Knowledge, Attitudes and Perceptions of Florida Keys National Marine Sanctuary

ZONES

Introduction

The information presented here is from a larger study of three user groups: commercial fishers, dive operators and environmental group members on their knowledge, attitudes and perceptions of management strategies and regulations in the Florida Keys National Marine Sanctuary (FKNMS). The study profiles these user groups and provides information on user group knowledge, attitudes and perceptions of FKNMS management strategies and regulations in the baseline 1995-96 period and how things have changed over a 10-year time period. Some new baselines are also established on new management strategies and regulations.

This fact sheet focuses on information obtained from environmental group members from two local environmental groups (Reef Relief and Last Stand) on the FKNMS zones and includes zone definitions; environmental group members' knowledge of the purpose of the FKNMS zones; perceptions on the beneficiaries of the FKNMS zones; and views on FKNMS zone outcomes. On this latter topic, information is reported on environmental group members' views on FKNMS zone objectives and their support for FKNMS zones.

Zone Definitions

Ecological Reserves (ERs) encompass large, contiguous, diverse habitats, in order to protect and enhance natural spawning, nursery, and permanent-residence areas for the replenishment and genetic protection of fish and other marine life. Regulations for Ecological reserves are designed to meet the objectives of these zones by limiting consumptive activities while continuing to allow non-consumptive activities only where such activities are compatible with resource protection. There are currently two Ecological Reserves in the Sanctuary, the Western Sambos Ecological Reserve and the Tortugas Ecological Reserve.

Sanctuary Preservation Areas (SPAs) encompass discrete, biologically important areas and are designed to reduce user conflicts and sustain critical marine species and habitats. Regulations for SPAs are designed to limit consumptive activities while continuing to allow activities that do not threaten resource protection. There are 18 SPAs in the FKNMS.

Wildlife Management Areas (WMAs) include bird nesting, resting, or feeding areas, turtle-nesting beaches, and other sensitive habitats. Regulations are designed to protect these species or the habitat while providing for public use. Access restrictions may include no-access buffers, no-motor zones, idle-speed only/no wake zones, and closed zones. Some restrictions may apply to time periods, others to areas. There are currently 27 WMAs, of which 7 are managed exclusively by the FKNMS (the FKNMS co-manages the others with the US Fish and Wildlife Service).

Purpose of Zones

In the baseline study, three purposes of the FKNMS zones were assessed, while five purposes were assessed in the 10-year replication. Also, in the baseline, there was no differentiation by type of zone, while in the 10-year replication three types of zones were assessed: Ecological Reserves (ERs), Sanctuary Preservation Areas (SPAs), and Wildlife Management Areas (WMAs). ERs and SPAs are two different forms of no-take areas. See inset box for definitions.

Purpose of Zones	1996	2007		
	All Zones	ERs	SPAs	WMAs
1. Increasing overall fish stocks and biomass inside the zones.	71.9%	22.7%	11.6%	14.3%
2. Increasing overall fish stocks and biomass outside the zones.	56.4%	18.9%	8.2%	9.6%
3. Conserving and protecting corals, fish, and other marine life.	85.1%	46.5%	51.5%	57.7%
4. Resolving user group conflicts.	N/A	3.9%	22.3%	11.2%
5. Supporting scientific research.	N/A	6.8%	5.7%	6.2%

The percentages are not comparable across years because in the baseline respondents were simply asked if each of the purposes was a purpose of the zones, while in the 10-year replication respondents were asked which one of the five purposes was the main purpose of each type of zone. Thus, no statistical tests for differences were conducted.

Despite the limitations in direct comparisons, one can still make relative comparisons on what environmental group members believed was the purpose of the zones, or in the 10-year replication, what was the purpose of each type of zone. Here new baselines are also established for future monitoring of the different types of zones.

In the baseline, a majority of environmental group members thought that all three purposes for the zones were true. In addition, the overwhelming majority of environmental group members thought it true that the purposes of the zones were "conserving and protecting corals, fish and other marine life" and "increasing overall fish stocks and biomass inside the zones". Even though the majority of environmental group members thought that "increasing overall fish stocks and biomass outside the zones" was a purpose of the zones, a significantly lower proportion did not buy the "replenishment effect" argument for the zones. The ERs were first proposed as "Replenishment Reserves" in the Draft Management Plan for the FKNMS that existed at the time of the baseline survey. The purposes and name were changed in the Final Management Plan.

In the 10-year replication, the user groups were asked to choose the "main" purpose of each type of zone among the five purposes presented. There are some notable shifts in beliefs about the purpose of the zones. A majority of all environmental group members thought that 'conserving and protecting corals, fish and other marine life" was the main purpose of the SPAs and WMAs, but only a plurality (46.5%) thought so for the ERs.

Even though a plurality of respondents selected "conserving and protecting corals, fish and other marine life" or " increasing overall fish stocks and biomass inside the zones" as a main purpose, only a small percent of respondents selected "increasing overall fish stocks and biomass outside the zones" as a main purpose of the ERs. This seems to reflect that environmental group members did understand the change in purpose of the ERs as expressed in the change in name of the zones from the baseline. This purpose was just one possible purpose, not the "main" purpose of the ERs.

The main purpose of the SPAs was to resolve conflicts between consumptive and nonconsumptive users. Zoning was used by management to provide a place for each user group to be able to experience the resources of the FKNMS in conditions more suitable for their activities. In the 10-year replication, 22.3% of environmental group members identified this as a main purpose of the SPAs.

A high proportion of survey respondents answered "don't know" for most questions about WMAs. About half of the environmental group members participated in bird watching in both the baseline and 10-year replication time periods. So the WMAs would be expected to be important to them even for direct use values. Of course, we would also expect this group to have high values for protecting areas for nonuse values as well. Environmental group members were the only user group for which a majority of respondents indicated that the main purpose of the WMAs were for "conserving and protecting corals, fish and other marine life".

Perceived Beneficiaries of the FKNMS Zones

The study surveys identified four potential beneficiaries of the FKNMS zones and asked survey respondents which of these groups they thought were the beneficiaries of the zones. Again, in the baseline study all types of zones were combined, whereas this was asked for each type of zone in the 10-year replication. The four groups of potential beneficiaries were commercial fishers, recreational/sport fishers, commercial dive operators, and recreational (local & tourist) divers.

A majority of the baseline sample of environmental group members thought that recreational divers would be the main beneficiaries of the zones. Although, less than a majority in the 10-year replication, a high proportion of environmental group members thought that recreational divers would benefit from each type of zone. In both time periods, environmental group members did not think that commercial fishers or sport fishers would be main beneficiaries of the zones. What is surprising is that very few environmental group members thought that dive operators would be beneficiaries of any of the zones. In the 10-year replication, a majority of environmental group members did recognize that dive operations and divers in general would be beneficiaries of the SPAs.

Zone Beneficiaries	1996	2007		
	All Zones	ERs	SPAs	WMAs
1. Commercial Fishers	24.1%	17.4%	11.7%	11.3%
2. Recreational/Sport Fishers	29.0%	30.4%	34.8%	15.9%
3. Commercial Dive Operators	N/A	43.5%	59.4%	31.9%
4. Recreational divers (local & tourists)	38.7%	46.4%	75.4%	35.5%

Views on FKNMS Zone Outcomes

FKNMS Zone Objectives. Dive operators were asked a core set of eight questions on their views of zone outcomes both in the baseline and 10-year replication surveys. The first two questions of the eight core questions address whether respondents agreed that the zones have achieved various objectives. Five questions address support for the zones across all regions and within each region of the Florida Keys. The last core question asked whether there should be more zones.

The tense of these questions were different in the baseline and 10-year replication surveys. In the baseline, the questions were worded such that the zones "will" accomplish the objectives, whereas in the 10-year replication the wording is as above assessing if they have accomplished the objectives. Again, a five-point agreement scale was used where 1=strongly agree to 5=strongly disagree. A "Don't Know" response was also allowed, but was not included in statistical tests for changes in mean scores over the 10-year period. Statistical tests were done to test whether there were statistically significant changes in these views over the 10-year period. A "YES" means statistically significant difference with 95% confidence for each pairwise comparison between 1996 and each type of zone in 10-year replication. Tests were done for differences in distributions of percent responses and differences in mean scores. In summary tables A= percent that strongly and moderately agree and D=percent that strongly and moderately disagree. An * indicates a high proportion of "Don't Know" responses, which are eliminated in comparison of mean scores, but retained in percentage responses.

Zone Objectives	1996	2006			Statistical Difference
	All Zones	ERs	SPAs	WMAs	
1. FKNMS zones have reduced conflicts between different user groups.	43.1% A (2.69)	26.7% A (2.74)	28.8% D (2.57)	29.0% D (2.61)	YES* (NO)
2. FKNMS zones have been effective in restoring coral reefs in the Florida Keys to what they use to be.	63.1% A (2.29)	40.7% D (3.49)	39.5% D (3.43)	38.8% D (3.49)	YES (YES)

- mean scores and statistical difference of mean scores in parentheses.
* Difference for ERs only.

In the baseline, the environmental group members were optimistic concerning the zones ability to achieve both objectives of reducing conflicts between users and restoring coral reefs. A majority of environmental group members (63.1%) thought that the zones would help in restoring coral reefs, while a plurality (43.1%) believed the zones would reduce conflicts between users. In the 10-year replication, the views have become more negative on both objectives, but the movement was statistically significant for only the objective of restoring coral reefs. As with some other questions in the survey, the environmental group members had a relatively high proportion of respondents that provided "Don't Know" responses. A little over a third responded "Don't Know" on the objective of reducing user conflicts and about one-fifth (20%) responded "Don't Know" on the objective of restoring coral reefs. Again, some attention to education and outreach is needed for this group.

Support for FKNMS Zones. Four statements were used in both the baseline and the 10-year replication on support for the FKNMS zones, while two were only asked in the 10-year replication. Again, the five point agreement scale was used.

Support Statements	1996	2006			Statistical Difference
	All Zones	ERs	SPAs	WMAs	
1. I support the establishment of FKNMS zones as they are currently established.	34.1% A (2.81)	55.4% A (2.17)	51.9% A (2.17)	50.9% A (2.16)	YES (YES)
2. I support the establishment of FKNMS zones in the Upper Keys.	65.6% A (1.94)	64.0% A (1.76)	64.3% A (1.75)	63.1% A (1.75)	NO (NO)
3. I support the establishment of FKNMS zones in the Middle Keys.	65.3% A (1.97)	65.9% A (1.76)	65.5% A (1.74)	65.0% D (1.74)	NO (NO)
4. I support the establishment of zones in the Lower Keys.	66.4% A (2.00)	68.3% A (1.77)	67.9% A (1.77)	68.3% A (1.75)	NO (YES)
5. I support the establishment of zones in the Dry Tortugas.	N/A	69.7% A (1.69)	68.7% A (1.69)	69.4% A (1.66)	N/A
6. There should be more FKNMS zones in the Florida Keys.	N/A	60.2% A (1.98)	60.4% A (1.95)	58.7% A (1.99)	N/A

In the baseline, the plurality of environmental group members did not support the FKNMS zones as proposed: 34.1% were against, 22.4% for, 21.1% were neutral, and 18.7% responded "Don't Know". As with the dive operators, when asked about zones in each region, an overwhelming majority supported the zones (65.6% in the Upper Keys; 65.3% in the Middle Keys; and 66.4% in the Lower Keys. In the 10-year replication, a majority of environmental group members supported each type of zone as currently established and each region.

An overwhelming majority of environmental group members supported the establishment of all types of zones in the Dry Tortugas: 69.7% for ERs; 68.7% for SPAs; and 69.4% for WMAs. In addition, a majority of environmental group members were supportive of more zones in the Florida Keys: 60.2% for more ERs; 60.4% for more SPAs; and 58.7% for more WMAs.

Access to Full Report and Executive Summary

The full report can be cited as follows:

Shivlani, M., Leeworthy V.R., Murray, T.J., Suman, D.O., and Tonioli, F. 2008. Knowledge, Attitudes and Perceptions of Management Strategies and Regulations of the Florida Keys National Marine Sanctuaries by Commercial Fishers, Dive Operators, and Environmental Group Members: A Baseline Characterization and 10-year Comparison. Marine Sanctuaries Conservation Series ONMS-08-06. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries, Silver Spring, MD. 170pp.

Available at: http://sanctuaries.noaa.gov/science/conservation/pdfs/kap2.pdf

Full Report and Executive Summary are also available in portable document format (pdf) from:

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