

## **Sanctuary Preservation Areas and Ecological Reserves: Monroe County Reef-Using Residents' Opinions on "No-Take" Zones**

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### ***Goals***

Our goals were to monitor and assess knowledge, attitudes, and perceptions of Sanctuary management strategies and regulations. Here, specifically, we assess knowledge and attitudes toward fully protected ("no-take") marine zones by residents of Monroe County who use reefs in the Sanctuary.

### ***Methods***

The information presented here was obtained as part of a multi-agency partnership project entitled "Socioeconomic Study of Reefs in Southeast Florida, 2000-2001." Several modules of questions were added to a survey of both residents and visitors of Monroe County-FKNMS to contribute to objectives of the Recreation and Tourist component of the Socioeconomic Research and Monitoring Program for the FKNMS. One set of questions addressing opinions on no-take zones was designed for reef-using residents of Monroe County. Visitors were not asked these questions because the research team did not think they could control for the "not in my backyard (NIMBY) effect" within the time constraints of the survey. Also, the 2000-01 reef study was conducted from June 2000 through May 2001. The Tortugas Ecological Reserve did not go into effect until July 2001. Therefore, the Tortugas Ecological Reserve was not part of the 2000-01 survey results.

The sample of reef-using residents of Monroe County was identified by use of a stratified-random sample of registered boaters from the State of Florida's boat registration file. A mail survey was used with sampling stratified by boat size classifications (see Johns et al. 2003a, b). A total of 790 questionnaires were returned; 594 (75%) used their boats on reefs in Monroe County-FKNMS.

The 2000-01 Reef Study gathered opinions of Monroe County reef-using residents toward no-take zones. The survey provided an introductory statement explaining the nature of no-take zones, the distinction between Sanctuary Preservation Areas (SPAs) and Ecological Reserves (ERs), how many of each currently exists, and areas encompassed by SPAs and ERs. After this background information, the survey then questioned residents' opinions concerning their support for the current no-take zones and possible expansion of them.

A nonparametric statistical test, the Kolmogorov-Smirnov Two-Sample test, was used for testing for differences in responses to the yes/no questions and a two-sample t-test was used for differences in the mean percentage of coral reef to be protected. A 0.05 level of significance was used as the cut-off value for statistical significance (95% confidence level).

### ***Findings to Date***

The first question asked Monroe County reef-using residents whether they supported the currently designated no-take zones in the Florida Keys. For all resident reef users, an

overwhelming majority supported the existing no-take zones (78% - see Table 1). Also, there was no significant difference between all reef users and recreational fishermen (76% supported the no-take zones). While the majority of respondents favored the current design of no-take zones in the FKNMS, a higher proportion of resident SPA and ER users favored the currently designated no-take zones than non-SPA- and non-ER-using residents (Table 2). These differences were statistically significant.

*Not in My Backyard Hypothesis*

Questions two and three tested the “NIMBY” (Not In My Backyard) hypothesis by asking residents whether they supported the creation of new no-take zones in the waters off the three counties to the north (Palm Beach, Broward, and Miami-Dade) versus whether they supported additional no-take zones in Monroe County.

The results do not support the NIMBY hypothesis. The results were, in fact, opposite of what was expected. Monroe County reef-using residents were generally not in support of no-take zones in the three counties to the north, while supporting the creation of additional no-take zones in Monroe County-FKNMS. SPA- and ER-users supported both additional no-take zones in the three counties to the north and additional no-take zones in Monroe County-FKNMS, while non-users were much less supportive (less than a majority for both options).

**Table 1.** Opinions on "no-take" zones: all residents vs. recreational fishermen.

Question	All Reef Users (% Yes)	Recreational Fishermen (% Yes)
1. Do you support currently designated "No Take" zones in the Florida Keys?	78%	76%
2. Would you support creation of additional "No Take" zones on some of the reefs in Palm Beach, Broward, and Miami-Dade Counties?	44%	39%
3. Would you support the creation of additional "No Take" zones on some of the reefs in your county of residence?	57%	55%
4. What percentage of the coral or natural reefs in southeast Florida do you think would be a reasonable proportion to protect by giving them "No Take" designation?	Mean: 32%	27%
	Median: 25%	20%
	Mode: 0%	0%

Source: Leeworthy et al. (2004)

*Proportion of Reefs that Should be Protected*

Question four asked what percentage of coral or natural reefs in southeast Florida residents felt would be a reasonable proportion to protect by giving them no-take designation.

The all reef-using-resident mean was about 32%, and 27% for reef-using recreational fishers. This implies that, of the survey respondents, Monroe County residents desired, on average, that 32% of coral or natural reefs in southeast Florida be protected through no-take designations. Looking at the disaggregated breakdown of SPA and ER users versus non-users, the support for no-take designation varied significantly. On average, SPA- and ER-users supported a no-take percentage of 35%, while non-users, on average, supported designation at the level of 26%.

Using a more conservative measure of central tendency (the median) indicated that 50% of SPA- and ER-using residents would support that 25% or more of coral reefs be protected in no-take zones, while 50% of non-using residents would support that 20% or more of coral reefs be protected in no-take zones (Table 2).

Comparison of the mean and median showed that SPA- and ER-users desired higher levels of protection than non-SPA- and non-ER-users (differences in means and medians were statistically significant). Comparison of the modes (the mode indicates the most common response) showed that, for SPA- and ER-users, the desired protection level was 50%, while the mode for non-SPA- and non-ER-users was 0%. These results indicate that there was a large rift between resident SPA- and ER-users and non-SPA- and non-ER-using residents in willingness to protect corals or natural reefs in southeast Florida through no-take designations.

**Table 2.** Opinions on "no-take" zones: SPA and ER users vs. non-users.

Question	SPA & ER	
	Users (% Yes)	Non Users (% Yes)
1. Do you support currently designated "No Take" zones in the Florida Keys?	83%	72%
2. Would you support creation of additional "No Take" zones on some of the reefs in Palm Beach, Broward, and Miami-Dade Counties?	51%	35%
3. Would you support the creation of additional "No Take" zones on some of the reefs in your county of residence?	63%	49%
4. What percentage of the coral or natural reefs in southeast Florida do you think would be a reasonable proportion to protect by giving them "No Take" designation?	Mean: 35% Median: 25% Mode: 50%	26% 20% 0%

Source: Leeworthy et al. (2004)

## References

- Johns, G.M., V.R. Leeworthy, F.W. Bell, and M.A. Bonn. 2003a. Socioeconomic study of reefs in southeast Florida. Final Report October 19, 2001 as revised April 18, 2003 from Hazen and Sawyer to Broward County, Palm Beach County, Miami-Dade County, Monroe County, Florida Fish and Wildlife Conservation Commission, and National Oceanic and Atmospheric Administration.  
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