimited number of entry points, and incomplete information on the status of marine resources (Tisdell and Broadus 1989; Carr and others 2003). MPA enforcement can also prove to be relatively expensive, depending on the number of hours devoted to “at-sea” enforcement and the

types of technologies employed. For example, enforcement and surveillance activities accounted for one-third of the annual budget of the Great Barrier Reef Marine Park in Australia, according to a recent report (MPA News 2000). Still, some studies claim that MPAs could prove to be easier and less expensive to enforce than traditional fishery management measures, such as species-specific size limits and gear restrictions (Sutinen 1987; SAFMC 1990; GMFMC 1999). Despite the inherent challenges and importance of MPA enforcement, relatively little has been written on the subject, and no interagency studies of enforcement previously existed to support the development of an improved national MPA system.

Goals of the Report

This enforcement synthesis is organized around five central goals that correspond to each section of the report. The goals address, in part, the MPA Executive Order’s call for the “identification of ... appropriate, practical, and equitable management solutions, including effective enforcement strategies” (E.O. 13158, Section 4.6):

- 1) To summarize existing literature relevant to enforcement and compliance in Marine Protected Areas;
- 2) To provide improved clarity with respect to current institutional arrangements for MPA enforcement;
- 3) To highlight issues addressed in MPA-related case law;
- 4) To examine a range of perspectives on enforcement issues among managers, enforcement officers and agents, attorneys, and stakeholders through case study comparisons;
- 5) To synthesize and present suggestions for the effective enforcement of U.S. Marine Protected Areas.

The target audience of this report includes the state, regional, and federal officials, at the time of this study, working to coordinate and enhance MPA efforts in the United States.

Study Approach

The literature review for this report was conducted with the assistance of the National MPA Center's MPA library, which is located at the Coastal Services Center in Charleston, South Carolina. Agency reports, journal articles, conference proceedings, and minutes from relevant meetings were examined for enforcement-related topics. Publications related generally to fisheries enforcement were also included, since federal and state fishery regulations often include area closures or other forms of area-based regulations that could be considered as marine protected areas.

The Institutional Arrangements section was facilitated by the ongoing work of the National MPA Center to produce a complete inventory of federal and state "marine managed areas" in the United States. In addition, reviews of relevant agency websites, annual reports, and other documents were conducted. Finally, a number of personal contacts with agency officials yielded more specific information.

The National Sea Grant Law Center compiled a limited inventory of reported cases concerning federal MPA-related enforcement actions using an online Lexis-Nexis® search (Appendix B). The cases were then coded and analyzed according to year, type of violation, authorizing statute, type of MPA, issue, holding, and sanction. General commonalities and legal issues are discussed in Section 3.

Three MPA systems were chosen for case studies that involved site visits, interviews, and

meeting attendances. The three systems provide examples of sites established under primarily state (Channel Islands MPAs), federal (Florida Keys National Marine Sanctuary), and regional (Oculina Banks) jurisdictions. For each case study, numerous interviews were arranged with managers, enforcement officers and agents, attorneys, education/outreach specialists, and various stakeholders. Individuals selected for interviews are not considered "representative" of specific interest groups – extensive and random survey sampling was beyond the scope of this study. Rather, individuals were selected to gain a wider range of perspectives on enforcement issues, and were usually recommended by other study participants. Interview discussions reflected only individuals' opinions, and not official government positions. A list of participants for each case study is included in Appendix C.

Section 5 presents a synthesis of recommendations from the literature review, case studies, and "national-level" interviews conducted for this report. While the case studies usually generated site-specific or site-level recommendations, the national-level telephone interviews focused on system-wide or national issues related to MPA enforcement. Interviewees included approximately forty individuals from NOAA Fisheries, U.S. Coast Guard, NOAA Office of General Counsel, U.S. Fish and Wildlife Service, National Park Service, National Marine Sanctuaries Program, regional fishery management councils, multi-state marine fisheries commissions, state coastal zone management programs, state marine enforcement offices, nongovernmental organizations, and various stakeholder groups. All study participants are listed in Appendix C.

Note:

Interviews and research for this study were conducted in the summer of 2004. Perceptions and facts may have changed significantly since that time. This report provides only a snapshot of evolving enforcement considerations to foster improved coordination and planning.

Section 1.

Literature Review

Enforcement programs are intended to ensure compliance with governmental regulations. While it is often assumed that low levels of compliance result from inadequate enforcement, compliance is actually subject to a range of influences. Therefore, to increase compliance with marine protected areas regulations, an improved understanding of the compliance behavior of those affected by the regulations is needed. A number of studies have described key factors that can influence compliance with fishery management regimes in general; and although not all MPAs include restrictions on fishing practices, these concepts should also apply well to MPAs focused toward the protection of cultural resources, endangered species, and marine habitats. However, many of the users of MPAs are recreational rather than commercial users, therefore their behavioral motivations may not be entirely analogous to those of commercial fishers under fishery management regimes.

The discussion below focuses on the available literature related to the subject of enforcement in the marine environment. This section is intended to highlight existing theories and information regarding enforcement, and discuss the interplay of these theories. The goal is to synthesize the available information in order to identify future areas for study and review. The discussion in this section is based only on the information contained in the literature, which has not been reviewed or scrutinized by the authors.

General Deterrence Theory

According to several studies, compliance is expected to be most heavily influenced by three key compliance factors: 1) the potential economic gains from the illegal activity; 2) the perceived risk of detection; and 3) the severity of sanctions (Becker 1968; Sutinen, Rieser, and Gauvin 1990; Kuperan and Sutinen 1998; Nielsen and Mathiesen 2000).

These three factors have been used to develop a “general deterrence theory,” or a calculation that can be made to determine whether it should be profitable to violate regulations at any given time and place. The relative importance of each factor may vary with the type of MPA, the type of violation, and statutory maximums that have been established for civil and criminal penalties.

Economic gains from illegal fishing can be very high (for example, Sutinen, Rieser, and Gauvin 1990). The potential for poaching will therefore always exist for MPAs, especially if they have been successful in enhancing the quantity or quality of commercially important resources. Potential gains from MPA violations will also vary with general economic conditions and the overall status of the regulated resources (Sutinen, Rieser, and Gauvin 1990). For example, when legal fish catches decline, poaching can become increasingly tempting. It follows from the general deterrence theory that either sanctions or the probability of detection must be high to offset potential economic gains from MPA violations.

There are four types of sanctions available to respond to MPA violations: criminal penalties, civil penalties, catch and vessel seizures, and permit sanctions. Case law has developed in the National Marine Sanctuaries system where large damages have been assessed against a small number of violators (Duff and Brownlow 1997). However, courts have sometimes been unwilling to assess severe penalties for fisheries violations (Kuperan and Sutinen 1998; Brown 1999; Jackson 1999), and penalties high enough to deter violations could exceed statutory maximums (Frailey and Taylor 1986; Gordon 2001, among others). Courts may also be slow to process cases, which can decrease the perceived “cost” of sanctions to violators (Sutinen, Rieser, and Gauvin 1990). More in-depth discussions of sanctions, enforcement actions, and

related suggestions of study participants are found throughout the remainder of this report.

The probability of detection can be raised through increased enforcement “presence” (for example, number of enforcement agents, patrols, boardings, technologies, and so forth). It has been shown that an increase in the probability of detection can have a disproportionately greater influence on general compliance levels than an equivalent increase in the severity of sanctions, most likely because of the social stigma associated with being caught (Sutinen, Rieser, and Gauvin 1990). However, increasing enforcement presence can be cost-prohibitive. For this reason, some authors have discussed the application of “strategic” or “targeted” enforcement and other deterrence-oriented methods.

Strategic enforcement is here defined as the focusing of enforcement activities toward specific activities, time periods, or individuals that are believed to have the greatest negative impact on resources or on the perceived legitimacy of the management regime (see Currie and Prosser 1996). These activities, time periods, and/or individuals may be identified through risk-based assessments (MPA News 2000) and/or root cause analyses (Berman and Back 1998). However, several authors have noted potential drawbacks to strategic enforcement. For example, commercial fishers often complain that strategic targeting unfairly focuses enforcement toward commercial rather than recreational users, who may have a significant cumulative impact on marine resources (Recksiek and Hinchcliff 2002). Strategic timing of enforcement appears to be less controversial, and can involve an increased enforcement presence during holidays, mini-seasons, and periods of high market values or reduced fish stocks (Sutinen, Rieser, and Gauvin 1990).

Normative Compliance Theory

According to studies reviewed for this report, the majority of the public are not likely to make a decision on whether to commit MPA violations based solely on the factors considered in the general deterrence theory. Equally important in

the decisionmaking process may be factors based on social psychology, which form the foundation for a “normative compliance theory” (Kuperan and Sutinen 1998). Normative factors, or those related to socially acceptable or prescribed behaviors, include perceptions of legitimacy, self-interest, morality, social pressures, the behaviors of others, and habits.

Legitimacy

The perception of legitimacy of management institutions and policies may be the most important normative factor influencing compliance. Legitimacy is defined by Kuperan and Sutinen (1998) as “a normative assessment by individuals of the appropriateness or right of enforcement agencies to restrict their behavior.” Three key sub-factors have been identified as influencing perceptions of legitimacy of marine resource management programs: 1) the content of regulations and goals, 2) distributional effects of regulations; and 3) procedural fairness (Jentoft 1989; Hanna 1998; Kuperan and Sutinen 1998; Nielsen and Mathiesen 2000; Nielsen 2003). Each of these is addressed individually in the following subsections.

Content of Regulations and Goals

A number of authors have described the need for regulations to be developed in a manner that facilitates enforcement (Sutinen, Rieser, and Gauvin 1990; Laurec 1999; Nielsen and Mathiesen 2000). According to these studies, regulations should be as compatible with existing fishing patterns and practices as possible. In several Danish fisheries, nearly all fishers reported that practical difficulties limited their ability to comply with regulations (Nielsen and Mathiesen 2000). In addition, the more restrictive a regulation, the greater the incentive is to violate (Sutinen, Rieser, and Gauvin 1990). It therefore appears important that managers anticipate the immediate economic impacts of new marine protected area regulations (Ortiz 2001). Next, regulations should be internally consistent, as well as consistent with the policies of other relevant agencies (Dermer 2001). Mascia (2003) found that clear, easily understood, and easily enforceable regulations were positively correlated with MPA performance. Regulations should also remain stable

over time in order to maintain awareness (Sutinen, Rieser, and Gauvin 1990); however, a tradeoff exists between stability and the flexibility needed for adaptive ecosystem management (Hanna 1998). Finally, Nielsen and Mathiesen argue that regulations should be perceived as credible, and therefore must either be demonstrated to achieve results through periodic program evaluations or must be based on the experiences and knowledge of the fishers themselves (Nielsen and Mathiesen 2000). Kuperan and Sutinen (1998) suggested that it may also be critical that fishers perceive the boundaries of closed areas as reasonable and appropriate. Further, it may be important to avoid specific predetermined targets for the aerial coverage of future MPAs during MPA planning, such as “fifty percent of the area should be set aside for biodiversity preservation” (Agardy and others 2003; Davis and Lopez 2004).

Several authors noted that it is equally important that management goals be stable, credible, compatible with existing practices, and consistent both internally and with other regulations. Evidence suggests that perceptions of MPA management goals can vary significantly between stakeholder groups (Suman, Shivlani, and Milon 1999; Brody 1996), and that these differences may influence perceptions of the legitimacy of management institutions.

Distributional Effects

Reduced public perceptions of MPA legitimacy may occur when regulations have inequitable distributional effects across a wide range of stakeholders. For example, regulatory inequities are often perceived between commercial and recreational interests (Recksiek and Hinchcliff 2002; Davis and Lopez 2004). In order to assure the highest possible levels of voluntary compliance, managers should consider the impacts of MPA regulations across stakeholder groups (for example, Nielsen and Mathiesen 2000).

Procedural Fairness

Procedural fairness may be the most important determinant of stakeholders’ perceptions of the legitimacy of management institutions and regu-

lations (Tyler 1990; Kuperan and Sutinen 1998). Nielsen (2003) stated that perceptions of procedural fairness rely on both high levels of stakeholder participation in the fisheries management process and personal experiences with fisheries authorities.

Stakeholder participation processes often constitute a “bottom-up” approach to MPA establishment and management to foster increased public understanding and support, reduce potential user conflicts, ensure that all issues are identified, take advantage of local knowledge, and help in adapting regulations and goals to prior use patterns (Brody 1998; Morin 2001; NRC 2001; Kessler 2003). Prior users may feel they have a vested right in marine resources, and be unlikely to perceive an MPA as legitimate unless they feel that they have retained some of those rights and played a key role in shaping the MPA (Cocklin, Craw, and McAuley 1998). High levels of stakeholder participation may also promote the perception of management transparency, which has also been identified as a key factor in influencing compliance (Laurec 1999).

The strongest form of stakeholder participation may be found in “co-management” frameworks, wherein management authorities or decision-making powers are shared among representatives of user groups, government agencies, and research institutions through various mechanisms (Jentoft 1989; Kaplan 1998; Jentoft, McCay, and Wilson 1998; Pomeroy 1999; Christie, White, and Deguit 2002). While co-management regimes may present the best opportunities for perceived legitimacy and high levels of compliance among involved user groups, management decisions resulting from co-management processes could also lead to regulatory outcomes with less rigorous resource protections and/or inequities across user groups or organizations (Jentoft and McCay 1995; Jentoft 2000).

Finally, personal experiences with fisheries authorities can also influence perceptions of procedural fairness. In general, it appears important that fishers must “trust the system,” and individual, personal interactions with enforcement officers and managers can influence their level of trust (Nielsen 2003).

Self-Interest

In some cases, individuals will comply with fishery management regulations in part because they believe that the regulations will result in short or long-term benefits (Sutinen, Rieser, and Gauvin 1990). For example, a fisher may avoid fishing in spawning areas in order to increase future stock sizes. In the case of fisheries regulations, this may be a relatively uncommon motive, since the benefits of regulations may not be realized for many years into the future, and because fisheries can be considered a common property resource that is subject to the “tragedy of the commons” as described by Hardin (1968).

Morality

Personal convictions can play a significant role in determining compliance (Sutinen, Rieser, and Gauvin 1990; Kuperan and Sutinen 1998). A majority of the public will comply simply because of a perceived moral obligation to obey the law. However, moral convictions will likely play a lesser role when basic food and monetary needs are threatened by fishery regulations (Gezelius 2003).

Social Pressures

Studies have demonstrated that compliance may also be heavily influenced by social pressures (Sutinen, Rieser, and Gauvin 1990; Nielsen and Mathiesen 2000). Alienation, exile, avoidance, distrust, and negative rumors represent common forms of social pressures that can encourage individual compliance (Sutinen, Rieser, and Gauvin 1990). Importantly, these influences can work in the opposite direction as well. Several cases have been documented where social pressures existed to violate fishery management regulations (Sutinen, Rieser, and Gauvin 1990).

Behaviors of Others

Aside from the influences of social pressure, fishers must believe that others are not poaching in order to perceive a potential benefit from compliance. In addition, groups of fishers have been reported to collude on violations with the knowledge that only one vessel risks boarding if discovered (Sutinen, Rieser, and Gauvin 1990). Social pressures interact with the behaviors of

others in a compounding manner: as each additional fisher decides to comply, s/he contributes to both social pressure and the perception that poaching is not occurring at a significant scale (Sutinen, Rieser, and Gauvin 1990).

Habits

Finally, habits and traditions can play an important role in determining compliance levels. Fishers often follow routine practices, and once these practices are established they may continue to follow them rather than adjusting based on continuing deliberations over the compliance factors listed above. Therefore, it may be beneficial to increase enforcement levels in the earliest phases of MPA implementation to ensure the development of “good habits” among user groups (Sutinen, Rieser, and Gauvin 1990). In addition, evidence gathered during the preparation of this report suggests that a history of protected sites in nearby waters improves compliance rates for newly established MPAs.

Education and Outreach

As stated previously, a large majority of the public will comply with regulations even in the absence of enforcement. This assumes, however, that the public is well aware of the regulations. Since MPAs may be visited infrequently by locals, or visited only once by tourists, this assumption may often be invalid. Therefore, a critical need for MPA enforcement programs is ongoing education and outreach efforts aimed toward increasing the awareness of MPA regulations (Proulx 1998). Education programs also present a less expensive alternative to increased enforcement activities; for example, Alder (1996) estimated that education costs for the day-to-day management of the Great Barrier Reef Marine Park were approximately one-tenth the cost of enforcement programs.

Education and outreach can be especially important in dispelling the myths and misinformation that sometimes accompany new MPA proposals. Suman, Shivlani, and Milon (1999) found that sources of information concerning proposed no-take reserves within the Florida Keys National Marine Sanctuary varied significantly between

stakeholder groups. In particular, several groups were more likely to have obtained information through rumors than through formal program documents such as the draft management plan for the sanctuary. It was not surprising, therefore, that perceptions of the legitimacy of the FKNMS varied between those stakeholder groups. It was suggested that managers attempt to reach stakeholder groups through their own organizations, and that surveys be conducted to determine the extent and direction of any misperceptions of management goals and regulations (for example, Eggert and Ellegard 2003).

The federal National Marine Sanctuary Program (NMSP) describes an “interpretive enforcement” approach, which involves the distribution of educational materials in preference to legal citations (CEC 2000; see also Section 4 of this report – FKNMS Case Study). Trained volunteers also use sanctuary vessels to distribute educational leaflets and advise against potential violations (NAPA 2000). This approach promotes voluntary compliance with sanctuary regulations by educating users about regulations, why they should comply, and how they can comply (FKNMS Draft Management Plan).

Community “Self-Enforcement”

The phrase “community self-enforcement,” as used in this report, is meant to include any activities undertaken by individual users or user groups that deter violations by other users. Community self-enforcement can play a critical role in MPA enforcement, since high levels of official enforcement activities can be difficult to maintain in some marine regions. One common means of facilitating community self-enforcement is the establishment of enforcement “hotlines” or email addresses for the public to use in reporting violations. However, in many cases individuals may be reluctant to serve as informants or otherwise facilitate enforcement against their peers (Jentoft 1989).

“Voluntary MPAs” rely completely on community self-enforcement since no government agency has enforcement authority. In the island-based county of the San Juan Islands in the state of Washing-

ton, a system of “bottomfish recovery zones” was developed by the community to restrict bottomfishing on a voluntary basis. Through educational efforts alone, this MPA system has achieved nearly 100 percent compliance (MPA News 2000). The success of this system, however, is likely tied to the close-knit communities found in San Juan County, where social pressures are strong enough to ensure compliance.

Enforcement Performance Measures

Hennessey and Kaiser (1987) pointed out that, because the level of undetected violations during any given time period is unknown, evaluations of enforcement programs must focus on measuring compliance levels. The authors stated further that, at the time, the appropriate methodologies for measuring compliance had not been established. There is a continuing need for evaluations of enforcement, especially to accompany current and future evaluations of the effectiveness of marine protected areas (Cote, Mosqueira, and Reynolds 2001).

Recently, several publications have addressed the topic of performance measures for enforcement programs (Sutinen, Rieser, and Gauvin 1990; Sutinen 1996; Jackson 1999). According to Jackson (1999), measures of effectiveness (MOE) for conservation law enforcement vary widely, but generally fall within three categories: 1) enforcement inputs, such as patrol hours or inspections; 2) outcomes, such as indicators of increased compliance; and 3) hybrids. While outcome measures are preferred, they generally rely on ecological measures that are difficult to link with enforcement activities and vary over time. Therefore, most enforcement evaluations continue to rely on input or hybrid measures, such as the observed compliance rate (for example, violations per inspection), customer feedback, violation processing time, interactions with other agencies, and case dispositions, among others (Jackson 1999).

Section 2.

Institutional Arrangements for MPA Enforcement

Federal Marine Protected Areas

According to an ongoing inventory by the National MPA Center, there are approximately 328 federal sites that qualify as either MPAs or as more broadly defined “Marine Managed Areas” (MMAs). Among these are National Marine Sanctuaries, National Estuarine Research Reserves, National Wildlife Refuges, federal fishery management areas, critical habitat areas for federal threatened and endangered species, and National Parks, Monuments, and Seashores (Table 1, p. 15). Because these “MMAs” were established under separate legal authorities and have differing goals and management approaches, a national classification scheme is, at the time of this study, under development (National MPA Center 2004). At the time of this study, there is no overarching federal MPA legislative authority that addresses the range of federal MPA or MMA types, which are also managed across a variety of federal and state agencies. Key federal MPA authorities and managing agencies are described in the following subsections.

Federal MPA Enforcement Agencies

United States Coast Guard

The U.S. Coast Guard (USCG), which was recently moved to the Department of Homeland Security, has maintained broad responsibilities for enforcing offshore Marine Protected Areas established under federal authorities (Table 1). However, the USCG is a multi-mission, military service, and has a host of other responsibilities related to maritime safety, national defense, maritime security, mobility, and the protection of natural resources. The new focus on Homeland Security could conceivably draw resources and priorities away from the enforcement of natural resource regulations due to new training, operations, and strategic planning activi-

ties; however, increases in federal funding for the agency will also increase future law enforcement capacities. The primary example of this is found in the new “Integrated Deepwater System” (IDS) program, which involves the replacement and upgrading of all USCG cutters and aircraft over the next twenty years, in addition to the acquisition of numerous command, control, and communications assets (USCG 2004a).

At the time of this study, the USCG employs (worldwide) nearly 40,000 active duty personnel, and deploys approximately 1,400 “boats” [vessels under 65 feet in length, including Rigid Hull Inflatables (RHI) and 38-foot Deployable Pursuit Boats (DPBs)], nearly 150 patrol “cutters” (vessels over 65 feet in length, not including buoy tenders, ice breakers, and so forth), and 211 aircraft (USCG 2004b). Total annual expenditures for living marine resources (LMR) activities and acquisitions have increased from approximately \$425 million to over \$635 million between FY 2003 and the projected budget for FY 2005 (USCG 2004c). The most recent annual performance report indicated that USCG officers encountered a 97.1 percent compliance rate with fisheries regulations during boardings and inspections, and this rate has remained above 95 percent since 2000 (USCG 2004c).

National Oceanic and Atmospheric Administration

NOAA Fisheries Office for Law Enforcement

NOAA Fisheries Office for Law Enforcement (OLE) has enforcement responsibilities in federal fishery management areas, National Marine Sanctuaries, and critical habitat areas for marine mammals and endangered species (Table 1). OLE is divided into 6 Division Offices and a Headquarters Office, employs approximately 147 special agents, 17 uniformed officers, 58 support personnel, and has between 20-30 vessels (mostly Rigid

Hull Inflatables, or RHIs) that are periodically reassigned to new locations based on changing priorities. Uniformed officers focus on patrols, but conduct some investigative work; special agents focus on investigative work, but also participate in occasional patrols. The agency also has a strong focus on partnerships with the USCG, state enforcement agencies, local and tribal agencies, and nongovernmental organizations (see “Partnerships and Collaborations” section below).

NOAA Fisheries has requested \$53.4 million for enforcement activities in its proposed budget for FY 2005, with an increase of \$5.3 million for research and development efforts aimed at expanding the use of Vessel Monitoring Systems (VMS) nationwide (NOAA Fisheries 2004a). These systems monitor over 2,000 fishing vessels in the Pacific and Atlantic Oceans, and are believed to have improved compliance with closed area regulations (Spurrier 2004; USDOC 2003). The systems have also provided critical information to the Coast Guard during “Search and Rescue” operations (NOAA Fisheries 2004b).

OLE has also adopted a Community-Oriented Policing and Problem-Solving (COPPS) program, which is defined by the U.S. Department of Justice as a “policing philosophy that promotes and supports organizational strategies to address the causes and reduce the fear of crime and social disorder through problem-solving tactics and community-police partnerships” (U.S. Department of Justice 2004). The central goal of the program is increased rates of compliance through enhanced education of and communication with stakeholders. OLE describes their COPPS program as promoting “voluntary compliance through constituent communication, public awareness and education by committing to community interaction and partnerships” (NOAA Fisheries OLE 2004).

NOAA's Office of General Counsel

NOAA's Office of General Counsel is comprised of seven primary subdivisions in Headquarters, as well as five regional counsel offices. NOAA's Office of General Counsel for Enforcement and Litigation (GCEL) is one of the primary subdivi-

sions. GCEL is comprised of 15 attorneys located in 6 offices around the country, including Silver Spring, MD, Gloucester, MA, St. Petersburg, FL, Long Beach, CA, Seattle, WA, and Juneau, AK. GCEL is responsible for enforcing over 35 natural resource statutes for NOAA. GCEL prosecutes civil violations committed under laws administered by NOAA in an administrative forum. The cases are charged using NOAA's Civil Administrative Penalty Schedule (Penalty Schedule) as guidance. The Penalty Schedule includes ranges for monetary penalties and permit sanctions that take into account a violator's violation history, and provide relative uniformity in penalties assessed for similar violations nationwide. NOAA enforcement attorneys use their prosecutorial discretion in determining the appropriateness of recommended penalties or permit sanctions, and base their decisions on the particular facts of each case, including aggravating and mitigating circumstances. The Penalty Schedule is available at <http://www.gcel.noaa.gov>. Hearings on cases charged by GCEL are heard by Administrative Law Judges, and are governed by NOAA's procedural regulations, which are codified at 15 CFR Part 904. Cases can be appealed to the Administrator of NOAA or to U.S. District Court.

In addition to GCEL, three other subdivisions of the NOAA Office of General Counsel do work that significantly affect MPAs. The Office of General Counsel for Fisheries (GCF) provides legal counsel to NOAA Fisheries on issues relating to living marine resources, primarily under the Magnuson-Stevens, Marine Mammal Protection Act, and Endangered Species Act. The Office of General Counsel for Ocean Services (GCOS) provides legal counsel to the National Ocean Service in the implementation of the National Marine Sanctuaries Act, the Coastal Zone Management Act, and other statutes. Finally, the Office of General Counsel for Natural Resources (GCNR) provides legal advice to the NOAA Fisheries and the National Ocean Service, and seeks monetary restitution from responsible parties for injuries caused by releases of hazardous substances from waste sites, oil spills, and physical impacts (for example, vessel groundings) in National Marine Sanctuaries (NOAA General Counsel 2004).

National Park Service

According to an ongoing inventory of MMAs by the National MPA Center, the National Park Service has jurisdiction over 41 U.S. National Parks, Seashores, and Monuments that include submerged marine resources. Enforcement assets vary by site. For example, the Dry Tortugas National Park, Everglades National Park, Biscayne National Park, and Channel Islands National Parks employ on-site park rangers and vessels for marine enforcement patrols. Summary statistics are, at the time of this study, unavailable for marine enforcement activities and assets nationwide. The NPS has recently established an internal committee to review the needs and priorities of “ocean parks” in an effort to increase focus on marine resources management throughout the park system.

United States Fish and Wildlife Service

The National MPA Center’s inventory of Marine Managed Areas lists 162 National Wildlife Refuges as providing some degree of protection for marine resources. According to a 2001 annual report, the Law Enforcement Division of the United States Fish and Wildlife Service (USFWS) includes over 250 special agents and 90 wildlife inspectors across seven regional law enforcement offices (USFWS 2001). The National Wildlife Refuge System also has a formal law enforcement training academy. Enforcement capacities vary by site – most Refuges have a formal enforcement presence, but few of the sites have a significant or consistent presence on the water (Chase 2004). Some Refuges have been involved in cooperative enforcement agreements with other marine enforcement agencies, as described in the “Partnerships and Collaborations” section below.

Legislative Authorities	MPA Types	Authorizing Statutes	Enforcement Entities
Magnuson-Stevens Fishery Conservation and Management Act	Restricted Gear Areas Closed Areas	16 USC 1801 et seq.	USCG NOAA State Agencies
National Park Service Organic Act	National Parks National Monuments National Seashores	16 USC 1 et seq.	NPS
Coastal Zone Management Act	National Estuarine Research Reserves	16 USC 1461 et seq.	State Agencies
Endangered Species Act	Critical Habitat Areas	16 USC 1531-1543	USCG NOAA USFWS
National Wildlife Refuge System Administration Act	National Wildlife Refuges	16 USC 668dd-668ee	USFWS
National Marine Sanctuaries Act	National Marine Sanctuaries	16 USC 1431 et seq.	USCG NOAA NPS USFWS State Agencies
Marine Mammal Protection Act	Marine Mammal Protected Areas	16 USC 1361 et seq.	NOAA USCG USFWS

Table 1. Federal marine managed area authorities and associated enforcement responsibilities/partnerships

State/Territory Marine Protected Areas

State-level MPA or MMA systems are more complex and diverse in comparison with federal MMA policies and programs. For example, resource protections at the state level often occur through the use of nearshore “overlay zones,” rather than through comprehensive marine planning areas. In addition, the types of protections afforded marine resources at the state level often differ from those found at the federal level. States may use MPAs to address fisheries management, habitats, and endangered species, but may also use protected areas or zones to regulate coastal developments and alterations, such as dredging/filling operations, docks and marinas, and aquaculture facilities. These approaches also vary widely from state to state (see Davis, Lopez, and Finch 2004).

State/Territory MPA Enforcement Agencies

For MPAs established to protect nearshore habitats by restricting undesirable developments and alterations, violations are generally enforced like any other state or local development ordinance. Citizens, state and local agencies, and nongovernmental organizations play a critical role in reporting violations to permitting agencies, and these agencies may issue fines, cease/desist/stop work orders, and/or require the removal of non-permitted developments and alterations (Davis and Lopez 2004). Such violations rarely appear to be enforced through vessel patrols; however, air patrols and remote sensing could increasingly play a role in enforcing development restrictions in MMAs (for example, CSC 2003; NC Division of Coastal Management 2004).

For fisheries-related MPAs, state-level enforcement may take several different approaches. State marine patrols, having the same authority as state police, may enforce all state laws, including fisheries regulations, within state waters (generally out to three nautical miles). More commonly, state natural resource agencies have an enforcement division that has jurisdiction over marine fisheries. In these states, boating safety may be

the separate jurisdiction of a state marine patrol or of local marine patrols financially supported by the state. States have jurisdiction in federal waters over their citizens and vessels registered in their states. State agencies may also enforce federal fishery regulations wherever cooperative agreements have been developed (see Table 2 and the next section for examples of state agencies involved with marine fisheries enforcement).

Enforcement Partnerships and Collaborations

Cooperative/Joint Enforcement Agreements

For over two decades, the NOAA Fisheries Office for Law Enforcement has entered into agreements with state and territorial marine law enforcement agencies to formalize partnerships and to deputize state marine law enforcement officers to enforce specific federal marine resource laws. OLE maintains “Cooperative Enforcement Agreements” (CEAs) and “Joint Enforcement Agreements” (JEAs) with 23 of 29 coastal states and territories (not including Great Lakes states; see Table 2). As precursors to JEAs, CEAs have been used to formalize partnerships between state and federal agencies, and deputize state officers to enforce specific federal marine resource laws. JEAs have then been used to build on these partnerships by outlining federal funding for specific state and territory activities, and are meant to address federal enforcement priorities while enhancing state and territory enforcement resources.

Although the OLE has held CEAs with coastal states for more than two decades (for example, with Florida since 1983), the funding of state marine enforcement operations for federal fisheries enforcement through JEAs is of more recent origin. In FY 1999, Congress provided the OLE with \$450,000 to support South Carolina’s participation in federal fisheries enforcement. Based on the success of this partnership, in 2001 Congress provided \$15 million to support all coastal states and territories interested in developing JEAs for federal fisheries enforcement (USDOC 2003). However, in FY 2003, OLE was appropriated far less – \$6.9 million – to support state participation under these agreements.

State Agencies in Joint Enforcement Agreements with NOAA Fisheries OLE	
Alabama	Department of Conservation & Natural Resources – Marine Resources Division
Alaska	Department of Public Safety, Division of Fish and Wildlife Protection
American Samoa	Department of Marine and Wildlife Resources, Enforcement Division
California	Department of Fish and Game
Connecticut	State Conservation Office, Department of Environmental Protection
(Delaware)	In process; not yet contracted.
Florida	Fish and Wildlife Conservation Commission
Georgia	Department of Natural Resources, Wildlife Resources Division, Law Enforcement Section
Guam	Customs and Quarantine Agency, Maritime Interdiction Task Force
Louisiana	Department of Wildlife and Fisheries, Law Enforcement Division
Maine	Department of Marine Resources, Bureau of Marine Patrol
Maryland	Department of Natural Resources Police
Massachusetts	Department of Fisheries, Wildlife & Environmental Law Enforcement, Environmental Police
Mississippi	Department of Marine Resources, Marine Patrol
New Hampshire	Department of Fish and Game
New Jersey	Department of Environmental Protection, Division of Fish & Wildlife, Bureau of Law Enforcement
New York	Department of Environmental Conservation, Division of Law Enforcement
(North Carolina)	Working to change state law to authorize future JEA agreement.
Oregon	State Police, Fish and Wildlife Division
Rhode Island	Department of Environmental Management, Division of Enforcement
South Carolina	Department of Natural Resources
Texas	Parks and Wildlife Department, Law Enforcement Division
Virginia	Marine Resources Commission
Virgin Islands	Department of Planning and Natural Resources
Washington	Department of Fish and Wildlife

Table 2. State agencies involved with NOAA Fisheries OLE Joint Enforcement Agreements (source: NOAA Fisheries OLE 2004).

Joint Enforcement Agreements have had considerable impacts on state and federal marine enforcement activities. For example, in 2003, 18 JEAs detailed funding for state equipment and vessels, 6 for air patrols, and 11 for increased outreach and education activities. The agreements have also provided funding for vessel patrols, dockside monitoring, and the hiring of state marine enforcement officers, clerical staff, and investigative staff (USDOC 2003). To date, JEAs have supported 51,201 hours of vessel patrols, 50,612 hours of dock-side patrols, and 833 hours of public outreach by state and territorial partners in support of federal enforcement priorities (Paterni 2004).

Memoranda of Understanding/Agreement (MOU/MOA)

At the federal level, the OLE has established partnerships with the U.S. Coast Guard, U.S. Fish and Wildlife Service (USFWS), U.S. Customs Service, U.S. Border Patrol, U.S. Marshals Service, Federal Bureau of Investigation (FBI), Bureau of Alcohol, Tobacco and Firearms (ATF), Drug Enforcement Administration (DEA), and Food and Drug Administration (FDA), in some cases through formal

Memoranda of Understanding (MOU) and Memoranda of Agreement (MOA). Memoranda of Understanding between the NOAA Fisheries and the U.S. Coast Guard have been developed regionally to address shared issues and interests within those regions, and to outline joint responsibilities for fisheries law enforcement under, for example, the Magnuson-Stevens Act.

The U.S. Coast Guard is authorized to enforce all federal fisheries regulations (16 U.S.C. §1861), and also reviews and provides comments on the enforceability of proposed fishery regulations under consideration by NOAA Fisheries. The U.S. Coast Guard is also specifically authorized to enforce the unique regulations of each National Marine Sanctuary under the National Marine Sanctuaries Act (NMSA). According to a recent Commandant Instruction (COMDTINST 16004.3A, October, 2003), the Coast Guard has agreed to work with the National Ocean Service to ensure that its enforcement efforts complement those of other federal, state, and local agencies for sanctuary enforcement, and to actively participate early in the development of new sanctuary plans and proposals. For example, in 2002, the Coast Guard provided 195 aircraft flight hours for surveillance, and 2,385 cutter and 198 small boat patrol hours for enforcing National Marine Sanctuaries nationwide (Fiedler 2004). The Coast Guard has agreed to establish close relationships with regional OLE agents/officers and sanctuary managers, and to coordinate Coast Guard enforcement activities with those of other federal and state agencies through an MOA for each sanctuary and participation on Sanctuary Advisory Councils (SACs). The Coast Guard Auxiliary has also assisted with sanctuary education and outreach efforts.

In 2000, the Marine Sanctuaries Division of NOAA also developed an MOA with the National Park Service. According to the MOA, there are, at the time of this study, sixteen National Parks, National Seashores, and National Recreation Areas in close proximity to or overlapping with National Marine Sanctuary sites. The MOA was developed to articulate a formal working relationship at the national and local levels, facilitate interagency communication and coordination of

programs, and provide a means to share knowledge, staff, and resources, as appropriate. The MOA specifically authorizes law enforcement and litigation coordination, cooperation on access to enforcement information (for example, prior offenders), cross-deputization of enforcement personnel, and joint training activities. More recently, the National Park Service has initiated discussions concerning a national MOA that will describe a process for cross-deputization and coordination of enforcement between the Park Service and the National Marine Sanctuaries Program.

In October, 2003, the National Marine Sanctuary Program held its first ever “Enforcement Summit,” which was attended by representatives from the sanctuaries, U.S. Coast Guard, NOAA Fisheries OLE, and GCEL, GCNR, and GCOS (NMSA 2004). The focus of the summit was on improved enforcement coordination and strategies across the thirteen existing Sanctuaries.

Coordination through Regional Fishery Councils

The Magnuson-Stevens Act established eight regional fishery management councils to prepare, monitor, and revise fishery management plans for fisheries under their jurisdiction [16 U.S.C. § 1801(b)(5)]. The councils have established law enforcement committees and law enforcement advisory panels. The law enforcement committees are generally composed of council members. The law enforcement advisory panels generally consist of law enforcement representatives from each state comprising the council, OLE, GCEL, the U.S. Coast Guard, the USFWS, and, on some panels, members of the public.

Law enforcement committees have also been established under the Atlantic States Marine Fisheries Commission (ASFMC), established by compact in 1942, and Gulf States Marine Fisheries Commission (GSMFC), established by compact in 1949. The members of these committees include law enforcement representatives from each state comprising the commission, OLE, the U.S. Coast Guard, the USFWS, and, on the GSMFC, GCEL. These committees and panels collectively, as well as the individual enti-

ties, play a key role in developing enforceable fisheries regulations, commenting on proposed regulations, and in facilitating effective communications among the agencies involved in fisheries enforcement. However, the roles and levels of input of law enforcement committees and panels vary significantly between and among regional fishery councils and interstate commissions (USDOC 2003).

Homeland Security Implications

Some of the NOAA Fisheries OLE partnerships described above, particularly with the USCG, Customs, Border Patrol, and FBI, have resulted in increased responsibilities and reassignments related to homeland security. New assignments and responsibilities have also impacted the U.S. Coast Guard, which has since been reorganized under the federal Department of Homeland Security and is responsible for patrolling nearshore “secure zones” around key ports. For this reason, several regional fishery councils passed motions soon after September 11, 2001, asking NOAA’s General Counsel for Enforcement and Litigation to assess the maximum allowable penalties for fisheries violations, particularly in those cases where intent was demonstrated, to prevent violators from taking advantage of decreased law enforcement staff due to homeland security obligations. Based on interviews conducted for this report, fisheries enforcement by the U.S. Coast Guard has not yet returned to pre-9/11 levels,

but continues to increase. In addition, recent increases in personnel and equipment assets for Homeland Security operations will continue to increase enforcement presence (especially near-shore), and as an indirect result, may enhance the enforcement of fisheries regulations.

State marine patrols are also becoming increasingly involved in Homeland Security operations. At the time of this study, state marine patrol and conservation officers are responding to new homeland security missions and priorities – responsibilities which expand whenever the national terrorism threat level is upgraded. For example, many state agencies with jurisdiction over fishery regulations in state and federal waters are also responsible for patrolling nearshore “security zones” around key installations and facilities, especially during heightened terrorism alerts. The State of Maine recently signed an agreement with the USCG that could become a national model for federal/state partnerships for homeland security operations. The Maine State Marine Patrol will help the U.S. Coast Guard monitor potential terrorist targets, and state officers will have the authority to take action in certain situations (Richardson 2004). Other states have indicated an interest in developing similar agreements with the Coast Guard for homeland security operations. In addition, some state and federal enforcement officers also serve as reservists with the U.S. Coast Guard, U.S. Army, or U.S. National Guard, and have been called to duty during ongoing military operations.

Section 3.

NOAA's MPA-Related Enforcement Actions

Overview of NOAA's Enforcement Program

(The information in this subsection comes, in its entirety, from a document entitled "Agency Enforcement Options," written by Michele Kuruc, Assistant General Counsel for Enforcement and Litigation, NOAA, from May 1996).

NOAA's enforcement program has two primary goals: 1) to achieve maximum compliance with the statutory requirements; and 2) to make the most effective use of limited enforcement resources. With only 15 enforcement attorneys to handle the thousands of violations detected every year by OLE Special Agents and officers, the U.S. Coast Guard, and state officers, maximizing impact is a necessity. To accomplish these two major goals, NOAA uses a range of enforcement options. They include those specifically authorized by statute: written warnings, civil administrative penalties, permit sanctions, and/or seizing and forfeiting property. In addition, NOAA has developed a few other mechanisms to provide an appropriate level of enforcement response to the many degrees of violations encountered. These include summary settlements, oral warnings, fix-it tickets, and the voluntary compliance program. NOAA has developed its own rules of Civil Procedure that are codified at 15 CFR Part 904. These rules are in the process of being amended.

NOAA has developed a comprehensive system for regulatory enforcement. Hundreds of cases are brought administratively each year. As discussed briefly in Section 2, using the monetary caps in the statutes as a limit, NOAA has developed its own penalty schedules for civil administrative violations. Fashioning a penalty schedule within the parameters of the controlling statute is not an easy task. The schedule should be fair, yet provide sufficient deterrence to potential

violators. The schedules specify the penalty level for first-time offenders and generally increased levels for repeat offenders. These penalty schedules are region-specific where necessary but for those violations that occur along an entire coast or throughout the nation, NOAA tries to have only one schedule to ensure that similar violations are treated similarly.

NOAA's Voluntary Compliance Program is the consolidation of both new and existing measures that implement NOAA's long-standing commitment to techniques that foster voluntary compliance in the regulated community. The Voluntary Compliance Program has several advantages: it enables the Agency to work cooperatively with the regulated community; it assists enforcement personnel in identifying and finding solutions to enforcement problems; and it is a cost-effective way to fulfill NOAA's stewardship for the Nation's living marine resources. Agencies were directed by an Executive Memorandum to exercise their enforcement discretion to waive the imposition of all or a portion of a penalty when a violation is corrected within an appropriate time period.

The Voluntary Compliance Program implements the waiver of penalty mandate with the "Fix-It Ticket Program". Under the Fix-It Ticket Program, a special type of notice is given to individuals who commit violations that have been identified as conducive to waiver of penalty correction. When a Fix-It Ticket is issued, the violator is afforded the opportunity to correct the violation immediately or, when immediate correction is impossible, to correct the violation within a certain time period. There is no follow-up investigation under the Fix-It Ticket Program to determine whether the violation was corrected voluntarily. If the individual who was issued a Fix-It Ticket is encountered later having failed to correct the violation within the specified time

period, then an offense is charged. A Fix-It Ticket violation must be minor and technical and must have no significant natural resource impact.

NOAA has utilized a system called the summary settlement system for over 15 years as an expeditious means to dispose of simple cases involving minor violations. This system has been a tremendous success as hundreds of cases a year are resolved through summary settlement. The summary settlement is an early offer to resolve the case at a reduced rate. Offenses are identified as eligible for summary settlement by being listed on the applicable summary settlement penalty schedule. Summary settlements are typically handled, in their entirety, by OLE agents, U.S. Coast Guard or state enforcement partners. Under this system both NOAA and violators are benefited by a swift conclusion to the matter, saving the parties the protracted expense of prosecution and litigation, as well as providing a timely and efficient deterrence overall.

NOAA uses Written Warnings when a very low level or technical violation of the law has occurred which does not merit a monetary penalty. A written warning can be issued by an OLE special agent or a GCEL attorney. Written warnings may be appealed to a higher level within NOAA because they may be used as prior conviction. The existence of priors may subject a repeat violator to higher penalties. A written warning will state that it is a written warning, the factual and legal basis for its issuance, the appeal process, and the consequences of a written warning.

The Notice of Violation and Assessment (NOVA) is the official charging document in all cases handled by NOAA's enforcement attorneys in GCEL. It supersedes any papers issued by boarding officers or investigating officers. The final decision to issue a NOVA resides with the enforcement attorney and not the documenting officer. The information in the NOVA includes: (1) the respondent's name and address, (2) a concise statement of the facts believed to show a violation, (3) a specific reference to the provisions of the Act and regulation violated, (4) evidence

seized (if any), (5) the findings and conclusions upon which NOAA bases the assessment, and (6) the amount of the civil penalty assessed.

In addition to civil penalties, NOAA can impose permit sanctions. Sanctioning permits is one of the most effective ways to send a strong message to those who commit serious fisheries violations, or who fail to pay civil penalty amounts when they are due. Federal permits are issued by the Agency to allow permitted individuals to lawfully engage in regulated activities. Some, but not all, federally regulated fisheries require permits. Certain activities in National Marine Sanctuaries require permits. Different permitting schemes are required in different places and in different fisheries or sanctuaries.

To effectuate a permit sanction, NOAA serves the violator with a document called a Notice of Permit Sanction (NOPS). When NOAA wishes to prevent the issuance of a permit a Notice of Intent to Deny a Permit (NIDP) is served rather than a NOPS. Like a NOVA, a NOPS or NIDP will set forth the sanction to be imposed, the bases for the sanction, and any opportunity for a hearing. The bases for sanctions or denying a permit are: (1) the commission of any offense prohibited by any statute administered by NOAA, including violation of any regulation promulgated or permit condition or restriction prescribed thereunder, by the permit holder or with the use of a permitted vessel; (2) the failure to pay a civil penalty assessed; or (3) the failure to pay a criminal fine imposed or to satisfy any other liability incurred in a judicial proceeding under any of the statutes administered by NOAA.

NOVAs, NOPSs and NIDPs also advise the respondents of their rights upon receipt of these documents. These rights include, but are not limited to, the right to request a hearing. If the respondent(s) request a hearing, the GCEL attorney will forward that request to the U.S. Coast Guard's Office of the Chief Administrative Law Judge. An administrative hearing is a civil, not a criminal proceeding. NOAA's administrative enforcement cases are heard by U.S. Coast

Guard Administrative Law Judges (ALJ). The rules that govern these administrative hearings are included with NOAA's civil procedure rules at 15 CFR Part 904. Hearings are similar to trials, each side may give opening statements, witnesses are sworn, a court reporter records all of the proceedings, testimony and evidence are received, and each side may cross-examine the other's witnesses. All evidence that is relevant, material, reliable and probative, and not unduly repetitious, is admissible.

The ALJ has a great deal of discretion in deciding cases but the ALJ is not authorized to rule on the validity of a regulation. The ALJ may determine that a violation did not occur. Likewise, if the ALJ determines that a violation did occur, the ALJ may raise, lower or endorse the penalty assessed in the NOVA. The ALJ issues an Initial Decision in which the judge articulates his findings and conclusions regarding the case as well as the penalty determination. After the judge has issued the initial decision in the case, either side may petition the ALJ for reconsideration of the decision within twenty days, or for Administrative review of this decision with thirty days from the date of the decision.

A petition directed to the Administrator of NOAA is discretionary, and it is up to the Administrator of NOAA (or his designee) to decide whether to grant the review. If the Administrator declines review, a petition for reconsideration will not be permitted. In such a case, the Administrator will specify the date upon which the judge's decision will become effective as the final agency decision. If neither party petitions for review, the initial decision of the ALJ will become effective as the final agency decision thirty days after the date of the initial decision.

Overview of NOAA's MPA-Related Enforcement Cases

Between FY 2000 and FY 2004, NOAA Fisheries Office for Law Enforcement (OLE) opened approximately 3000 cases per year. After investigation by OLE, each year an average of 1100 of the opened cases were resolved using the lowest

level of action, such as summary settlement, fix-it notice, written warning, property abandonment or forfeiture. A very small number of cases were referred for criminal prosecution, usually fewer than 25. In approximately 30% (1000) of the cases opened during an average year, it was determined that no further action was appropriate and those matters were closed. Of the remaining open cases, approximately 500 were forwarded to General Counsel for Enforcement and Litigation (GCEL) during a typical year. After review by GCEL, a determination was made that no further action was appropriate in less than 15% of the cases forwarded. The remaining 85% resulted in a NOVA, NOPS, NIDP, some combination of these or a written warning. A hearing before an ALJ was requested in approximately 20% of the cases where NOVAs or NOPS were issued. Settlements concluded many cases prior to the requested hearings, and only in approximately 15% of cases where hearings were requested, were hearings actually held. For the five-year period, an average of \$6.25 million in penalties was assessed annually.

Cases involving MPAs fall within the rubric of the National Marine Sanctuaries Act, Magnuson-Stevens Act, Marine Mammal Protection Act, the Endangered Species Act and more. It is impossible, given the limitations of NOAA's data management system, to determine exactly which cases involve MPAs without engaging in a time-consuming case-by-case review. However, all of the NMSA cases are MPA cases, as well as a large portion of the Magnuson-Stevens Act cases. A smaller number of MMPA and ESA case fall within the MPA definition.

Between FY 2000 and FY 2003, OLE opened approximately 500 NMSA, 1800 Magnuson-Stevens Act, 400 ESA, and 300 MMPA cases per year. As mentioned above, not all of these cases involve MPAs; however, given the broad definition of MPA in the Executive Order, many of these cases will fall within that definition. During the same time period, NOVAs, NOPSs and/or NIDPs were issued by GCEL in approximately 60 NMSA, 275 Magnuson-Stevens Act, 40 ESA, and 15 MMPA cases per year.

Sampling of MPA Cases

For this report, the National Sea Grant Law Center contributed a limited inventory of case law related to administrative enforcement actions in U.S. MPAs (Appendix B). The information presented here is solely based on analysis of this limited sampling of cases. This sampling is limited primarily to NOAA administrative enforcement cases with a written judicial decision after a hearing. Typically, well over 90% of NOAA’s cases that have been charged settle without a judicial determination. This sampling only looks at cases that did not settle and were decided by a judge, i.e., reported decisions – this represents only a handful of cases of the hundreds of NOAA administrative enforcement cases charged each year. This sampling does not include any cases from state or other federal agencies with jurisdiction over MPAs, nor does it include cases from NOAA’s Office of General Counsel for Natural Resources which prosecutes “natural resource damage” cases, but focuses instead only on NOAA administrative enforcement cases. This sampling is not intended to provide a comprehensive analysis of all MPA cases, but to give a snapshot of some types of cases and to highlight some issues involved in MPA enforcement.

The inventory included sixty-two cases involving violations in federal “marine managed areas” between 1983 and 2002 (see Table 3). All of these

cases involved violations of National Marine Sanctuary regulations (34) and the Magnuson-Stevens Fisheries Management Act (28). Just over half of the cases involved fishing violations. Of these, thirty-one involved commercial fishermen, six involved illegal fishing by recreational divers, and one involved a charter boat operator (respondents were not identified in four cases). Of the remaining twenty cases (not fishing related), most involved boat groundings on Florida reefs (17 cases), one involved the removal of artifacts from a protected shipwreck, and the three remaining cases involved an aircraft flying in restricted airspace over a protected area, and a commercial tow vessel damaging seagrass habitat while towing a length of dredge pipe.

Of the sixty-two cases, only four cases were ruled in favor of the respondent. Of those four, two were charges against the owner of vessels that were either rented or borrowed; the owners were found not liable, but the operators were. In the other two cases that were ruled in the respondent’s favor, one was a petition for a consideration of lower sanctions because of alleged financial inability to pay, and the other was a fishing violation for which the issuing agency failed to establish proof that a violation had occurred. This was the only case where a lack of evidence led to a case dismissal – out of 21 cases where evidence was challenged.

Primary Issue	# Cases
Proof of violation	21
Owner/Captain liability	10
Procedural issues	9
Reason other than fishing for being in restricted area	7
Penalty too high	3
No intent to violate	5
Jurisdictional issues	1
Availability of legal mooring sites	1
Location of violation	1
Whether emergency exception applied	2
(Uncontested - failed to appear)	2
TOTAL	62

Table 3. Issues raised by defendants in cases related to MPA enforcement actions

Highlighted Issues

Liability of Vessel Owners

In those administrative cases with reported decisions, a number of cases involved charges for owners who were not aboard the vessel at the time of the violation. Owners are liable for violations committed by operators of their vessels; in these cases the owners can be charged jointly and severally with the vessel operators. Owners of rented vessels were found not liable for resource damages, as long as their vessels were seaworthy and the operators were reasonably informed of how to operate the vessel properly (for example, providing nautical charts, and guidance on the avoidance of, and proper reaction to, groundings in sensitive habitat areas). Owners of commercial vessels, however, were often charged with violations that occurred with their vessels even though they were not present at the time of the violation. For example, the holding of one case was that “owners and operators are responsible for knowing the regulations which established the longline and buoy gear restricted area and prohibited their fishing for reef fish within those boundaries.” Other reasons have also been reported, like fiscal benefits flowing to the owner.

Responsibility for Understanding Regulations

Individual fishers were consistently held responsible for knowing and adhering to fishing regulations. In a number of cases, fishers attempted to use ignorance of regulations as a defense for a violation. However, intent does not have to be demonstrated for almost all civil violations under the Magnuson-Stevens Act and NMSA. The cases reviewed here consistently held that fishers are responsible for knowing the regulations of the area where they are fishing, including the locations of any fishery closure areas.

The same principle applied with respect to fishing gear. Fishers were held responsible for the proper stowing of gear when transiting protected areas, and for any gear left in the water. If storms, tides, or currents cause traps to drift into areas where they are prohibited, the fisher usually remains

responsible for their location. Fishers were held responsible for the placement of traps outside a closed area without an allowance for any migration that might be caused by natural processes or disturbances. The only exception to this rule is the defense that a trap found in a protected area was lost. However, trap owners must file timely reports on missing traps to use this defense successfully.

Although fishers generally bear the responsibility of knowing current regulations, there were some cases where leniency was granted to recreational fishermen. For example, one case described a group of spearfishers who were erroneously informed by a dive shop owner (verified during testimony) that they could spearfish in a prohibited area. The respondents were still fined \$1,000 each, but were only required to pay \$300 if they committed no further violations.

If a fisher experiences mechanical problems and drifts into protected waters, he/she can still be found liable for fishery violations. One example was a case involving a fisher in a restricted area of a National Marine Sanctuary. The final ruling stated that the fishers could not “evade responsibility for non-compliance with the closed area restriction by asserting severe weather conditions and mechanical problems. Regardless of [the fisher’s] reason for transiting the closed area, he remains strictly liable for a failure to properly stow the gear and render it unavailable for immediate use.”

This analysis also revealed many arguments concerning vessel groundings on coral reefs. An “emergency exception” to the protected area regulations was claimed by the respondent in several instances, but never successfully. In most cases, the emergency exception was not considered valid because the defendants created the circumstances causing the grounding.

Inability to Pay Fines

NOAA’s Civil Procedure regulations state that a respondent’s ability to pay must be considered, if the respondent claims an inability to pay the assessed penalty. The respondent must provide

accurate, complete and verifiable financial information sufficient for the enforcement attorney or ALJ to make a determination on the respondent's ability to pay. Some statutes, such as the Magnuson-Stevens Act, state that NOAA may consider a respondent's ability to pay before assessing a penalty, however, that requirement only applies when NOAA has information regarding the respondent's ability to pay in advance of penalty assessment. The burden of proving an inability to pay lies solely with the respondent.

Repeat Offenders

Leniency was never demonstrated towards repeat offenders. In cases that specifically mentioned repeat violators, the maximum penalty was often issued for the pending violation. In a case of repeat violators illegally trawling for shrimp in the Tortugas Shrimp Sanctuary, the respondents were fined a penalty of \$25,000 (the maximum authorized penalty at that time). A violation occurring in an area closed to surf clamming also received the maximum penalty of \$25,000 because of two prior violations of the Magnuson-Stevens Act. One case involved a prior violation that was discovered during the hearing. The fisher was fined \$5,000 for the pending violation and \$15,000 for the previous violation. One of the most severe penalties assessed involved a vessel that was observed and documented committing over forty incursions into a closed area over a number of days. The owner and operator were jointly and severally assessed a civil penalty in the amount of \$250,000, and their fishing permit was revoked. In another case, a fisher received a NOVA, and the very next day was apprehended for fishing in a closed area. He was fined \$60,000 and received a 120-day permit sanction.

"Fishing the Line"

A commonly documented behavior of fishers involves "fishing the line" between a marine protected area and adjacent waters. Several cases in this sampling involved fishers who were fishing, and subsequently crossing, a protected area boundary. In general, the findings of these cases were that any incursions inside MPA boundaries

while "fishing the line" constitute a violation. For example, the holding from one case stated that, "Riding down the line, which has no particular thickness, constitutes operation within closed area ... Crossing that line, even if only by seconds, cannot be excused as 'Loran jitter.'" In another case, a vessel in need of repair was fishing along the boundary of a closed area. When the vessel became disabled, it drifted into the closed area. The fisher argued that this constituted an "emergency exception," but the judge ruled: "In an instance such as this when a fisherman chooses to fish on the boundary of a closed area knowing that his vessel is in need of repair at the time he leaves port to fish, the assertion of 'emergency' or 'necessity' carries little weight."

Proof of Violation

An issue that arose in several cases involving fishery violations was whether or not "fishing" was actually taking place. The Magnuson-Stevens Act broadly defines "fishing" as: (A) the catching, taking, or harvesting of fish; (B) the attempted catching, taking, or harvesting of fish; (C) any other activity which can reasonably be expected to result in the catching, taking, or harvesting of fish; or (D) any operations at sea in support of, or in preparation for, any activity described in subparagraphs (A) through (C) [16 U.S.C. § 1802(15)]. This definition was adopted after difficulties had been encountered in trying to determine when actual fishing underwater was occurring, or whether gear had actually captured anything at the time of interception by enforcement personnel. In one such case, the court held that "[I]f a vessel is observed fishing in closed waters or a commercial fishing vessel rigged for fishing is observed in the closed area, the inference may be drawn that any fish on board were taken in the closed area." In another case, damage to the resource was presumed when a fishing vessel was in a closed area. The claim of "no fishing, no damage" was held frivolous in these cases. The same principle applied to recreational fishers – in a case involving a spearfisher who had illegally possessed a speargun in National Marine Sanctuary waters, but had no fish, the court held that "taking a speargun weapon into the water is,

in and of itself, a violation of the regulations governing sanctuary activities.”

Use of Covert Operations

One case reviewed for this sample demonstrated the potential effectiveness of covert agents in marine-related enforcement operations. The case involved the monitoring of recreational divers on protected shipwrecks in the Channel Islands National Marine Sanctuary. From October 2-4, 1987, about thirty people on a dive trip aboard a commercial dive vessel were accompanied by

two covert National Park Service rangers, who witnessed several of the divers removing parts of shipwrecks or debris fields. The divers were detained and searched upon their return to port. All respondents were found to have violated sanctuary regulations, and fines ranged from \$1,000 to \$10,000. The dive boat owner was described by the Administrative Law Judge as having a “blatant disregard of Federal law” and provided justification for the Administrative Law Judge to increase the Agency-proposed \$6,000 penalty to \$100,000.

Section 4. Case Studies

Overview

Three MPA systems were chosen for case studies that involved site visits, interviews, and meeting attendances. For each case study, interviews were arranged with managers, enforcement officers and agents, education/outreach specialists, and various stakeholders. Individuals selected for interviews are not considered “representative” of specific interest groups – extensive and random survey sampling was beyond the scope of this study. Rather, individuals were selected to gain a wider range of perspectives on enforcement issues, and were usually recommended by other study participants. Responses to interview questions reflect only those individuals’ opinions and not official government positions or policies. Each case study is presented separately; further comparisons and analyses are included in the discussion of national recommendations in Section 5. A list of participants is included in Appendix C.

Case One: Florida Keys National Marine Sanctuary

Introduction

The Florida Keys National Marine Sanctuary (FKNMS) was established in 1990 through the Florida Keys National Marine Sanctuary and Protection Act (PL 101-605). The sanctuary, which includes approximately 2,900 square nautical miles, encompasses the previously designated Key Largo National Marine Sanctuary (1975) and Looe Key National Marine Sanctuary (1981). The sanctuary’s regulations were established in the Final Management Plan (USDOC 1996), and became effective on July 1, 1997 (NOAA 2004).

In general, sanctuary regulations focus on the protection of habitats, water quality, and living

resources. The FKNMS also established a unique zoning system for sensitive habitat areas. Five different marine zone types were established: “Existing Management Areas” (which include Key Largo and Looe Key National Marine Sanctuaries, National Wildlife Refuges, Florida Aquatic Preserves, and Florida State Parks), “Wildlife Management Areas,” “Ecological Reserves,” “Sanctuary Preservation Areas,” and “Special-Use Areas.” It should be noted that fishing is allowed generally throughout the FKNMS, except in certain limited portions of these marine zones.

In 2001, the sanctuary worked with the State of Florida, Gulf of Mexico Fishery Management Council, and NOAA Fisheries to establish a 151 square nautical mile “Ecological Reserve” in the Tortugas, a remote region at the western edge of the sanctuary. The Tortugas Ecological Reserve prohibits all extractive uses, and therefore constitutes the largest fully-protected marine reserve in U.S. waters (Cowie-Haskell and Delaney 2003). The Reserve is divided into two units: Tortugas North and Tortugas South. Tortugas North allows for non-extractive diving (with a free, phone-in permit), while Tortugas South allows only transit passage (gear must be stowed), except for researchers and educators holding special sanctuary permits. Vessel discharges and anchoring are also restricted in the Reserve (Kessler 2003).

Enforcement Assets

With an annual budget of approximately \$6.6 million, the sanctuary devotes approximately \$2.3 million to its Sanctuary Enforcement Team (SET) (Horadam 2003). At the time of this study, the SET includes 17 Florida Fish and Wildlife Conservation Commission (FWCC) enforcement officers who have been contracted specifically to enforce sanctuary regulations. Seven of these officers are primarily focused on enforcement of the Tortugas

Reserves. SET officers utilize two 28-foot and six 30-foot enforcement vessels for nearshore patrols, as well as an 82-foot vessel for extended patrols of the Tortugas Reserves. During a one-year period from 2002-2003, the Sanctuary Enforcement Team recorded 14,386 hours of water patrols, 9,205 vessel inspections, and contacts with 24,414 users.

For nearshore vessel patrols, four officers and vessels are assigned to each half of the sanctuary from Key Largo to Key West, with the city of Marathon as the dividing point. Enforcement vessels are outfitted with radar, Global Positioning Systems (GPS), night-vision capabilities, “Radar Targeting” software, and chart plotters that can overlay zone boundaries and vessel positions on radar plots. These technologies allow patrols at night and in adverse weather conditions. In addition, several vessels carry small kayaks to aid officers in approaching and assessing vessel groundings in shallow water. FWCC air patrols are also coordinated with SET enforcement activities.

Cellular phones have recently been provided to all enforcement officers to improve internal communications and to foster direct communications with stakeholders. A citizen can communicate with individual enforcement officers directly, rather than through the central dispatch office or their VHF radio (which is essentially range-limited to line of sight). Officers have also been provided with digital cameras, and, in some cases, video cameras with underwater housings, to document violations.

Partnerships/Collaborations

A key enforcement partnership for the FKNMS has been developed with the State of Florida’s Fish and Wildlife Conservation Commission through Cooperative (CEA) and Joint Enforcement Agreements (JEA) with the NOAA Fisheries Office for Law Enforcement (USDOC 1999). Under these agreements, FWCC officers are authorized to enforce the National Marine Sanctuaries Act (including all FKNMS regulations), as well as the Magnuson-Stevens Fishery Conservation and Management Act, Lacey Act, Endangered Species Act, and Marine Mammal Protection Act. NOAA provides

the FWCC with investigative support from the NOAA Fisheries Office for Law Enforcement (OLE), patrol vessels, and funding for enforcement positions and operations, in exchange for the state’s established training and enforcement infrastructure, and the officers’ enforcement of all state laws within the sanctuary. As described above, the sanctuary directly contracts 17 FWCC officers for the Sanctuary Enforcement Team. The FWCC has approximately 25 additional enforcement officers who, while not directly contracted by the sanctuary, routinely patrol sanctuary waters and have the authority to enforce both state and federal regulations. These officers can (and have) enforced sanctuary regulations, but have traditionally assigned highest priorities to the enforcement of state regulations.

OLE generally works with sanctuary officers on investigations of major fishery violation cases. Two OLE Special Agents are stationed in the Florida Keys, and work with the sanctuary to assist with enforcement operations and facilitate communications among relevant federal, state, and local jurisdictions. In addition, OLE will soon begin using a fixed radar tower to monitor vessel activities in the Tortugas Ecological Reserves.

The U.S. Coast Guard has several large offshore patrol vessels based in Key West that are used in conjunction with sanctuary patrol vessels for enforcement of the Tortugas Reserves, in addition to other USCG missions. Sanctuary and USCG officers have traditionally cooperated through joint patrols, training, equipment, and occasionally on enforcement actions for significant violations. For example, sanctuary officers have flown with Coast Guard aircraft to spot zone violations, and the Coast Guard recently contributed C-130 overflights to a sanctuary case. The USCG has the authority to enforce sanctuary regulations under the National Marine Sanctuaries Act (16 U.S.C. 1431 et seq.).

The National Park Service is developing an agreement that would authorize the cross-deputization of NPS rangers to enforce National Marine Sanctuary regulations nationwide (see Section 2), which is of particular importance to the FKNMS given the three National Parks that

border the sanctuary (Dry Tortugas National Park, Everglades National Park, and Biscayne National Park). The Park Service has already cooperated closely in the Tortugas 2000 project, which resulted in the establishment of the Tortugas Ecological Reserve (Kessler 2003). Joint patrols and training activities have taken place in the Tortugas, and are anticipated to continue.

The Florida State Park Service has recently been cross-deputized to enforce sanctuary violations, and training is ongoing. This is of particular benefit to the Park Service in dealing with groundings, since the state's treatment of groundings as criminal violations is less effective than using federal civil citations (see Penalties and Litigation section, below). Cooperation between the State Park Service and the FWCC is increasing. FWCC officers also cooperate with Monroe County Sheriff's Deputies and Key West Police Department marine patrols.

There are three National Wildlife Refuges in the sanctuary – the Key West NWR, National Key Deer NWR, and Great Heron NWR – that fall under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS). At this time, USFWS patrols appear to be limited, but past collaborations have occurred with the SET.

The sanctuary is also focused on integrated enforcement through a watershed-based approach. Under a new Memorandum of Agreement with the FWCC (in development), state officers are asked to increase their focus on other federal and state regulations that may benefit the sanctuary's resources, such as the Clean Water Act, Oil Pollution Act, Marine Plastic Pollution Research and Control Act, Abandoned Shipwrecks Act, Archaeological Resources Protection Act, and Migratory Bird Treaty Act (USDOC 1996).

Zones and Boundaries

The unique zoning system developed for the FKNMS focuses management and restrictions on critical habitat areas – primarily shallow reef habitats (Figure 1). Interviews consistently revealed perceptions that the zones are beginning

to produce positive results, such as increased fish populations and sizes. For this reason, dive operators appear to be using protected zones almost exclusively during charters. Demonstrating the success of these zones was considered to be of great significance locally, since many stakeholders were convinced of the value of MPA networks and ecological connectivity during the sanctuary's planning stages.

Compliance with zone boundaries was generally perceived to be high, and this has been verified to a degree through overflight surveys that have shown vessels "fishing the line" at specific reserve boundaries. Compliance has likely improved with recent cooperation between the sanctuary and NOAA's Office of Coast Survey that resulted in the sanctuary's zones being added to official NOAA nautical charts for the region. The zones, are also incorporated into software for private GPS units, so that owners can have a digital display of their position relative to zone boundaries. At this point, NOAA charts do not include regulatory information about the different zone types.

Education/Outreach

One of the central tenets of the sanctuary's enforcement philosophy involves the regular interactions between enforcement officers and users. Termed "interpretive enforcement," the sanctuary "seeks voluntary compliance primarily through education of users" (USDOC 1996). The interpretive enforcement approach involves officers explaining to users the nature and importance of their work, as well as handing out informational packets related to sanctuary resources and regulations. Individual interactions are left to the discretion of the officer, so in dealing with a visitor to the Keys, for example, an officer may decide to focus primarily on education and written warnings for minor offenses. Officers also set up booths with education specialists for public events, and one sanctuary officer regularly answers call-in questions and discusses the sanctuary on local radio shows. Enforcement officers also regularly attend Sanctuary Advisory Council meetings. The Sanctuary Enforcement Team has recently added pages to the FKNMS website pro-

Florida Keys National Marine Sanctuary

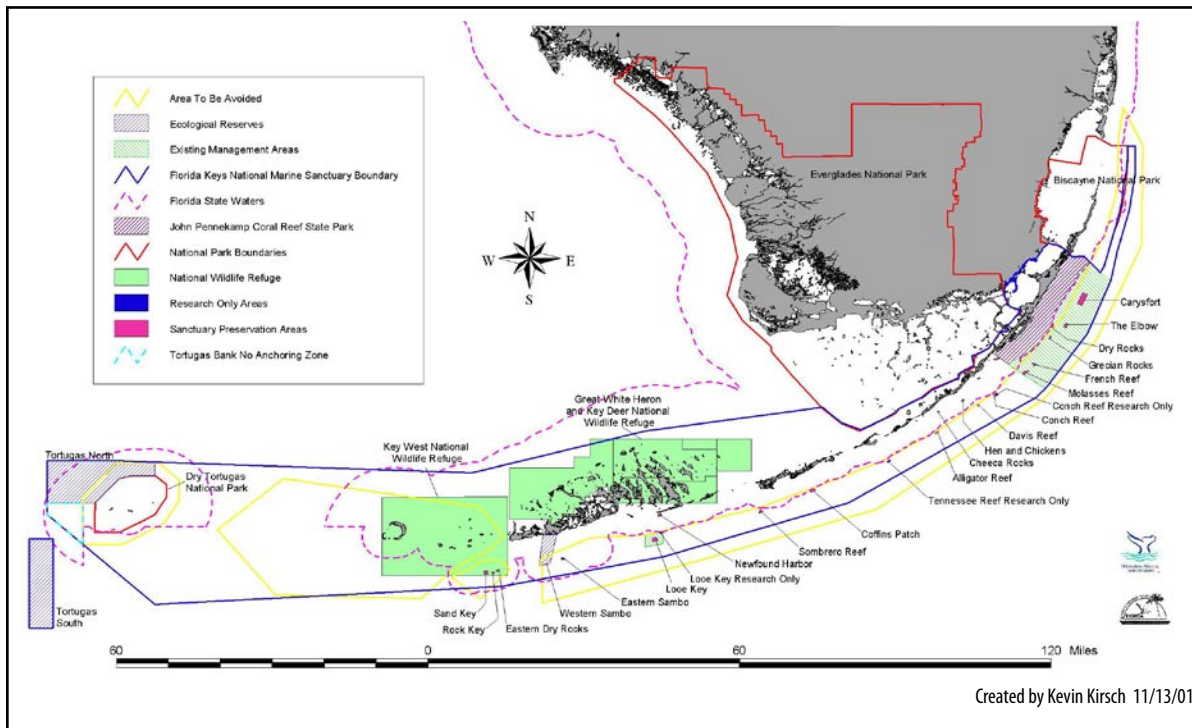


Figure 1. Florida Keys National Marine Sanctuary boundaries and zones
(source: www.fknms.nos.noaa.gov/research_monitoring/map.html).

viding a full overview of enforcement activities and philosophy (FKNMS 2004). Given the high population turnover rate in the Florida Keys (estimated at 50 percent every five years), interpretive enforcement is still considered an important part of the sanctuary’s approach.

A second key aspect of the sanctuary’s outreach efforts involves a “Team OCEAN (Ocean Conservation Education Action Network)” initiative. Team OCEAN is a volunteer-driven education/outreach program that provides information to users through presentations to marine-related businesses and organizations, responses to questions from the public, and direct contacts with vessels in the sanctuary. Volunteers use special sanctuary vessels to hand out informational packets on sanctuary resources and regulations. These trained volunteers are stationed at heavily visited reef sites and Sanctuary Preservation Areas, and are integral to achieving compliance, especially among visiting boaters. Although the volunteers have no enforce-

ment authority, their presence is likely a deterrent, and usually allows sanctuary enforcement officers to patrol elsewhere (FKNMS 2004).

The sanctuary’s central focus on education and outreach is coordinated by a permanent staff of education/outreach specialists. The staff has developed a wide range of outreach products and interactive programs for user groups, such as brochures specific to each region of the sanctuary and restricted activities (for example, spearfishing, zones, vessel groundings, and lobster regulations). The education/outreach team has also worked with NOAA’s Office of Coast Survey to include the sanctuary’s zoning system on official nautical charts for the region, and is developing chart “blowups” for specific regions of the sanctuary to provide greater detail and educational information. Education and outreach efforts are occasionally focused on specific user groups, such as boat rental businesses (educational video product) and recreational boat ramps (signage

with regulatory information). Partnerships have been essential for coordinating and consolidating education and outreach efforts in the sanctuary, given the large number of relevant environmental agencies and organizations.

Penalties

During a one-year period from 2002-2003, the Sanctuary Enforcement Team issued 407 federal charges, ranging from summary settlements through NOVAs, for violations of the National Marine Sanctuaries Act, resulting in \$145,123 in fines/penalties (Horadam 2003). Sanctions for federal sanctuary violations may include monetary fines and catch, vessel, and permit seizures; however, vessel seizures are rare, and only those permits issued by the sanctuary are subject to revocation for violations of the NMSA. Therefore, most state- and federally-permitted commercial fishers do not risk losing their fishing permits for sanctuary violations. However, NOAA's procedural regulations allow for the sanction of fishing permits if the sanctuary violation penalty is not paid. For sanctuary violations (and all other statutes enforced by the NOAA Fisheries), a "summary settlement" can be issued according to a fixed penalty schedule for minor infractions, while a Notice of Violation and Assessment (NOVA) and/or a damage assessment action is typically issued for significant violations, where the penalties vary with the circumstances of each case but cannot exceed statutory maximums (See Section 3 of this report). For example, summary settlements associated with limited coral or seagrass groundings range from \$100 to \$775 (for groundings that damage an area of up to 10 square feet of coral or 10 square yards of seagrass). For more significant groundings, biologist-staffed damage assessment teams are called in for resource damage surveys, and depending upon the extent and gravity of the violation and damage to the resource, a NOVA, a damage assessment claim or combination of the two may be pursued.

Under the federal statutory and regulatory scheme, violations of sanctuary regulations are primarily civil, whereas under the State of Florida's statu-

tory and regulatory scheme MPA violations are processed in the State's criminal system. This has a number of important implications. First, fines for civil violations of the NMSA or sanctuary regulations generate sanctuary revenue. In the FKNMS, monetary penalties assessed in civil administrative actions go into the FKNMS general fund to be used as deemed appropriate. The largest monetary penalties for civil violations stem from damage assessment actions, which are directed toward restoration activities. Second, criminal cases usually require proof of intent to violate. Intent is difficult to prove, for example, in grounding cases, which are generally accidents based on varying degrees of negligence.

In general, interviewees indicated that most users are unaware of the full range of penalties for minor infractions, and of the difference between federal civil violations and state criminal violations. However, fines for groundings, "Area to be Avoided" violations for commercial shipping, and commercial fishing violations were considered by most interviewees to be high enough to deter violations. Significant cases related to these violations have been publicized (both strategically and in response to media requests), and the media attention has been used to promote sanctuary awareness. In some cases, increasing awareness of the potential fines for groundings may have had unintended side effects – vessel owners have attempted to "power off" of seagrass banks or coral reefs before enforcement officers arrive, significantly increasing damage to the resources.

Litigation/Prosecution

The majority of sanctuary cases are settled out of court, and interviewees indicated that users widely believe that few violators successfully contest their charges. One reason for the success of GCEL was attributed to ongoing communications and strong relationships between enforcement officers/agents and attorneys. Violators often assert ignorance of sanctuary rules as a defense; however, ignorance of the law is legally insufficient and the Sanctuary's focus and efforts on education and outreach belies these claims and facilitates prosecutions for GCEL.

Successes

A majority of the interviewees perceived increasing compliance and acceptance of the Florida Keys National Marine Sanctuary across all user groups, and in some cases described requests for additional regulations or zones from stakeholders who had once opposed the sanctuary. Compliance was also perceived to be high throughout the unique zoning system implemented in the sanctuary. This was particularly true in the Upper Keys, where local residents were already familiar with Marine Protected Areas based on a history of special area-based regulations (for example, Everglades National Park, John Pennekamp Coral Reef State Park).

Through strategic, proactive, and targeted enforcement operations, the Sanctuary Enforcement Team has apprehended major violators resulting in successful prosecutions, and has taken advantage of key partnerships with agencies having different enforcement assets and jurisdictional responsibilities. In addition, the sanctuary's "interpretive enforcement" approach has succeeded in gaining high levels of compliance, and gaining a reputation for fairness and professionalism among its officers. The sanctuary's approach to enforcement will continue to serve as a model for other MPA systems.

Current Challenges

1. Maintaining Enforcement Presence

While the effectiveness of nearshore patrols and the reputation of enforcement officers were considered exceptional, the presence of enforcement officers was generally considered to be too low within the nearshore areas of the sanctuary, from Key Largo to Key West. Currently, four officers and vessels are assigned to each half of this broad expanse of the sanctuary. After factoring in onshore activities such as court appearances, paperwork, communications, training, and sick/annual leave time, the number of officers on the water on any given day is substantially reduced. Training for non-sanctuary related enforcement has increased under new Homeland Security

responsibilities. Land-side commute times are also included as working hours, and are generally higher for officers in the Lower Keys due to a lack of affordable housing in Key West. Round-trip commutes to and from a vessel stationed in Key West can total three hours on an average day, which substantially reduces at-sea patrols.

Several interviewees perceived reduced responsiveness to citizens' reports of illegal activities, especially during the busier summer season. This is not surprising in light of the size of the sanctuary (almost 3,000 square nautical miles) – if an officer is 20 nautical miles away from an alleged violation, s/he may not be able to investigate a report due to the time required to arrive at the scene. In addition, some interviewees perceived an increasing number of violations based on personal observations and rumors. Finally, some interviewees reported reduced personal familiarity with the law enforcement officers, especially in the Lower Keys. This was partially attributed to an increasing turnover rate among officers, which in turn was blamed on a lack of affordable housing in the area.

2. Strengthening Enforcement Partnerships

The State of Florida has a longstanding history of cooperative enforcement work with National Marine Sanctuaries – dating back to the Key Largo National Marine Sanctuary in 1975. Recently, however, a significant change was made in the organizational structure for FKNMS enforcement. The state enforcement officers (FWCC) no longer report to sanctuary managers, but instead follow their own, separate chain of command. This was perceived by some as a challenge to ongoing communications between officers and managers, since sanctuary/FWCC officers spend more time with their state counterparts than with sanctuary managers and staff.

One important facet of this organizational change concerns the day-to-day priorities of each sanctuary enforcement officer. Officer discretion – on enforcement actions and on the treatment of individual cases – was considered to be critical to the success of the law enforcement team. However, given the time requirements of FWCC officers for Customs, Immigration and Naturalization Service, and other state responsibilities, some interviewees were concerned that the sanctuary's regulations were not guaranteed a high priority under the current organizational framework.

Partnerships between the Sanctuary Enforcement Team and other agencies also face the ongoing challenge of staff turnover, which is especially high within the U.S. Coast Guard. Ongoing training is needed in order to take advantage of the enforcement assets of these agencies. At the time of this study, the sanctuary is developing a regulatory reference aid and consistent training schedule to help the USCG recognize and enforce sanctuary violations. The sanctuary is also linking communications with the USCG through cellular phones.

3. Improving Zones and Boundaries

Despite generally high levels of compliance with special protection zones in the sanctuary, a number of continuing violations were of concern. Most notably, visitors to the Keys often violate special zones due to ignorance of the regulations. Yellow buoys mark the boundaries of most reserves (at significant purchase and maintenance costs), and extensive education and outreach efforts have focused on improving the public's understanding of the zoning system. Still, visiting mariners are often unaware of the significance of the yellow buoys, and occasionally even tie up to the markers as moorings. And for those who are aware that the buoys have some resource protection meaning, many are confused by

the differing types of zones, and by those zones that share boundaries with other zones or are nested within other zones.

Interviewees were generally opposed to increasing the number of marker buoys (even assuming available funding) to increase visitors' compliance, because they were satisfied with the balance between boundary clarity and the intrusive nature, aesthetic costs, and maintenance costs of additional buoys. In general, managers felt that prudent mariners should know their position at all times and educate themselves on local regulations; and that the buoys are meant only to assist mariners, not suffice as zone boundaries. Some stakeholders suggested that vessel positioning relative to zone boundaries was not so simple a task, especially in the absence of north-south, east-west latitude/longitude-based zone boundaries. There was some indication that officers may hesitate to cite a violation when buoys were misleading or absent. Community self-enforcement appears to be playing an important role in reducing the impacts of violations of protected zones, since most violators are visitors who are more than willing to leave a zone when notified by a local user.

Finally, some of the zones were perceived to be designed with insufficient consideration of enforceability; including size, boundary alignment with lines of latitude and longitude, and rule exceptions or multiple uses that impose additional vessel inspections by enforcement officers and can cause confusion or mislead other user groups. In addition, it was considered to be more difficult to prosecute boundary violations for small SPAs – since some are only ¼ mile wide, there is little room for error.

Needs and Suggestions

1. Raising Public Awareness

Despite the sanctuary's considerable past investments in education and outreach,

interviewees noted that public education on the sanctuary's resources and regulations is a never-ending task, made even more difficult by the high population turnover rate. Interviewees proposed several recommendations for improving public awareness of the sanctuary. First, some interviewees suggested that education and outreach activities should increasingly focus on the sanctuary's goals, rationale, and regulations, relative to education focused on the environmental resources of the sanctuary. In particular, one interviewee suggested increasing the focus of education on the economic benefits of the sanctuary. Second, it was recommended that educational messages be delivered increasingly through the mainstream media – primarily television and radio – since sanctuary brochures compete with the numerous “fun” brochures found in hotels, restaurants, and other businesses. Several interviewees suggested a dedicated sanctuary information channel on VHF radio, as a counterpart to NOAA Weather Radio channels.

2. *Gaining Public Support*

Public support was consistently described by interviewees as the key to gaining compliance with the sanctuary's regulations. Despite the sanctuary's past success in gaining public support, interviewees suggested that officers increase their land-side interactions with various stakeholder groups. For example, when the sanctuary was first established, a meeting was held to introduce enforcement officers to charter operators. Interviewees suggested that these types of meetings were very beneficial, and should be held more regularly due to the increasing turnover rate of officers. In addition, a number of stakeholders suggested that enforcement officers spend more time “walking the docks” at local marinas. It was noted that marinas can be breeding grounds for rumors and misinformation, and provide

opportunities for officers to hear feedback from a wide range of users. This would also serve to increase stakeholders' familiarity with individual officers, which can be an important factor in gaining trust and compliance. Finally, it was suggested that follow-through on citizen reports of illegal activities was important, and that records should be kept of call-in reports and case outcomes in order to keep track of overall responsiveness.

3. *Increasing Enforcement Assets*

Most interviewees suggested that additional enforcement officers, vessels, equipment, and infrastructure were needed to increase the Sanctuary Enforcement Team's on-the-water presence. The FKNMS Final Management Plan was the first sanctuary management plan to specify a sufficient number of officers (37) within its enforcement action plan. The current number of sanctuary-contracted FWCC officers is 17. Some interviewees indicated that establishing a permanent federal sanctuary enforcement team, rather than a federally-contracted state enforcement team, would better ensure the enforcement of sanctuary regulations, a more consistent enforcement presence, and lower officer turnover rates due to higher salaries and benefits. Given current enforcement assets, the Sanctuary Enforcement Team is considering the strategic placement of vessels, using a 20 nautical mile radius between vessel locations, to ensure better coverage throughout the sanctuary. Another suggested option was to increase the presence of Team OCEAN volunteers in key areas.

In general, there was limited interest in new enforcement technologies due to costs, the need for additional onsite evidence collections, and expert witnesses for litigation. Current technologies, including the new use of fixed radar stations, were perceived as sufficient, although there was some interest

in stationary video cameras for highly visited Sanctuary Preservation Areas. Vessel maintenance was considered a critical need, and one that the sanctuary might consider investing in rather than relying on existing state maintenance infrastructure. Finally, air patrols were perceived as highly effective, and several interviewees suggested that the coordination of vessel and aircraft patrols be expanded for sanctuary enforcement.

4. *Strengthening Enforcement Partnerships*

It was generally reported that a need exists for more consistent sanctuary training for the FWCC as well as other enforcement partners – including training with biologists for grounding assessments, and education/outreach workshops for new officers. In addition, several interviewees suggested that regular meetings, both on and off-duty, between sanctuary officers, managers, and education/outreach specialists would be highly beneficial.

5. *Gaining Compliance with Sanctuary Zones*

During the development of the zoning system for the FKNMS, a number of environmental, political, and enforcement considerations had to be balanced. As a result, some interviewees suggested that the current zoning system is too complex, that some of the boundaries are difficult for average users to interpret, and that some zone violations are difficult to prosecute due to their small size. In addition, a significant number of interviewees suggested that current regulatory exceptions for certain user groups greatly reduce the enforceability of certain zones, and may reduce compliance among other users. It was generally recommended that these design parameters be considered in future zone additions or amendments, and that rule exceptions be minimized and/or rescinded in order to achieve improved compliance with special zone restrictions.

6. *Ensuring Successful Litigation*

Coordination of legal and law enforcement staff was considered critical to the successful litigation of sanctuary cases. Officers are considered well-informed and well-skilled in case documentation. Two suggestions were compiled from interview responses to litigation questions. First, some interviewees suggested a need for increased consistency on charges levied for similar offenses. Second, it was suggested that greater deterrence could be achieved if the State of Florida's fishery regulations included language making permit revocations possible for violations of National Marine Sanctuary regulations, as is the case with the Magnuson-Stevens Fishery Conservation and Management Act.

Case Two: Channel Islands Marine Protected Areas

Introduction

In 1998, a local citizens' group requested that California's Fish and Game Commission establish a system of Marine Protected Areas around the northern Channel Islands (including the islands of San Miguel, Santa Rosa, Santa Cruz, Anacapa, and Santa Barbara). Following four years of public meetings, debates, and planning, twelve sites were designated, including ten "State Marine Reserves" and two "State Marine Conservation Areas." These Channel Islands MPAs cover a total of approximately 102 square nautical miles. In accordance with the state's Marine Managed Areas Improvement Act (CA Fish and Game Code §1590-1591), State Marine Reserves are basically defined as "no-take" areas, while State Marine Conservation Areas allow limited recreational and/or commercial fishing activities. The MPA regulations officially took effect on April 9, 2003 (Title 14 CA Code of Regs §632) (Davis and Lopez 2004).

Enforcement Assets

Fifty-seven full-time enforcement officers (wardens) patrol state marine waters for California's Department of Fish and Game (DFG, Marine Region), with each marine warden responsible for approximately 25 miles of shoreline and 4,500 square miles of open ocean enforcement (California DFG 2004). For the northern Channel Islands region, three DFG Lieutenants and four warden/boarding officers are based in Santa Barbara and Ventura Counties. The DFG has stationed a new 54-foot DFG patrol vessel (the Swordfish), complete with radar tracking, chart plotting, night vision, and infrared technological capabilities, in Ventura and has dedicated the vessel to patrolling the Channel Islands MPAs. A DFG patrol vessel is also stationed at Dana Point and assists with enforcement in the Channel Islands. The DFG also uses a 25-foot skiff outfitted with davits for trap recovery, and several smaller skiffs that can be used as weather conditions permit, but these smaller vessels do not regularly patrol the Channel Islands MPAs. Two DFG airplanes also conduct periodic patrols over the Channel Islands, with Marine Region wardens as pilots. The DFG often focuses these various enforcement assets on high-use time periods, such as weekends and holidays; and on the eastern region of the Channel Islands, where most users are concentrated due to the relative proximity to the mainland coast. From Feb. 2003 – Feb. 2004, the DFG contributed 1,357 vessel patrol hours and made 3,775 contacts in the Channel Islands MPAs (15.5% of all patrol hours).

The Channel Islands National Marine Sanctuary funds two research vessels (62-foot and 45-foot) that spend an average of 180 days per year in the Channel Islands, and can report violations and therefore play an important role as deterrents. A single Channel Islands National Marine Sanctuary (CINMS) airplane is also used to conduct regularly monitor vessel activities (bi-weekly), and can communicate with DFG vessels via marine radio.

The Channel Islands National Park (CINP) employs six full time rangers that are residents of several islands. These rangers maintain a constant presence in the form of "visual spotting stations" for some marine reserves. The Park also

has three patrol boats moored at these islands, and three additional vessels based in Ventura, and routinely patrols the Channel Islands MPAs through a cooperative relationship with the California Department of Fish and Game (see "Partnerships/Collaborations" section below).

New enforcement technologies were of limited interest to each of the enforcement agencies, due to costs and perceived intrusiveness. In addition, radar signals are inhibited by the profiles of the islands, and Vessel Monitoring Systems were considered to be of limited value in marine reserves where access is not restricted.

Partnerships/Collaborations

Several partnerships were initiated during the planning phase of the Channel Islands MPAs, when the Channel Islands National Marine Sanctuary (CINMS) worked with California's Department of Fish and Game (DFG) to develop a new public involvement process based on lessons learned during planning for the Florida Keys National Marine Sanctuary. In July 1999, the CINMS developed a "Marine Reserves Working Group" (MRWG) within its Sanctuary Advisory Council (SAC), and comprised of eighteen representatives of various stakeholder groups and agency representatives. The MRWG achieved consensus on a general problem statement, goals for the MPA system, and recommendations for enforcement partnerships and coordination.

The California Department of Fish and Game has jurisdiction over living marine resources and cultural resources in state waters from the islands' shorelines (at Mean High Water) out to three nautical miles. These waters are overlain by the Channel Islands National Marine Sanctuary (CINMS), which has jurisdiction from the islands' shorelines out to six nautical miles, encompassing a total of 1,252 square nautical miles. Sanctuary regulations focus on submerged cultural and mineral resources, marine mammals and birds, and commercial shipping. At the time of this study, no federal enforcement agents are assigned to the CINMS. The Channel Islands National Park (CINP) maintains the most consistent enforcement

presence in the Channel Islands MPAs. Under a cooperative enforcement agreement, CINP rangers have the authority to enforce all state Department of Fish and Game regulations out to one nautical mile from the Park's shorelines (under the National Park's Organic Act, CINP rangers are authorized to enforce all federal, state, and county laws and regulations within the national park's boundaries, and individual parks are authorized to enter into cooperative enforcement agreements with state and local agencies). Next, the United States Coast Guard maintains a regional presence to enforce regulations concerning vessel safety, foreign fishing, border patrol, drug trafficking, marine pollution, and federal fisheries. The USCG has the authority to enforce sanctuary regulations under the National Marine Sanctuaries Act (16 U.S.C. 1431 et seq.), and also cooperates with the California DFG through occasional joint vessel patrols. Finally, NOAA Fisheries enforces federal fishery management regulations and the Marine Mammal Protection Act. Two NOAA Fisheries Office for Law Enforcement personnel have been assigned to the region to assist with CINMS cases.

Four strategic agreements have been developed between these agencies with respect to cooperative enforcement in the Channel Islands. First, through a 2002 "Cooperative Enforcement Agreement" between NOAA and the State of California's Department of Fish and Game, DFG Marine Region Wardens are deputized to enforce the Magnuson-Stevens Fishery Conservation and Management Act, Endangered Species Act, Marine Mammal Protection Act, Lacey Act, and National Marine Sanctuaries Act. In exchange, NOAA offers training and equipment, and can develop financial contracts. Second, a General Agreement was developed in 2002 between the Channel Islands National Park and the State DFG to coordinate enforcement training, patrols, intelligence, planning, communications, and case prosecutions. Although the formal MOA was only recently signed, the two agencies have a long-standing history of local cooperation on enforcement, including joint patrols and cooperation on case prosecution. Third, under a 1984 General Agreement between NOAA and the Channel Islands National Park, CINP Rangers are deputized to enforce all CINMS regulations. Fourth, a local cooperative

agreement is under development between the CINMS and the Monterey Bay National Marine Sanctuary Foundation, to provide funding for DFG enforcement officers in the Channel Islands MPAs. This funding would not be used to gain additional officers, but would "buy the time" of existing state wardens to patrol the sanctuary. Across all of these agencies, the newly implemented Channel Islands Marine Protected Areas have gained high priority in the region, and have stimulated improved coordination for enforcement activities.

Zones and Boundaries

The boundaries of each MPA are based on lines of latitude and longitude, and are rounded to the nearest tenth of a minute (Figure 2). Boundaries are not marked on the water, but attempts were made to have boundaries coincide with significant land features for reference. Public comments were considered important in boundary delineations, since small proposed variations in siting revealed disproportionate impacts on individual stakeholders (Davis and Lopez 2004).

The final design of the Channel Islands MPAs uses twelve smaller zones to balance ecological, socio-economic, and enforcement considerations. While the square reserve boundaries (based on lines of latitude and longitude) were received favorably by interviewees, some were less satisfied with the land-based features, siting, and size of the reserves. Some favor permanent land-side markers to delineate shoreline boundaries within the National Park, while others suggested using the entire length of an island as a shoreline boundary to reduce confusion. Several interviewees indicated the importance of being able to describe boundaries verbally. In addition, it was considered important to balance reserve locations equally between the northern and southern sides of islands in order to provide fishing areas regardless of prevailing wind and wave conditions. Finally, several interviewees promoted fewer, larger reserves in order to reduce the total number of boundaries in the area.

In general, interviewees indicated that regular users were familiar with boundaries, while visiting (primarily recreational) users remained

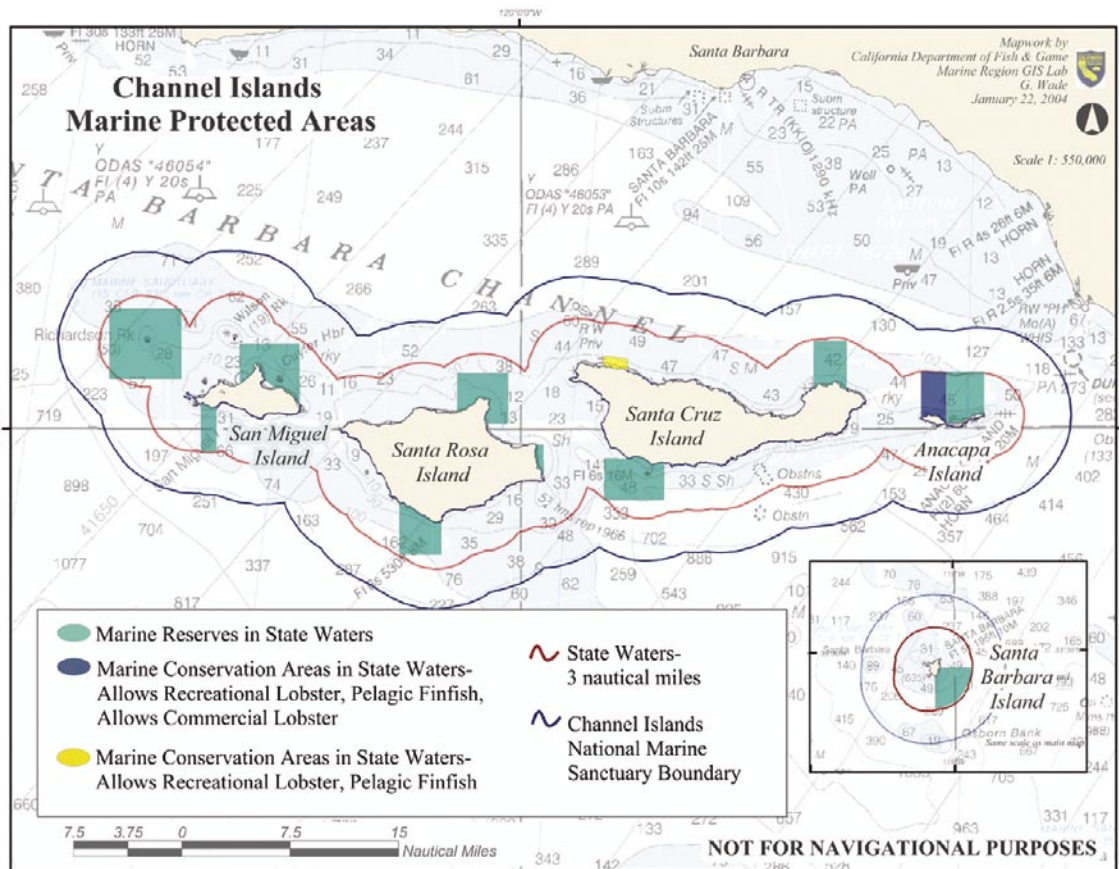


Figure 2. Channel Islands Marine Protected Areas boundaries (source: www.dfg.ca.gov)

unfamiliar and/or confused. The Department of Fish and Game has recently worked with several industry partners to have MPA boundaries incorporated into Furuno and C-Map electronic charts for recreational and commercial boaters.

Vessel Monitoring Systems (VMS), additional radar, and laser buoy lines were all considered as potential technologies for monitoring vessel activities in the Channel Islands MPAs. However, because the MPAs do not restrict access, these monitoring systems were perceived to be of limited value in detecting violations. In addition, there were concerns over the expense and potential intrusiveness of these technologies.

Education/Outreach

Education and outreach are integral to the enforcement strategy of the Channel Islands MPAs. The

CINP, CINMS, and DFG regularly partner in outreach and education programs. For example, the three agencies recently partnered with California Sea Grant to publish and distribute four-page flyers that detail each MPA's boundaries and regulations. These flyers were mailed to all permittees who had landed fish in the Channel Islands during the previous year, and are also distributed by enforcement officers as part of an "interpretive enforcement" approach that has been modeled after the Florida Keys National Marine Sanctuary (see preceding case study). Interviewees also indicated an interest in developing a program similar to the FKNMS "Team OCEAN" program for the Channel Islands, but safety concerns were raised over the use of volunteers for these offshore islands, where a greater variability exists in sea conditions.

The CINMS has established an "Adopt-a-Business" program, where volunteers ensure that flyers

and other educational materials are present in marinas, tackle shops, and other marine-related businesses. These businesses appear to play a key role in dispelling rumors and answering questions from the public, and often receive phone calls inquiring about the MPAs. Volunteers also distribute flyers at busy boat launching ramps on key weekends and holidays. The Department of Fish and Game has developed a website that provides detailed maps and regulations for each MPA, and DFG enforcement officers regularly attend booths at public events to answer questions about the MPAs. The DFG also uses regular press releases to educate the public on the MPAs, and recently held a press event where journalists were invited for a “ride-along” on board their new 55-foot enforcement vessel. CINP Rangers distribute educational information and flyers through their Visitors Center, vessel patrols, and island-based tourist information stations. The Park has also developed a live underwater video program that focuses on the marine reserves. The program will soon begin broadcasting through the mainland Visitors Center, and may eventually be broadcast on a local cable network. Numerous other examples of important MPA-related outreach projects exist in each of these three agencies.

Enforcement concerns are a standing agenda item for Sanctuary Advisory Council (SAC) meetings, which are usually attended by enforcement officers. In addition, an “ad hoc enforcement committee” was formed for the SAC, and members attend all SAC meetings (held once every two months). The ad hoc enforcement committee was established to gain community input on enforcement issues and improve communications between the public and enforcement officers. The committee also played a key role in the development of the Channel Islands MPAs educational flyers described above.

Penalties

All violations of the state Channel Islands MPA regulations are criminal. The maximum penalty for misdemeanors is \$2,000 and up to six months imprisonment. Felonies may result in up to two years imprisonment. A violator’s fishing license can be revoked, and gear, catch, and vessels can be seized. Interviewees indicated that an unofficial

“grace period,” where written warnings and educational materials were widely distributed, extended through the first six months of implementation

In general, there appears to be low awareness of the range of penalties for MPA violations. Since the MPA regulations entered into force, only one large case involving commercial fishing within a State Marine Reserve has developed. That case was widely publicized in the media – not as the result of a pre-planned outreach/deterrence strategy, but as a response to media-generated inquiries.

Litigation/Prosecution

Interviewees indicated that case documentation techniques were effective, and benefited from the use of digital cameras. Because the MPA regulations have only been in effect for just over one year (as of the publishing of this report), no MPA cases have yet gone to trial. However, enforcement officers in the Channel Islands have historically enjoyed success with the prosecution of other fishery cases, and anticipate a strong working relationship with local district attorneys.

Successes

The Channel Islands Marine Protected Area system was considered a catalyst for improved enforcement coordination in the region; and the local cooperative work between the Department, the Sanctuary, and the National Park Service was considered especially beneficial. So far, the DFG has effectively leveraged staff time and enforcement jurisdiction over state waters to gain the education/outreach and research/monitoring capabilities of National Marine Sanctuaries and National Parks. In addition, the CINP and DFG have established a strong working relationship through cooperation on enforcement activities.

In general, compliance with the new MPAs was perceived as high, and local recreational and commercial users appeared to have a reasonable understanding of the MPA regulations and boundaries. During the one year period from Feb. 2003 - Feb. 2004, the California Department of Fish and Game issued only 5 citations for MPA

violations (1 commercial, 4 recreational). In addition, some degree of compliance has been evident in the placement of commercial traps, since trap buoys line the invisible boundaries of several reserves. The small number of citations, despite over 3,500 contacts with users in the Channel Islands, was attributed to the high visibility of surface and air patrols of the DFG, CINP, and CINMS. Pre-implementation education and outreach activities were also considered highly beneficial, and stakeholders were generally in favor of a strong enforcement program – at the very least to protect their individual interests in the success of the “no-take” areas.

Current Challenges

1. *Maintaining Enforcement Presence*

Although the Channel Islands MPAs were still in an early phase of implementation, several interviewees believed that the current law enforcement presence in the islands was insufficient. In particular, attention to the MPAs by the USCG has been reduced by new Homeland Security training and other responsibilities, and the California Department of Fish and Game has faced severe budget constraints. The mobility of enforcement officers, and therefore their presence in any given area, can also be impacted by the presence of exceptions in the MPA regulations. For example, an allowance for the possession of game within a no-take Marine Reserve translates into a need for increased observation times at each site to ensure that the game was not captured within a Reserve’s boundaries.

2. *Gaining Compliance*

While compliance was considered exceptionally high by most interviewees, others indicated that violations were going undetected. These violations were blamed, in part, on perceptions of illegitimacy of the MPA design and establishment process. Such perceptions may be exacerbated by a history of dissatisfaction among some

stakeholders with respect to past enforcement activities in the islands.

Awareness of the MPA boundaries and regulations remains low among many recreational users. In addition, some interviewees suggested that misleading rumors are still circulating at local marinas. A recent survey demonstrated that a large percentage of the public may still assume that 100 percent of the waters of the Channel Island National Marine Sanctuary are off-limits to fishing.

3. *Strengthening Enforcement Partnerships*

Despite a long record of effective cooperation, interviewees identified several remaining challenges to improved partnerships among enforcement agencies. First, the ad hoc enforcement committee under the Sanctuary’s Advisory Committee lacks clear direction, and attendance at the committee meetings by enforcement officers has decreased. The committee could be useful in maintaining long-term communications between enforcement agencies and stakeholders. Second, agencies are unaware, or slow to become aware, of enforcement actions by other partners. A violator may be given a warning by one officer, even if that violator was recently cited by another agency. Third, a Regional Working Group established under the Marine Life Protection Act to provide ongoing guidance for the Channel Island MPAs was recently cancelled due to DFG funding and staff constraints.

Needs and Suggestions

1) *Increasing Enforcement Assets*

Most interviewees described a need for increased enforcement staff, vessels, and funding, to increase the presence of enforcement officers throughout the Channel Islands MPAs. In particular, some interviewees suggested that the Channel Islands National Marine Sanctuary establish an

enforcement presence – either through assigned NOAA Fisheries personnel (following the examples of the Florida Keys and Monterey Bay National Marine Sanctuaries, among others), or through contracted state Department of Fish and Game officers (following the example of the FKNMS). Even if the latter option is chosen, some interviewees suggested that NMS-contracted state enforcement officers need not develop as extensive a program as is found in the Florida Keys. Federal funding for DFG fuel and maintenance expenses was also considered to be a significant need.

Several interviewees promoted the use of Vessel Monitoring Systems technology for enforcement vessels to improve communications, enforcement presence, and coordination. In addition, some interviewees suggested removing the allowance for possessing game within a no-take Marine Reserve in order to reduce the time involved in vessel observations. It was suggested instead that vessels should not be allowed to stop or anchor within a Marine Reserve when in possession of game. Finally, interviewees noted that as resources increase within the Marine Protected Areas, additional enforcement assets will become necessary to deter poaching.

2) *Gaining compliance*

Several interviewees described a need to strengthen relationships between enforcement officers and local users. Interviewees recommended increased personal contacts between officers and mariners, both on and offshore, and suggested that officer courtesy was essential to gaining personal trust and respect from the local user community. In addition, it was recommended that officers should participate in local radio and television fishing shows to dispel rumors and improve familiarity

with users. Interviewees indicated that increased media presence would improve current education/outreach efforts.

Continuing public participation and transparency were considered vital to gaining public support for the MPAs, and thus improved or maintained levels of compliance. In addition, scientifically demonstrated, positive results of the no-take Marine Reserves were considered important to maintaining compliance. It was recommended that scientists involve local stakeholders in data collection and monitoring efforts.

3) *Strengthening Enforcement Partnerships*

Several interviewees suggested that joint patrols between USCG and DFG be increased to maintain communications and attention to MPA violations by Coast Guard personnel. In addition, one interviewee suggested that better coordination and training is needed between the National Marine Sanctuary pilots and DFG enforcement vessels, since the NMS aircraft can observe vessel identification numbers and document the displacement effects of the MPAs. Interviewees also commented that early contacts and ongoing communications with local district attorneys were important to successful case prosecutions.

Some interviewees described a current lack of systematic operations and coordination, and a general need for a strategic enforcement plan for the Channel Islands MPAs. In addition, one interviewee recommended the development of a centralized information system for enforcement coordination. The information system would include a database of offenders, current regulations, and violation records and coordinates, and could eventually be linked with enforcement vessel monitoring systems through a Geographic Information System.

Case Three: Oculina Bank Habitat Area of Particular Concern/ Oculina Experimental Closed Area

Introduction

Deep-water Oculina coral reefs form ridges and pinnacles across 167 km of the eastern Florida shelf, between 32 and 68 km offshore, and at depths between 70 and 100 m (Reed, 2002). These reefs are ecologically important as habitats for a variety of fish and invertebrates, and serve as aggregation spawning sites of gag, scamp, and other important reef fish (Koenig et al., 2000). Based on evidence of human-induced damage to the reefs, in 1982 the South Atlantic Fishery Management Council (SAFMC) proposed setting aside a portion of the Oculina Bank as a Habitat Area of Particular Concern (HAPC) under the Magnuson-Stevens Fisheries Conservation and Management Act (16 U.S.C. §1801; SAFMC, 1982). The proposed action was finalized in 1984 when NOAA Fisheries designated 92 square nautical miles of the Oculina Bank as an HAPC within the Fishery Management Plan for Corals and Coral Reefs (Koenig, 2001). The HAPC designation prohibited trawls, dredges, fish traps and pots, and bottom longlines, but did not restrict anchoring or the use of weights for bottom fishing (Reed, 2002; National MPA Center, 2004).

Because the HAPC area showed few signs of recovery a decade later, NOAA Fisheries and the SAFMC proposed to establish the Oculina HAPC as an experimental closed area to prohibit fishing for species found in the snapper/grouper management complex (but not mid-water or surface fishing from moving vessels; see SAFMC, 1993). The “Oculina Experimental Closed Area” (OECA) was established in 1994 for a period of 10 years to allow for scientific studies in a closed area where deepwater species such as snowy grouper, golden tilefish, speckled hind, and Warsaw grouper could grow and reproduce without being subjected to fishing mortality. Two years later, the SAFMC adopted additional protections for the OECA by prohibiting the anchoring of fishing vessels within the area (SAFMC, 1995). In 2000, through the Council’s Comprehensive Amendment Address-

ing Essential Fish Habitat, the Oculina HAPC was expanded to include 300 square nautical miles previously restricted only to rock shrimp vessels, to prohibit the use of all trawling gear in the area. Bottom gear and anchoring restrictions were also included in the HAPC expansion, while regulations for the OECA remained in place within the original 92 square mile designated area (SAFMC, 2003). Most recently, the SAFMC voted to extend the Oculina Experimental Closed Area designation, which had been set to expire in 2004, for an indefinite period to provide continued protection of snapper/grouper populations and the associated Oculina coral (SAFMC, 2004). The Council will review the configuration and size of the OECA within three years of the final rule extending the closure (published March 26, 2004), and complete a reevaluation of the OECA within 10 years. In addition, the SAFMC is developing a comprehensive evaluation plan that incorporates research and monitoring studies and an enforcement and outreach program for the OECA.

Enforcement Assets

Until recently, enforcement activities were primarily conducted by the U.S. Coast Guard, which employs two 87-foot Cutters in the region. The USCG also maintains two nearby stations where smaller vessels, ranging up to 47 feet, are available. Vessel and air patrols had also been conducted in the past by the Florida Marine Patrol (now the Florida Fish and Wildlife Conservation Commission, or FWCC). In January, 2004, the FWCC launched the 65-foot patrol vessel C.T. Randall, which was funded through a Joint Enforcement Agreement with the NOAA Fisheries. The Randall works several 10-14 hour days and nights each week, can attain speeds of up to 32 knots, and regularly patrols from Daytona Beach to Fort Pierce. Although the Randall is responsible for enforcing other state and federal laws, as well as search and rescue and security operations, the Oculina Bank HAPC and OECA are a primary focus of the Randall’s enforcement activities. Both the USCG Auxiliary and FWCC also use aircraft outfitted with Forward Looking Infrared Radar, which makes day and nighttime patrols possible.

Beginning in 2003, through Amendment 5 to the Shrimp Fishery Management Plan, the SAFMC requires vessel permits and the use of vessel monitoring systems (VMS) in the region's rock shrimp fishery. At the time of this study, nearly 100 rock shrimp vessels have installed the VMS systems, which allow enforcement authorities to pinpoint each vessel's position in relation to the boundaries of the OECA and HAPC. Vessel monitoring systems are also required for vessels fishing for "highly migratory species" (HMS) in the region. Vessel and aircraft patrols are also increased during the rock shrimp season (July-October) due to the increased activity around the Oculina Bank.

Partnerships/Collaborations

Since 1983, the State of Florida has worked under a Cooperative Enforcement Agreement (CEA) with the NOAA Fisheries Office for Law Enforcement, which cross-deputized state officers to enforce federal fisheries laws. Funding for this work, as well as for the recent addition of the C.T. Randall, is made available separately through a continuing Joint Enforcement Agreement between NOAA Fisheries OLE and the State of Florida.

The USCG hosts the C.T. Randall at a station in Port Canaveral, FL. This has fostered increased interactions and improved coordination between FWCC and USCG personnel. In addition, a NOAA Fisheries Office for Law Enforcement (OLE) Special Agent has been assigned to the region to improve air and sea patrol coordination, assist with outreach, training and education of USCG personnel, deliver VMS data to direct patrols, and conduct follow-up investigations.

The South Atlantic Fishery Management Council's Law Enforcement Committee and Law Enforcement Advisory Panel also play important roles in fostering communications among law enforcement agencies, as well as in promoting enforcement considerations in decisionmaking and rule formulation. The committee and advisory panel are made up of law enforcement agency representatives, attorneys, recreational and commercial fishers, academics, and other interested members of the public.

Boundaries and Zones

The rectangular Oculina Experimental Closed Area comprises approximately 92 square nautical miles, and its boundaries are aligned with lines of latitude and longitude (Figure 3). The 300 square nautical mile HAPC area also has boundaries aligned with lines of latitude and longitude on three sides; however, the offshore boundary is delineated by the 100-fathom contour. In addition, two small "satellite sites" (6 square nautical miles) were included on the inshore edge of the HAPC to protect additional, sensitive Oculina areas. All boundaries are included on current NOAA navigation charts. Despite the nuances of the HAPC boundaries, and the history of amendments to the OECA and HAPC, awareness of boundaries appeared to be high among commercial fishers. For example, VMS data show trawlers clearly avoiding the HAPC. However, some slight boundary incursions by commercial operators continue to be blamed on vessel drift while hauling in nets. Recreational users' awareness of boundaries has been more difficult to gauge.

Education/Outreach

In 2001, the SAFMC produced a water-resistant brochure detailing fishing regulations for all federally-regulated species in the southeast region. The brochure includes one Oculina Bank-dedicated page with summary regulations and other information. The brochure has been considered very useful, and information from the brochure specific to the Oculina HAPC and Experimental Closed Area is available online. News releases and feature articles in the SAFMC's quarterly newsletter have also proven effective, and have prompted additional information requests from the public.

Education and outreach activities are of increasing priority for the Oculina Bank OECA. For example, outreach efforts are required for federal funding under the Joint Enforcement Agreement between OLE and the FWCC (minimum hours/officer). Also, the newly assigned OLE Special Agent engages in shore-side outreach activities both actively (visiting docks, calling vessel owners) and passively (responding to information requests). More recently, the SAFMC approved a motion that

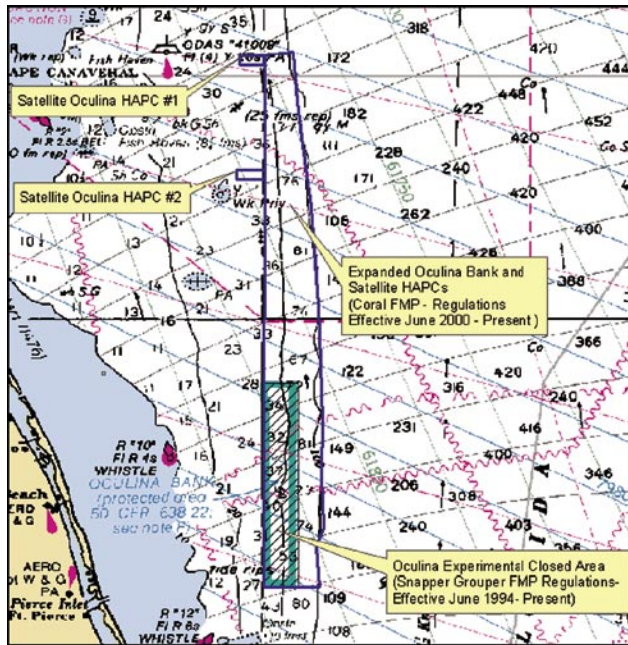


Figure 3. Oculina Bank Habitat Area of Particular Concern and Oculina Experimental Closed Area.

called for an evaluation plan for research and monitoring, including an enforcement/outreach program, to be developed within one year of the implementation of Amendment 13A to the Snapper-Grouper FMP, which renewed the OECA in 2004 (50 CFR 622). At the time of this study, a comprehensive outreach proposal is under development through a partnership between the SAFMC and several other organizations, and may include a mass media campaign, focused website, mapping and research projects, industry partnerships on brochures and signage for marinas, and other new activities.

Penalties

The Southeast Region Magnuson-Stevens Act penalty schedule, which falls within the Civil Administrative Penalty Schedule, and which was revised in June 2003, provides ranges for NOAA monetary penalty amounts and permit sanctions for violations such as illegally fishing or possessing fish within the HAPC or OECA as follows: First violation, \$500 - \$50,000, and a permit sanction up to 45 days; Second violation, \$2,500 - \$90,000, and a permit sanction of 30 - 90 days; Third violation, \$5,000 - statutory maximum, and a permit sanction of 60 days to revocation. Permit sanctions

are only for permits that are issued pursuant to the Magnuson-Stevens Act. Some interviewees indicated that these penalties are fair, while others felt that they are too low. NOAA Fisheries is proposing an amendment to the Magnuson-Stevens Act that would increase the statutory maximum civil monetary penalty from \$120,000, as adjusted by inflation, to \$200,000 (NMFS 2004c).

In general, some interviewees indicated that awareness of the penalty ranges and sanctions associated with various violations at Oculina Bank is low, and that embarrassment associated with being caught may be a key factor in compliance. The SAFMC depends on the USCG and NOAA General Counsel for Enforcement and Litigation (GCEL) to distribute news releases on fines levied and case results. NOAA GCEL publishes violations and settlement amounts in quarterly reports.

Litigation/Prosecution

According to the OLE computer database, as of October 1, 2004, enforcement action has been taken in 12 cases involving either Oculina Bank-associated activity or the possession of prohibited

coral outside of the HAPC. Written warnings were issued by either OLE or GCEL in 5 cases for the following types of violations: trawling, fishing for snapper-grouper (this case also involved the issuance of a NOVA for disposal of fish or gear and possession of fillets and is not counted in the NOVAs issued category below), possessing tilefish, and possessing prohibited coral.

NOVAs were issued by GCEL in 7 cases for the following types of violations: trawling, fishing for or possessing snapper-grouper, fishing (longlining golden tilefish), possessing rock shrimp, possessing fillets. One of these cases also involved the disposal of fish or gear and another the failure to use certified by-catch reduction devices. NOVAs have been issued to both commercial and recreational fishers.

The NOVA monetary penalty amounts for the Oculina-Bank associated violations have increased throughout the years. For example, NOVA-assessments for trawling violations increased from \$5,000 to \$12,000 between 1994 and 2000. The NOVA-assessment for unlawfully fishing (longlining – golden tilefish) in 2003 was \$20,000. NOVA-assessments for fishing for snapper-grouper have increased from \$2,000 in 1997 for a commercial fisher to \$5,000 in 2004 for a recreational fisher. A total of \$42,077.65 from the sale of the illegally harvested or possessed fish/shrimp has been forfeited in 5 of the 7 cases. Although permits have not been universally required throughout the reporting period, permit sanctions were issued in 4 of the 7 cases, with a total of 60 days suspension being served in 2 of the cases. As of October 1, 2004, most cases had settled and administrative hearings had not been held in any of the cases.

Successes

Most interviewees suggested that compliance is improving for the OECA and HAPC. VMS data and aerial photographs support this assertion by clearly showing vessels avoiding the closed areas. In addition, although enforcement and legal actions were perceived by some to be weak in the early years of the Oculina Bank closure, the addition of the C.T. Randall and an increased focus on

enforcement for Oculina over the past few years seems to have addressed most of these issues.

Coordination between the USCG, FWCC, SAFMC, and NOAA Fisheries OLE continues to improve with the addition of the OLE Special Agent. Vessel and aircraft patrol coordination has worked well within each agency, and is improving between the USCG and FWCC. In addition, the institution of Vessel Monitoring Systems (VMS) is an important enforcement asset.

Current Challenges

1) Maintaining Enforcement Presence

According to a recent report, there may be only twenty acres of pristine Oculina coral reefs remaining, and these reefs could be destroyed in a single night of poaching (Koenig 2001). Yet 100 percent compliance is rarely considered an efficient, or even achievable, enforcement goal. Enforcement agencies have to balance costs with sufficient presence and deterrence levels. New Homeland Security requirements may be reducing patrol priorities toward fisheries, and multiple agency missions make it difficult to plan enforcement actions and presence specifically for the Oculina Bank.

Although boardings and/or follow-up investigations are needed to determine whether violations of specific regulations have occurred, VMS could help alleviate the need for a constant physical enforcement presence at the OECA and HAPC. However, in these areas, VMS is only required for certain rock shrimp and Highly Migratory Species vessels, so other commercial vessels and well as recreational and charter vessels are not included in the tracking system. Further, the current Oculina Bank regulations complicate enforcement efforts. For example, vessel transit and mid- and surface-level fishing (trolling) are not restricted and, within the OECA, the only fin-fish subject to the fishing for and retention prohibitions are in the snapper-grouper complex. Therefore, boardings and investi-

gations beyond VMS data or identification of a vessel from an aircraft overflight are necessary to establish, among other things, the fishing activity and identity of the fish species. For recreational vessels, enforcement is relatively easy to avoid by halting any illegal activities prior to the approach of large U.S. Coast Guard and FWCC cutters that are easy to spot at long distances.

Some interviewees also indicated that community self-enforcement levels may be low. These interviewees suggested that difficulties in contacting officers directly and/or a lack of follow-up communications or reports may have reduced motivations for users to report violations of other users.

Partnerships play a key role in maintaining an adequate enforcement presence. However, sufficient funding of the JEA between OLE and FWCC is critical to the strength of their relationship. The JEA requires an annual appropriation, which has varied in the past. At the time of this study, the FWCC needs approximately \$100,000 for vessel maintenance and staff needs per year in addition to funding for aircraft operations.

2. Expanding Education/Outreach Activities

Two consistent themes emerged from interviews regarding future education and outreach activities for Oculina Bank. First, the goals and/or rationale behind the OECA and HAPC designations appear to be a source of contention. Several interviewees suggested that confusion remains as to whether the OECA was intended as a scientific study site or a protected area. The past reviews that have led to ten year extensions of the site's protections were considered inadequate, and were apparently limited by insufficient socioeconomic and biological baseline data. Second, ignorance of the Oculina Bank regulations and the ecological importance of the area appear to be high among new and visiting recreational users

of the area. Levels of, and factors influencing, compliance among these recreational user groups remains uncertain.

Needs and Suggestions

1. Strategic Enforcement Planning

Because the USCG, FWCC, and NOAA Fisheries are striving to maintain efficiency with limited resources and multiple missions, interviewees perceived a need for a strategic enforcement plan for the Oculina Bank area. One aspect of strategic enforcement planning might involve an assessment of past and present enforcement activities, citations, and case results. There was also a perceived need for an integrated, uniform reporting system and enforcement database for Oculina Bank to enhance coordination and strategic enforcement activities across the three agencies. This type of information system has been discussed by concerned agencies and was anticipated by interviewees. A second aspect of strategic planning would involve spatially and temporally targeted enforcement activities. Already, enforcement activities are focused, to a degree, around the rock shrimp season. Enforcement officers also expressed a need for information on the remaining critical Oculina habitat areas so that they can focus efforts spatially, and potentially make the case for stronger penalties/assessments in those critical areas.

To improve enforcement efficiency, presence levels, and deterrence, there was also a perceived need to limit regulatory exemptions, at least in the Oculina Experimental Closed Area. This, in combination with the expanded use of VMS in the region, might improve the efficiency of air patrols, vessel patrols, and shoreside investigations. One interviewee pointed out that a strong "selling point" for VMS systems is the coinciding reduction in the need for boardings, since vessels that have not crossed into closed areas may not be

checked as frequently. There was also a perceived need for research and development of supplemental VMS sensors and capabilities, such as winch sensors, to support cases based on VMS data.

2. *Expanding Education/Outreach Activities*

There was also a perceived need for improved public understanding of the goals and rationale for the Oculina Bank closed areas. This could be accomplished through the evaluation plan for research and monitoring that was called for in a recent SAFMC motion and is being developed. Interviewees indicated that a detailed plan for the evaluation of the Oculina Experimental Closed Area should clearly articulate the goals of the reserve, and that future evaluations of the success of the OECA in meeting those goals should be based on cooperative research between academics, agency officials, and interested stakeholders. A clearer understanding of the goals of the reserve, and the ecological health of the Oculina Bank, may enhance public buy-in and therefore increase compliance.

It was also suggested that managers should understand the full range of users and their behaviors, needs, and concerns prior to the development of a Marine Protected Area – both to balance the needs of various interest groups and to improve risk assessments for noncompliance. Several interviewees indicated that historical and baseline data on Oculina user groups are limited, and current understanding of user behaviors and motivations remains low. In particular, there was a perceived need to reach out to the recreational user community through expanded education and outreach efforts, and planning for this is already underway. Future efforts may include new signage at recreational boat launches, increasing outreach efforts for recreational fishing organizations, mass media campaigns, and simply “walking the docks” at marinas within reach of the Oculina Bank. Other outreach activities that may prove effective include the development of an enforcement website for Oculina Bank (for example, the FKNMS enforcement website), attaching educational materials to saltwater licenses, and further publicizing Oculina-related citations.

Section 5.

Participant Suggestions and Published Recommendations

The following subsections present MPA-relevant enforcement suggestions generated through research for this report, as well as from previously published sources. Suggestions assembled from the three case studies in this report (Section 4), along with those identified through nationwide telephone interviews of a wide range of public officials and stakeholders, are consolidated and presented here. Because many participants were primarily concerned with fishery management areas and National Marine Sanctuaries, there may be a disproportionate emphasis on suggestions and recommendations relevant to those types of MPA systems. Suggestions were included only where a consensus existed amongst interviewees or no opposing viewpoints were voiced. A numbered list of all sources of suggestions is provided in Table 4. Following each suggestion below, the corresponding numbered sources are indicated in superscript.

The authors acknowledge that the suggestions contained herein are not their own nor those

of the National MPA Center. While this report attempts to summarize suggestions and recommendations from existing literature and survey participants, it is not an endorsement of any listed suggestion. Additionally, it is important to note that because the concept of MPAs is defined by the Executive Order broadly and encompasses the involvement of numerous state and federal agencies, many of the suggestions identified below may already be occurring successfully. Thus, many of the suggestions included here may serve to support, refine, or expand on techniques and practices already in use. Finally, this report does not provide an analysis of the suggestions summarized here, since questions concerning the feasibility, application or implementation of these suggestions is beyond the scope of this project. Rather, the goal of this section is to synthesize in one place the suggestions of survey participants and others in the hope of stimulating further exploration, discussion, and analysis.

1	Case Studies, Section 4 of this report
2	National-level interviews conducted for this report
3	Proulx (Special Agent, NOAA Fisheries) (1998; 2000)
4	Atlantic States Marine Fisheries Commission (2000)
5	South Atlantic Fishery Management Council (2001)
6	National Research Council (2001)
7	Gordon and Dean (South Atlantic Fishery Mgmt. Council) (2002)
8	Recksiek and Hinchcliff (National MPA Center) (2002)
9	US Dept. of Commerce/Office of Inspector General (2003)
10	MerrellKatsouros LLP (2003)
11	Moretti (National MPA Center) (2003)
12	U.S. Commission on Ocean Policy (2004)

Table 4. Numbered sources for MPA enforcement suggestions.

1. *Increasing and Maintaining Adequate Enforcement Presence*

- Significantly increase investments in enforcement staff, agents/officers, vessels, basic equipment, infrastructure, and ongoing operational costs for MPA enforcement.1,2,8,10,11
- Target enforcement activities on key events, holidays, and time periods when poaching may become more tempting (for example, during high market values/low resource abundance).1
- Focus enforcement activities toward sensitive habitat areas.1
- Consider increasing salaries of marine enforcement officers living in coastal areas with high property values, or provide subsidized housing opportunities. High officer turnover rates can prove more costly in terms of additional training needs and the loss of personal familiarity with stakeholders and understanding of a region's unique natural and cultural features.1
- Expand the utilization of overflights and regular aircraft patrols, which can be effective deterrents even if additional proof of violations is necessary.1,2
- Better coordinate aircraft and vessel patrols for more effective enforcement and case documentation.1
- Increase night patrols, and patrols during rough conditions when smaller enforcement vessels usually stay in port.1,2,10
- Consider utilizing long-term, covert operations to overcome difficulties observing violations as they occur (due to violators' ability to sight or learn of approaching enforcement vessels).1,2
- Encourage community self-enforcement:
 - Ensure follow-through on citizen reports of violations.1,2
 - Provide enforcement hotlines.1,2
 - Provide an anonymous "tip" hotline for reporting resource damages (for example, whale strikes, coral reef damage) – otherwise a vessel operator will not report him/herself and the damage will go untreated and unrecorded.2

- Consider supporting citizen "watch groups" (for example, provide decals, training, and so forth).2
- Investigate feasibility of establishing direct public communication with officers via cell phones rather than linking only through dispatch centers.1
- Consider supplemental, alternative enforcement approaches:
 - Placement of benthic barriers to trawling, where appropriate.3
 - For certain nearshore MPAs, establish and support marked, non-enforcement volunteer/docent vessel "outreach" patrols (modeled after Team OCEAN programs in the Florida Keys and Monterey Bay National Marine Sanctuaries).1,2,3
- Increase investments in the enforcement of National Marine Sanctuaries.1,2
 - Consider the establishment of federal enforcement teams for National Marine Sanctuaries, rather than using federally-contracted state enforcement teams.2
 - Consider establishing a national enforcement coordinator position for the NMSP (a national education/outreach coordinator position already exists).2
 - Coordinate any expanded federal MPA enforcement activities through NOAA OLE.2

2. *Promoting Voluntary Compliance*

- Because many MPAs will inevitably rely on a high level of voluntary compliance, enforcement agencies should consider "Community-Oriented Policing," or "Interpretive Enforcement" approaches to MPA enforcement, where outreach is emphasized by enforcement officers.1,2,3,8
- MPA planning and establishment should have high levels of public participation and transparency.1,6
- Federal and state governments should explore whether the complexity of existing MPA systems could be reduced through

standardized terminologies, classifications, jurisdictions, regulations, penalties, and partnership agreements nationwide (and develop a clear national strategy for MPAs).²

- Agencies should expand on existing education and outreach activities.^{1,3,8,12}
 - Increase use of mainstream media outlets (for example, newspapers, internet, television, billboards).^{1,2}
 - Increase focus of education/outreach materials and initiatives on MPA goals, regulations, rationale, and potential economic benefits.^{1,2,3} A clearer understanding of these factors leads to greater public acceptance of MPAs and in turn may increase compliance.
 - Expand efforts to reach recreational and visiting users; for example, at shoreline access points, marinas, SCUBA shops, rental boat businesses, and through local recreational clubs and fishing organizations.^{1,2,8}
- Strengthen relationships and increase interactions between enforcement officers and various stakeholder groups. Enforcement officers should “walk the docks” and make personal contacts with local/regular user groups, and obtain feedback from a wide range of users.^{1,2,8}
- Agencies should consider publicizing violations through local media outlets (for example, newspapers) for deterrence effect.^{1,2}

3. *Benefiting from Technologies*

- “Remote enforcement” technologies should be considered for offshore MPAs where maintaining on-site presence is difficult (Vessel Monitoring Systems, remote radar, buoy- or platform-based radar, improved optical capture systems, underwater acoustic sensors, remote video cameras, aerial surveys).^{1,2,7,8,10,11,12}
- The expanded use of VMS should be considered to supplement on-site enforcement presence, coordinate enforcement patrols, and assist emergency responders.^{1,2,9,10,11,12}

- Support research and development of supplemental sensors/capabilities, such as winch sensors, to support enforcement actions based on VMS data.²
- The National Marine Fisheries Service should be authorized (through the Magnuson-Stevens Act) to share VMS data with state enforcement agencies for the enforcement of MPAs in state waters.² [Part of Administration’s current MSA reauthorization bill].

4. *Strengthening Partnerships*

- Strengthen cooperation on MPA enforcement at the federal level through the development of interagency strategic plans; and at the regional level through increased interagency coordination and planning among all entities with MPA authorities.^{2,12}
 - Strengthen Joint Enforcement Agreements (JEAs) between the NOAA OLE and coastal states and territories.^{1,2,10,12} Increase support of fisheries enforcement in the U.S. Territories through JEAs.^{2,10}
 - Involve the U.S. Coast Guard in the development of state enforcement plans and priorities within JEA agreements.^{2,12}
 - Ensure that state partners have equipment and training to work in offshore (federal) waters.²
- Collaborations with Native American tribes should take place throughout the planning and implementation of MPAs, and should be considered more as interagency coordination (government to government) rather than stakeholder participation.²
- Establish local, MPA-specific enforcement partnership agreements (MOUs, MOAs, or CEAs) for improved enforcement coordination, cross-deputization and training.^{1,8,12}
- Support the coordination of interagency enforcement operations in MPAs by assigning relevant personnel to a coordination position.²
- Where possible, provide offices for enforcement personnel from partner agencies alongside those of MPA managers,

education/outreach specialists, and other staff to improve interagency communication and coordination.1

- Where needed, maintain regularly scheduled training for partner agencies – particularly those with higher turnover rates.1,2,8
- Increase and maintain training for MPA enforcement in the U.S. Territories.2
- Provide partner agencies (and primary officers) with laminated “cheat sheets” on resources, regulations.1,8
- Regularly conduct joint MPA patrols with partner enforcement agencies.1
- The National Marine Protected Areas Center should support U.S. Coast Guard regional fishery training centers, NMFS training activities at the Federal Law Enforcement Training Center, and the U.S. Fish and Wildlife Service’s Refuge Law Enforcement Academy/National Conservation Training Center, to help train officers on MPA enforcement issues, including the various types of MPAs in U.S. waters.2
- Develop industry partnerships for outreach and education activities.1,2
- For nearshore MPAs, consider developing partnerships with local nonprofit groups to support vessel-based education/outreach and reporting of violations (for example, River and Bay Keepers, “Friends of the ... Bay,”).2,3

5. *Regulatory Considerations for Improved MPA Enforceability*

- Keep MPA regulations simple and understandable.1,2,4,7,9,10,12
- Limit regulatory exceptions or exemptions, other than for vessel transit.1,4,5,7,9
 - Gear and catch should be stowed for transit across closed areas.4,9 Use designated “transit lanes” where practical, to aid vessel monitoring.2,9

- For gear-restricted areas, make possession of the gear, not use, illegal within MPA boundaries.9 Avoid defining specific net mesh sizes as allowable or restricted within certain MPAs.4,9

- Avoid frequent regulatory amendments.2,4
- Consider MPA regulatory consistency between and among state, regional, and federal jurisdictions.4,7
- Consider MPA regulatory consistency across adjacent or contiguous MPAs of differing types (for example, National Marine Sanctuaries adjacent to National Parks).2
- Use consistent time frames and permanent sites – avoid rolling closures.2,4,7
- Consider the “give with the take”: when establishing new MPAs, consider concurrent reductions in the regulatory complexity of seasons/species/size limits, and so forth, to increase buy-in.1
- Carefully word regulations to define the precise circumstances that constitute a violation, and the required evidence for case prosecutions (the fewer required elements the better).2,8

6. *Boundary and Siting Considerations for Improved MPA Enforceability*

- All boundaries should be displayed on official navigational charts, with associated regulations where possible.1,2
- Work with industry to ensure that MPA boundaries appear in charting software for private and commercial Global Positioning Systems.1,2
- Keep boundaries and zoning schemes clear, simple, and consistent.1,4,7,8,9,11
- Avoid nesting and contiguous zones.1
- Larger areas are more enforceable than small sites.1,4,5,7,9
- Avoid legally defining “buffer zones,” but consider establishing boundaries far enough from sensitive areas to protect from minor incursions.5,7

- Avoid using water depths, county lines, distance from shore, or other types of boundaries that are difficult to identify, map, and legally defend.5
- Align boundaries with lines of latitude and longitude, maintaining a square or rectangular configuration.1,4,5,9,11
- Where possible, locate MPAs away from highly populated areas.5
- Legal boundary definitions should use consistent metrics, using an appropriate scale for digital mapping.8,11

7. *Imposing Sanctions for MPA Violations*

- Ensure that consistent penalties are assessed for similar offenses.1
- Consider making sanctions consistent across similar MPA types (for example, where maritime National Parks border National Marine Sanctuaries).2
- Strengthen penalties for MPA violations by authorizing stronger permit sanctions.1,7,10
 - For example, the Magnuson-Stevens Fishery Conservation and Management Act could contain provisions for commercial fishing permit revocations in the case of National Marine Sanctuaries violations.1
 - State laws could also contain provisions for the revocation of state commercial fishing permits for specific federal MPA violations.1
 - Require federal and state operator permits (and authorize sanctions on those permits, where not already required/authorized).1,2,3,7
- Consider “mandatory minimum” penalties for state MPA violations.2

8. *Improving the Litigation/Prosecution of MPA Enforcement Actions*

- Where not already occurring, clear mechanisms should be developed for attorneys to provide final case follow-up reports to enforcement officers in order to maintain the officers’

motivation, dispel industry rumors, and foster efficient case documentation procedures.1,2

- At the state and territory level, continuing outreach to district attorneys and judges is important in having MPA-related cases taken seriously.1,2

9. *Meeting Science and Information Needs*

- Where not already occurring, comprehensive enforcement analyses and planning should be undertaken prior to the establishment of MPAs.1,2,3,5,6
 - Consider existing enforcement assets and funding.2,3,4,5,6,7,8
 - Consider current and historical use patterns.1,2
 - Consider all potential incursions by intentional violators.3
 - Consider cultural differences in behavior/compliance/access to information.1,2,3
 - Consider potential for catastrophic incursions.3
 - Consider incentives and disincentives for compliance.2,3
- Increase investments in scientific research concerning MPA site selection – for example, identifying critical spawning habitats – to increase public buy-in.2
- Establish clear evidence of MPA results through intensive environmental and socioeconomic monitoring and evaluation.1,2,6
 - Involve local stakeholders in data collection and monitoring efforts.1,3
- Investigate compliance through remote monitoring, modeling, and user surveys.2
 - Assess “Best Management Practices” for outreach/education activities.2
- Investigate gaps in awareness across user groups in order to target education and outreach activities.1,2
- Consider state licensing of saltwater recreational fishers to better assess effort levels and identify user groups.2

- Establish electronic data systems for improved information sharing among enforcement partner agencies.1,2,9
 - Provide training and technical assistance for online information exchanges.2
- Improve and document methods for evaluating MPA enforcement programs.2

Conclusions and Future Research Needs

Nationwide, study participants generally perceived high levels of compliance across various types of marine protected areas. And when designed with adequate attention to enforcement considerations, MPAs can conceivably be easier to enforce than multiple resource-specific or activity-specific regulations. However, there is a clear need for increased investments in enforcement assets to ensure that protected areas do not benefit a few violators at the expense of law-abiders – a few violators could have significant impacts on protected resources, and will reduce the value of future evaluations of the success of MPAs. Enforcement assets should be considered early in planning and budgeting processes for new MPAs, and law enforcement representatives should remain involved in these processes from start to finish.

Since many MPAs may rely heavily on voluntary compliance, significant investments in outreach and education initiatives through main-stream media outlets are needed to increase awareness – particularly among visiting and recreational users. Simple, straightforward rules and attention to the boundary and zoning suggestions described in Section 5 will also be important in fostering a broader understanding of MPA goals and regulations, and increased attention to personal interactions between enforcement officers and users, and expanded support of community self-enforcement, would likely bolster voluntary compliance. Prior to the establishment of new MPAs or MPA systems, comprehensive assessments should be undertaken to gauge the potential for voluntary compliance, and the factors that might influence compliance across all user groups.

Remote monitoring and enforcement technologies hold a great deal of promise in supplementing at-sea enforcement activities. NOAA Fisheries is monitoring over 2,000 vessels using VMS; and an estimated 12,000 additional vessels are operating in federal fisheries that might readily benefit from VMS implementation (Spurrier 2004). By alerting enforcement officers to potential violations as they occur, VMS can reduce the need for onsite presence, improve operational efficiencies, and enable preventative measures, such as instant email warning messages to vessels entering closed areas. However, the potential value of VMS in apprehending violators and prosecuting cases is greatest for “no-take” marine reserves that have few or no regulatory exceptions (for example, vessel transit only). These types of MPAs constitute a small minority of marine managed areas in U.S. waters. The systems could also prove cost-prohibitive for implementation across all user groups and MPA types. However, the USCG is considering the potential for requiring new Automatic Identification Systems to monitor all vessels (of a minimum size) within its Maritime Domain Awareness strategy (USCG 2002). The scope of future deployments and uses of VMS technology, therefore, remains unclear. Further research is needed on the utility of other remote monitoring technologies – particularly for the enforcement of offshore MPAs.

This report is intended to provide a foundation for the future coordination of a national system of Marine Protected Areas, as called for in Executive Order 13158. An important focus of this coordination will concern interagency partnerships for MPA enforcement. Two key needs for strengthened partnerships, as described by participants in various sections of this report, are 1) strategic enforcement planning and partnerships within and between the federal and state agencies with jurisdiction over MPA systems; and 2) improved information sharing across agencies for site-specific MPA enforcement planning and coordination. The National Marine Protected Areas Center can play an important role in fostering enforcement coordination, training enforcement officers on the various types of MPAs they

may encounter, and advancing consistent terminologies, standards, and regulatory clarity for a national system of MPAs.

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Appendix A.

Executive Order 13158 of May 26, 2000

Marine Protected Areas

By the authority vested in me as President by the Constitution and the laws of the United States of America and in furtherance of the purposes of the National Marine Sanctuaries Act (16 U.S.C. 1431 et seq.), National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-ee), National Park Service Organic Act (16 U.S.C. 1 et seq.), National Historic Preservation Act (16 U.S.C. 470 et seq.), Wilderness Act (16 U.S.C. 1131 et seq.), Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.), Coastal Zone Management Act (16 U.S.C. 1451 et seq.), Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), Marine Mammal Protection Act (16 U.S.C. 1362 et seq.), Clean Water Act of 1977 (33 U.S.C. 1251 et seq.), National Environmental Policy Act, as amended (42 U.S.C. 4321 et seq.), Outer Continental Shelf Lands Act (42 U.S.C. 1331 et seq.), and other pertinent statutes, it is ordered as follows:

Section 1. Purpose. This Executive Order will help protect the significant natural and cultural resources within the marine environment for the benefit of present and future generations by strengthening and expanding the Nation's system of marine protected areas (MPAs). An expanded and strengthened comprehensive system of marine protected areas throughout the marine environment would enhance the conservation of our Nation's natural and cultural marine heritage and the ecologically and economically sustainable use of the marine environment for future generations. To this end, the purpose of this order is to, consistent with domestic and international law: (a) strengthen the management, protection, and conservation of existing marine protected areas and establish new or expanded MPAs; (b) develop a scientifically based, comprehensive

national system of MPAs representing diverse U.S. marine ecosystems, and the Nation's natural and cultural resources; and (c) avoid causing harm to MPAs through federally conducted, approved, or funded activities.

Sec. 2. Definitions. For the purposes of this order:

a. "Marine protected area" means 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.

b. "Marine environment" means those areas of coastal and ocean waters, the Great Lakes and their connecting waters, and submerged lands thereunder, over which the United States exercises jurisdiction, consistent with international law.

c. The term "United States" includes the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands of the United States, American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands.

Sec. 3. MPA Establishment, Protection, and Management. Each Federal agency whose authorities provide for the establishment or management of MPAs shall take appropriate actions to enhance or expand protection of existing MPAs and establish or recommend, as appropriate, new MPAs. Agencies implementing this section shall consult with the agencies identified in subsection 4(a) of this order, consistent with existing requirements.

Sec. 4. National System of MPAs. (a) To the extent permitted by law and subject to the availability of appropriations, the Department of Commerce and the Department of the Interior, in consultation with the Department of Defense, the Department of State, the United States Agency

for International Development, the Department of Transportation, the Environmental Protection Agency, the National Science Foundation, and other pertinent Federal agencies shall develop a national system of MPAs. They shall coordinate and share information, tools, and strategies, and provide guidance to enable and encourage the use of the following in the exercise of each agency's respective authorities to further enhance and expand protection of existing MPAs and to establish or recommend new MPAs, as appropriate:

1. science-based identification and prioritization of natural and cultural resources for additional protection;
2. integrated assessments of ecological linkages among MPAs, including ecological reserves in which consumptive uses of resources are prohibited, to provide synergistic benefits;
3. a biological assessment of the minimum area where consumptive uses would be prohibited that is necessary to preserve representative habitats in different geographic areas of the marine environment;
4. an assessment of threats and gaps in levels of protection afforded to natural and cultural resources, as appropriate;
5. practical, science-based criteria and protocols for monitoring and evaluating the effectiveness of MPAs;
6. identification of emerging threats and user conflicts affecting MPAs and appropriate, practical, and equitable management solutions, including effective enforcement strategies, to eliminate or reduce such threats and conflicts;
7. assessment of the economic effects of the preferred management solutions; and
8. identification of opportunities to improve linkages with, and technical assistance to, international marine protected area programs.

b. In carrying out the requirements of section 4 of this order, the Department of Commerce and the Department of the Interior shall consult with those States that contain portions of the marine environment, the Commonwealth of Puerto Rico, the Virgin Islands of the United States, American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands, tribes, Regional Fishery Management Councils, and other entities, as appropriate, to promote coordination of Federal, State, territorial, and tribal actions to establish and manage MPAs.

c. In carrying out the requirements of this section, the Department of Commerce and the Department of the Interior shall seek the expert advice and recommendations of non-Federal scientists, resource managers, and other interested persons and organizations through a Marine Protected Area Federal Advisory Committee. The Committee shall be established by the Department of Commerce.

d. The Secretary of Commerce and the Secretary of the Interior shall establish and jointly manage a website for information on MPAs and Federal agency reports required by this order. They shall also publish and maintain a list of MPAs that meet the definition of MPA for the purposes of this order.

e. The Department of Commerce's National Oceanic and Atmospheric Administration shall establish a Marine Protected Area Center to carry out, in cooperation with the Department of the Interior, the requirements of subsection 4(a) of this order, coordinate the website established pursuant to subsection 4(d) of this order, and partner with governmental and nongovernmental entities to conduct necessary research, analysis, and exploration. The goal of the MPA Center shall be, in cooperation with the Department of the Interior, to develop a framework for a national system of MPAs, and to provide Federal, State, territorial, tribal, and local governments with the information, technologies, and strategies to support the system. This national system framework and the work of the MPA Center is intended to support, not interfere with, agencies' independent exercise of their own existing authorities.

f. To better protect beaches, coasts, and the marine environment from pollution, the Environmental Protection Agency (EPA), relying upon existing Clean Water Act authorities, shall expeditiously propose new science-based regulations, as necessary, to ensure appropriate levels of protection for the marine environment. Such regulations may include the identification of areas that warrant additional pollution protections and the enhancement of marine water quality standards. The EPA shall consult with the Federal agencies identified in subsection 4(a) of this order, States, territories, tribes, and the public in the development of such new regulations.

Sec. 5. Agency Responsibilities. Each Federal agency whose actions affect the natural or cultural resources that are protected by an MPA shall identify such actions. To the extent permitted by law and to the maximum extent practicable, each Federal agency, in taking such actions, shall avoid harm to the natural and cultural resources that are protected by an MPA. In implementing this section, each Federal agency shall refer to the MPAs identified under subsection 4(d) of this order.

Sec. 6. Accountability. Each Federal agency that is required to take actions under this order shall prepare and make public annually a concise description of actions taken by it in the previous year to implement the order, including a description of written comments by any person or organization stating that the agency has not complied with this order and a response to such comments by the agency.

Sec. 7. International Law. Federal agencies taking actions pursuant to this Executive Order must act in accordance with international law and with Presidential Proclamation 5928 of December 27, 1988, on the Territorial Sea of the United States of America, Presidential Proclamation 5030 of March 10, 1983, on the Exclusive Economic Zone of the United States of America, and Presidential Proclamation 7219 of September 2, 1999, on the Contiguous Zone of the United States.

Sec. 8. General.

a. Nothing in this order shall be construed as altering existing authorities regarding the establishment of Federal MPAs in areas of the marine environment subject to the jurisdiction and control of States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands of the United States, American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, and Indian tribes.

b. This order does not diminish, affect, or abrogate Indian treaty rights or United States trust responsibilities to Indian tribes.

c. This order does not create any right or benefit, substantive or procedural, enforceable in law or equity by a party against the United States, its agencies, its officers, or any person.

William J. Clinton
THE WHITE HOUSE,
May 26, 2000.

Appendix B.

Limited Inventory of MPA-Related Adjudications

Endangered Species Act: Administrative Hearings

In the Matter of: Paul J. von Hartmann, 6 O.R.W. 286; 1990

Fishery Closure Areas: Administrative Hearings

In the Matter of James W. Groce, 4 O.R.W. 254; 1985 NOAA

In the Matter of Ronnie and Charlotte Boggess, 4 O.R.W. 260; 1985

In the Matter of Jerry M. Phelps, Mark A. Berry, 4 O.R.W. 532, 1986

In the Matter of: Charles A. Lore, 4 O.R.W. 627; 1986

In the Matter of: Benjamin F. Sprinkle, 4 O.R.W. 635; 1986

In the Matter of: Jerry F. Murphy, Kathleen C. Murphy, Everett A. Reahard, 4 O.R.W. 794; 1986

In the Matter of: Timothy Kinzie, Dennis Henderson, George Gala, Jr., 5 O.R.W. 1; 1987

In the Matter of: Colbourne Seafood, Inc., Richard B. Wetherell, 5 O.R.W. 39; 1987

In the Matter of: James I. House, 5 O.R.W. 262; 1988

In the Matter of: El Jefe, Inc., Felipe Ayala-Villalbaz, 5 O.R.W. 453; 1989

In the Matter of: William A. Hedger, William M. Hedger, 5 O.R.W. 478; 1989

In the Matter of: Manuel Marques, Marques Fishing Corporation, 6 O.R.W. 1; 1990

In the Matter of: Phuc Van Tran, 6 O.R.W. 43; 1990

In the Matter of: John Bankston, D & H Trawlers, 6 O.R.W. 68; 1990

In the Matter of: Boat Santa Rita III, Inc., Nicholas J. Curcuru, 6 O.R.W. 132; 1990

In the Matter of: Alton R. Pierce, Jr., Alton R. Pierce, Sr., 6 O.R.W. 527; 1991

In the Matter of: Roger E. Brooks, Alton R. Pierce, 6 O.R.W. 535; 1991

In the Matter of: Tibor E. Kepecz, Judy Kepecz, Ken Drochak, 6 O.R.W. 556; 1991

In the Matter of: Mark G. Crowell, 7 O.R.W. 159; 1993

In the Matter of: Mark G. Crowell, 7 O.R.W. 179; 1993

In the Matter of: Jerome D. Muetzel, 1994 NOAA Lexis 11 (Docket No. 215-285)

In the Matter of: Regan Nguyen, Tam Nancy Nguyen, Tan Than Nguyen, 1995 NOAA Lexis 41 (Docket No. SW940130FM)

In the Matter of Brian M. Roche, 2001 NOAA LEXIS 12 (Docket No. NE 99 0055 FM/V)

In the Matter Of: Hayward McKinney, 2001 NOAA Lexis 10 (Docket No. SE001369FM)

In the Matter of Lobsters, Inc., Lawrence M. Yacubian, 2001 NOAA LEXIS 8 (Docket No. NE 98 0310 FM/V)

In the Matter Of: James G. Smith, Jr., 2003 NOAA LEXIS 3 (Docket Number NE010093)

In the Matter of: Binks Seafood Co., Inc., Travis Tate, 2003 NOAA LEXIS 6 (Docket no: NE010121)

In the Matter Of: Earl Jackson, 2003 NOAA Lexis 8 (DOCKET No. NE990259FM/V, F/V STORM)

In the Matter of: Manuel Valente and Frontier Fishing Company, 2003 NOAA LEXIS 14 (2003).

National Marine Sanctuaries: Administrative Hearings

In the Matter of Ralph Johnson, 4 O.R.W. 87, 1985
In the Matter of Joel W. Jenison, 4 O.R.W. 309, 1985
In the Matter of J.R. Towing Service, Inc., 4 O.R.W. 457, 1986
In the Matter of Michael T. Sciarrone, 4 O.R.W. 566, 1986
In the Matter of Alva Frank Deaton, et. al., 4 O.R.W. 580, 1986
In the Matter of: Chester Maynard, 5 O.R.W. 9; 1987
In the Matter of Sharon Eatenton, 5 O.R.W. 466, 1989
In the Matter of: Tsangeos Panagiotis Seagroup, Inc., Elmini Laurel, 5 O.R.W. 475, 1989
In the Matter of Peter G. Kuhnle, 5 O.R.W. 514, 1989
In the Matter of: James O. Blackstone, 5 O.R.W. 521, 1989
In the Matter of: Stephen P. Tague, 6 O.R.W. 10, 1990
In the Matter of: Clifton B. Craft, Jack Dean Ferguson, Donald L. Jernigan, Michael Patrick King, Gerald Parrott, Thomas D. Stocks, William Lee Wilson, 6 O.R.W. 150, 1990
In the Matter of: William R. Etchells, Virginia J. Tracy, 6 O.R.W. 219, 1990
In the Matter of: David Morejon, John A. Maples, George Hernandez, 6 O.R.W. 226, 1990
In the Matter of: Donald G. Brown, 6 O.R.W. 255, 1990
In the Matter of Harry Purcell, 6 O.R.W. 302, 1991
In the Matter of: Charles E. Long, Rentals for Fun, Inc., 6 O.R.W. 328, 1991
In the Matter of: William A. Hanke, Sherman W. Pratt, Anastasia A. Pratt, 6 O.R.W. 360; 1991
In the Matter of: James A. Richards, 6 O.R.W. 505; 1991
In the Matter of: Pedro Cuperman, 6 O.R.W. 551; 1991
In the Matters of: Steaven M. Morgan (Kivett), Walter Connor, Treasure Harbor Sailing Yachts, Inc., Treasure Harbor Charter Yachts, Inc., 6 O.R.W. 241; 1991
In the Matter of: Michael J. Clairmont, 6 O.R.W. 271; 1991
In the Matter of: Bruce Heck, 6 O.R.W. 816; 1992
In the Matter of: Luis M. Perez, 6 O.R.W. 830; 1992
In the Matter of Clifton B. Craft, Jack Dean Ferguson, Donald L. Jernigan, Michael Patrick King, Gerald E. Parrott, Thomas D. Stocks, William Lee Wilson, 6 O.R.W. 684; 1992
In the Matter of: William R. Davis, 1994 NOAA LEXIS 18 (1994); Docket No. 255-239.
In the Matter of Heaton M. Armstrong, Charles E. Williams, 1995 NOAA LEXIS 50 (1995); Docket Nos. 253-079, 253-808.
In the Matter of: Roberto Rojas, Jr., 2003 NOAA LEXIS 2 (2003); Docket No. SE025025MS.
In the Matter of: Horacio Gonzalez, 2003 NOAA LEXIS 1 (2003); Docket No. SE025029MS.
In the Matter of: Rolando Garcia, 2003 NOAA LEXIS 5 (2003). - Docket No. SE025062MS.
In the Matter of: Harald H. Dett, William C. Hauck, Amy N. Inc., 2003 NOAA LEXIS 16 (2003); Docket No. SE015439MS.
United States v. M/V Jacquelyn L., 100 F.3d 1520 (11th Cir., 1996).
United States v. Fisher, 977 F. Supp. 1193 (S.D. Fla. 1997).
United States v. Great Lakes Dredge & Dock Co., 259 F.3d 1300 (11th Cir., 2001).

National Wildlife Refuges - Federal Court Cases

United States v. Harris, 1994 U.S. Dist. LEXIS 13814 (E.D. LA Sept. 27, 1994)

Appendix C. Study Participants

Nationwide Interviews:

Mark Amorello, Chair, Massachusetts Marine Fisheries Commission
Bill Archer, Captain, F/V Seminole Wind, Panama City, Florida
Dan Basta, Director, NOAA National Marine Sanctuaries Program
Genevieve Brighthouse, Program Manager, American Samoa Coastal Mgmt. Program
Ellen Brody, Assistant Sanctuary Manager, Thunder Bay National Marine Sanctuary
Steve Bowman, Colonel, Chief of Law Enf., Virginia Marine Resources Commission
Dennis Burnett, Law Enforcement Program Administrator, National Park Service
Tane Casserley, Maritime Archaeologist, Monitor National Marine Sanctuary
Gib Chase, Conservation Biologist, U.S. Fish and Wildlife Service
Kim Diana Connolly, University of South Carolina School of Law; SAFMC LEAP
Jim Coon, Trilogy Excursions, Maui; Chair, Humpback Whale Sanctuary Adv. Council; President, Ocean Tourism Coalition
Nancy Daschbach, Sanctuary Manager, Fagatele Bay National Marine Sanctuary
John Davis, Commander, U.S. Coast Guard; Chief of Fisheries Law Enforcement Division.
Jane DiCosimo, Senior Plan Coordinator, North Pacific Fishery Management Council
Brian Fiedler, LCDR, U.S. Coast Guard; Liaison Officer to NOAA Fisheries
Peter Fischel, NOAA Executive Officer, Gray's Reef National Marine Sanctuary
Andrew Gude, U.S. Fish and Wildlife Service, Refuge Marine Program
Preston Hardison, Policy Analyst, Tulalip Tribes Natural Resources
Christopher Hawkins, American Samoa Coral Reef Initiative Coordinator
Mike Howard, Law Enf. Coordinator, Atlantic States Marine Fisheries Commission
Jim Martin, Conservation Director, Berkley Fishing Tackle Company, Oregon
Cliff McCreedy, Marine Management Specialist, National Park Service
Rod Moore, Executive Director, West Coast Seafood Processors Association
Mark Oswell, National Media Outreach Coordinator, NOAA Fisheries OLE
Jeff Pearson, Lt., U.S. Coast Guard; Fisheries Law Enforcement Division
Bob Pride, Member, Mid-Atlantic Fishery Management Council
Maggie Raymond, Staff Member, Associated Fisheries of Maine
Greg Stotesbury, Manager, AFTCO Manufacturing, California
Jon Sutinen, Department of Resource Economics, University of Rhode Island
Terry Williams, Commissioner of Fisheries and Natural Resources for the Tulalip Tribes
David Witherell, Deputy Director, North Pacific Fishery Management Council
Robert Yerena, NOAA Fisheries OLE Special Agent, Monterey Bay NMS

Members of the NOAA Office of General Counsel for Enforcement and Litigation were also interviewed for the preparation of this report.

Case Studies:

Florida Keys National Marine Sanctuary

Billy Causey, Superintendent, FKNMS
David Dipre, Sanctuary/FWCC Enforcement Officer
Todd Firm, Keys Diver (Key Largo)
Peter Gladding, Commercial Fisher (Key West)
Cheva Heck, Public Affairs Officer, FKNMS
Jayson Horadam, Captain, Sanctuary/FWCC Enforcement Officer
Chris Humphrey, Florida Bay Charters (Islamorada)
Robert Kamphouse, Lower Keys Assistant Regional Manager, FKNMS
Don Kincaid, Captain, Stars and Stripes (Key West)
Anne McCarthy, Lower Keys Regional Manager, FKNMS
Rewa Maldonado, Team OCEAN Coordinator (Key Largo)
John Nazzaro, Team OCEAN Coordinator (Key West)
Ken Nedimyer, Sea Life, Inc. (Tavernier)
Joe Scarpa, Sanctuary/FWCC Enforcement Officer
David Score, Upper Keys Regional Manager, FKNMS
Mary Tagliareni, Education/Outreach Coordinator, FKNMS
Joy Tatgenhorst, Education Specialist, FKNMS

Channel Islands National Marine Sanctuary

Chris Calloway, Captain, Sea Landing/Truth Aquatics, Inc.
Gary Davis, Chief Ocean Scientist, National Park Service
Bob Duncan, Chair, Ad Hoc Enforcement Committee, Sanctuary Advisory Council
John Fitzgerald, Chief Ranger, Channel Islands National Park
Jorge Gross, Lt., California Department of Fish and Game, Marine Region Warden
Sean Hastings, Resource Protection Coordinator, Channel Islands NMS
Chris Hoeflinger, Commercial Fisher, Ventura
Tom Raftican, President, United Anglers of Southern California
John Ugoretz, Senior Marine Biologist, California Department of Fish and Game

Oculina Bank HAPC/OECA

John M. Dean, Chair, SAFMC Enforcement Committee
Mark Gordon, Lt. Commander, USCG, South Atlantic Fishery Training Center
Richard Chesler, NOAA Fisheries OLE Special Agent
Brock Anderson, Owner, Bottom Dollar Charter Fishing, Port Canaveral, Florida
Bruce Buckson, Major, Florida Fish and Wildlife Conservation Commission
Kim Iverson, SAFMC Public Information Officer
Kathi Kitner, SAFMC Anthropologist
Glen Middlebrooks, Owner, DeBrooks Fishing Corner, Ft. Pierce, Florida
Meeting Attended: SAFMC Joint Law Enforcement Committee and Advisory Panel

Appendix D.

Florida Keys National Marine Sanctuary: Sanctuary-wide Regulations

(Excerpted from <http://www.fknms.nos.noaa.gov/regs/welcome.html#Sanct-wideregs>, please see also 15 CFR 922 Subpart P for Sanctuary regulations)

These are regulations that apply throughout the entire area of the Sanctuary, including other protected areas and Sanctuary zones. The purpose of these regulations is to protect Sanctuary resources from both direct and indirect threats. These regulations focus on habitat protection, reducing threats to water quality, and minimizing human impact to delicate resources. The following activities are prohibited Sanctuary-wide:

- Removing, injuring, or possessing coral or live rock.
- Discharging or depositing trash or other pollutants.*
- Dredging, drilling, prop dredging or otherwise altering the seabed, or placing or abandoning any structure on the seabed.
- Operating a vessel in such a manner as to strike or otherwise injure coral, seagrass, or other organisms attached to the seabed, or cause prop-scarring.
- Having a vessel anchored on living coral in water less than 40 feet deep when you can see the bottom. Anchoring on hardbottom is allowed.
- Operating a vessel at more than idle speed/no wake within 100 yards of residential shore-

lines, stationary vessels, and navigational aids marking reefs.

- Operating a vessel at more than idle speed/no wake within 100 feet of a “divers down” flag.
- Diving or snorkeling without a dive flag.
- Operating a vessel in such a manner which endangers life, limb, marine resources, or property
- Releasing exotic species.
- Damaging or removing markers, mooring buoys, scientific equipment, boundary buoys, and trap buoys.
- Moving, removing, injuring, or possessing historical resources.
- Taking or possessing protected wildlife.
- Using or possessing explosives or electrical charges.
- Collecting marine life species -- tropical fish, invertebrates, and plants -- except allowed by
- Florida Marine Life Rule (46-42 F.A.C.). Sanctuary regulations have been established to complement this rule and apply throughout the Sanctuary.

* All state waters of the FKNMS have been designated as a “No-Discharge Zone” for sewage, including treated sewage from marine sanitation devices.

Appendix E.

Florida Keys National Marine Sanctuary: Zones and Regulations

(Excerpted from <http://www.fknms.nos.noaa.gov/regs/welcome.html#Sanct-widereg>, please see also 15 CFR 922 Subpart P for Sanctuary regulations)

These activities are prohibited in Ecological Reserves & Sanctuary Preservation Areas:

- Discharging any matter except cooling water or engine exhaust.
- Fishing by any means; removing, harvesting, or possessing any marine life. Catch and release fishing by trolling will be allowed in Conch Reef, Alligator Reef, Sombrero Reef, and Sand Key SPAs only.
- Touching or standing on living or dead coral.
- Anchoring on living or dead coral, or any attached organism.

Western Sambo Ecological Reserve (ER). In addition to Sanctuary-wide regulations, special regulations have been set in place in this area to protect resources. Spearfishing, shell collecting, tropical fish collecting, and other activities that result in the harvest of marine life by divers and snorkelers, and all fishing activities will be prohibited in this zone type. In addition, direct physical impact to corals in this area is restricted.

Sanctuary Preservation Areas (SPA). There are 18 small SPAs that protect popular shallow coral reefs. In addition to Sanctuary-wide regulations, special regulations have been set in place in these

areas in order to protect resources. Activities that will be prohibited in the Sanctuary Preservation Areas include spearfishing, shell collecting, tropical fish collecting, fishing and other activities that result in the harvest of marine life by divers, snorkelers, and fishermen. In addition, direct physical impact to corals in these areas is restricted.

Wildlife Management Areas (WMA). There are 27 WMAs. The majority of these areas (20) fall under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS) and Sanctuary regulations have been established to complement the existing USFWS management plan. Public access restrictions in these areas include idle speed only/no wake, no access buffer, no motor, and limited closures.

Existing Management Areas (EMA). Sanctuary regulations have been established to complement those in existing management areas, including Looe Key and Key Largo Management Areas as well as the Great White Heron and Key West National Wildlife Refuges, and all the State Parks and Aquatic Preserves.

Special Use Areas. There are four areas designated: Conch Reef, Tennessee Reef, Looe Key (patch reef), and Eastern Sambo Reef. These are all designated as research-only areas. No person may enter these areas except as specifically authorized by a valid permit.



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