



Sanctuary Preservation Areas and Ecological Reserve Use and Comparative Socioeconomic Profiles of Users and Non Users



Background. Results presented here are part of the Recreation and Tourism component of the Socioeconomic Research and Monitoring Program for the Florida Keys National Marine Sanctuary (FKNMS). The Socioeconomic Research and Monitoring Program was designed in a workshop held in Islamorada, Florida in January 1998, which was attended by 50 social scientists and community stakeholders. Baseline measurements for Recreation and Tourism were obtained in a 1995-96 study entitled "Linking the Economy and Environment of the Florida Keys/ Florida Bay." However, in our baseline year of 1995-96, the Sanctuary Preservation Areas (SPAs) and Ecological Reserves (ERs) or "no take zones" were not yet in existence. The information presented here was obtained from a multi-agency partnership project entitled "Socioeconomic Study of Reefs in Southeast Florida, 2000-2001."

We were able to add several modules of questions to the 2000-01 surveys about use of the SPAs and ERs. From the broader survey, we were also able to produce comparative socioeconomic profiles of SPA & ER Users versus Non Users, comparative importance and satisfaction scores, and estimates of economic user value. Twenty-two of the SPAs and ERs (18 of which are open to nonconsumptive recreation activities) went into effect on July 1, 1997. The Tortugas Ecological Reserve went into effect on July 1, 2001. The Socioeconomic Study of Reefs in Southeast Florida was for the time period of

June 2000 through May 2001. Therefore, the Tortugas Ecological Reserve was not part of the 2000-01 survey results. See Leeworthy and Wiley (2000) for estimates of use for the Tortugas Ecological Reserve.

SPA and ER Use

The 2000-01 Reef Study was the first time both residents and visitors were surveyed about their use of the FKNMS Sanctuary Preservation Areas (SPAs) and Ecological Reserves (ERs). The SPAs and ERs, with only a few exceptions, like netting bait, are "no take areas".

In 2000-01, 57.8% of resident reef users used the SPAs and/or ERs versus 44.3% of all visitor reef users. For visitors, a fairly high proportion (16.5%) didn't know if they used a SPA or ER.

In the 2000-01 Reef Study, three types of use were measured in the SPAs and ERs; 1) snorkeling, 2) scuba diving, and 3) glass-bottom boat rides. Glass-bottom boat rides measured were limited to visitors. All three activities were measured in terms of person-days of use, where a person-day includes a whole day or any part of a day. Numbers of dives were also measured for snorkeling and scuba diving. Here, person-days are reported to relate SPA and ER use to total reef use for both residents and visitors.

In 2000-01, over 1.24 million person-days were spent in the SPAs and ERs. This represented 45% of all reef use (natural and artificial) in the FKNMS, and 62.8% of all natural reef use in the FKNMS.

Visitors ac-

Sanctuary Preservation Areas are marine zones that focus on the protection of shallow, heavily used reefs where conflicts occur between user groups, and where concentrated visitor activity leads to resource degradation. These areas are designed to enhance the reproductive capabilities of renewable resources, protect areas critical for sustaining and protecting important marine species, and reduce user conflicts in high-use areas. This is accomplished through the prohibition of consumptive activities within these areas. SPAs are chosen based on the status of important habitat, the ability of a particular area to sustain and protect the habitat, the level of visitor use, and the degree of conflict between consumptive and nonconsumptive users. The actual size and location of these zones have been determined by examination of user patterns, aerial photography, and ground-truthing of specific habitats.

Ecological Reserves are designed to encompass large, contiguous diverse habitats. They are intended to provide natural spawning, nursery, and permanent residence areas for the replenishment and genetic protection of marine life and to protect and preserve all habitats and species particularly those not protected by fishery management regulations. These reserves are intended to protect areas that represent the full range of diversity of resources and habitats found throughout the Sanctuary. The intent is to meet these objectives by limiting consumptive activities, while continuing to allow activities that are compatible with resource protection. This will provide the opportunity for these areas to evolve in a natural state, with a minimum of human influence. These zones will protect a limited number of areas that provide important habitat for sustaining natural resources such as fish and invertebrates.

Source: National Marine Sanctuary Program

counted for over 649 thousand person-days of activity in the SPAs and ERs (52.25% of all person-days in the SPAs and ERs), while residents accounted for over 593 thousand person-days of activity in the SPAs and ERs (Table 1).

There were almost 1.2 million person-days of snorkeling and scuba diving in the SPAs and ERs and 58.5 thousand glass-bottom boat rides. Resident and visitor snorkeling and scuba diving person-days were almost equal, with residents spending an estimated 593 thousand person-days versus the visitors with 590 thousand person-days (Table 1).

Although 57.8% of residents used a SPA or ER, they spent 36.3% of their total snorkeling and scuba diving person-days in the FKNMS inside the SPAs and ERs. Only

Table 1. SPA & ER Use in FKNMS: 2000-01

	Person-Days		Total	% of Total
	Snorkeling and Scuba Diving	Glass-bottom Boat Rides		
Residents	593,400	N/A	593,400	47.75
Visitors	590,700	58,500	649,200	52.25
Total	1,184,100	58,500	1,242,600	100



Spotlight Parrotfish Supermale
Photo: FKNMS

44.3% of visitors used a SPA or ER, but 50.9% of their snorkeling and scuba diving took place in the SPAs and ERs, and 72.7% of visitor glass-bottom boat rides were in the SPAs and ERs.

If we restrict our view to natural reef use, residents spent 56.2% of their snorkeling and scuba diving person-days on natural reefs inside the SPAs and ERs. Visitors spent 64% of all their snorkeling and scuba diving person-days on natural reefs inside the SPAs and ERs. Visitors also spent 82% of their glass-bottom boat rides on natural reefs inside the SPAs and ERs.

Comparative Socioeconomic Profiles: Users versus Non Users of SPAs and ERs

In the 2000-01 Reef Study, we obtained socioeconomic profiles of users including such variables as age, sex, race/ethnicity, education level, household income, membership in fishing or diving clubs, years of experience boating in South Florida, use of artificial or natural reefs, and party size. These variables were obtained for both resident and visitor samples. For residents (all were boating residents that used artificial or natural reefs), we also obtained boat size. For visitors, we identified whether they owned their boat. Many visitors use charter/party boats or guide services.

When comparing SPA & ER users to Non-SPA & ER users, statistical tests were used. For discrete variables or categorical variables, a nonparametric test for differences in the distribution (Kolmogorov-Smirnov-two-sample test) was used. For continuous variables, like age or experience, a t-test for differences in means, and the Kolmogorov-Smirnov-two-sample-test for differences in the empirical distribution (whether the bar charts are showing significant differences) were used. The 0.05 level of significance was used as the cut-off point (i.e., 95 percent confidence level).

Generally, there were few differences between SPA & ER users and Non-SPA & ER users. Significant differences were found for age, party size, and type of reef use.

Age. For both residents and visitors, SPA & ER users were, on average, younger than Non-SPA & ER users.

Party Size. Visitor SPA & ER users had slightly larger party sizes than Non-SPA & ER using visitors. For residents there were no differences in party size between SPA & ER users and Non-SPA & ER users.

Type of Reef Use. Resident SPA & ER Users had a higher likelihood of using artificial reefs than Non-SPA & ER using residents. For visitors, SPA & ER users had a higher likelihood of using natural reefs than Non-SPA & ER using visitors.

For Further Information:

For the full report containing the SPA & ER Use and Comparative Socioeconomic Profiles of Users and Non-Users go to our web site:
<http://marineeconomics.noaa.gov/SocmonFK/rectour.html>

For the 2001 Science Report containing details of the Ecological Monitoring Results go to:
<http://www.fknms.nos.noaa.gov/researchmonitoring/welcome.html>

For the full report on the Socioeconomic Study on Reefs in Southeast Florida, 2000-2001 go to:
<http://marineeconomics.noaa.gov/Reefs/02-01.pdf>

For fact sheets addressing the following topics:

- Comparative Importance-Satisfaction Ratings of SPA & ER Users and Non Users
- Economic User Value of the SPAs and ERs

- Monroe County Reef Using Residents' Opinions on "No Take" Zones

- Linking Ecological Monitoring with Socioeconomic Monitoring Results

Go to:

<http://marineeconomics.noaa.gov/SocmonFK/rectour.html>

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