

Socioeconomic Monitoring Program of Commercial Fishing Panels

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Goals

The Socioeconomic Monitoring Program (SMP), funded by the National Oceanic and Atmospheric Administration (NOAA), concerns the human uses dimension in the FKNMS. It focuses on the commercial fishing industry in the Florida Keys, effects of FKNMS regulations on commercial fisheries, and additional impacts to the local economy.

Methodology

The program tracks user attitudes, perceptions, and beliefs with regard to FKNMS regulations and strategies. The program commenced in 1998, following implementation of the FKNMS management plan in 1997, and has tracked the commercial fishing industry for five years (1998-2002).

The SMP adopts an integrated approach to monitor uses and effects of FKNMS regulations by utilizing field surveys and existing fishery information. Four panels, based on their fishery or location, represent the fishing communities monitored. The panels consist of: Tortugas Ecological Reserve (TER) Panel, Western Sambo Ecological Reserve (WSER) Panel, Marine Life Collectors Panel, and the General Fishery Panel. Fishers on the TER and WSER panels represent those users who fished the Dry Tortugas and Sambos regions, respectively, prior to their implementation as fully protected (“no-take”) marine zones. The marine life collectors consist of fishers located across the Florida Keys who had collected tropical fish and invertebrates in the smaller fully protected marine zones (designated as Sanctuary Preservation Areas and Special-Use Areas) prior to their implementation. The general panel serves as a control, to determine whether effects may result from factors other than FKNMS regulations.

Each panel is comprised of 5-9 fishers with long-standing, full-time experience in the fishery, and fishery panel members are identified from previous research efforts and experience in the region. Together, the members from each panel provide annual economic and social data, as well as spatial use information since year three.

Findings to Date

Information collected in the first five years (Table 1) suggests that harvest totals and net earning increased or remained stable in the first three years but declined in the fourth year with some recovery in the most recently surveyed year (2001-2002).

TABLE 1: PANEL COSTS AND RETURNS, 1997-2001

PANEL	\$ Costs/Returns	'97-'98	'98-'99	'99-'00	'00-'01	'01-'02
TER	Harvest total	\$196,090	\$215,778	\$189,299	\$149,759	\$145,611
	Net earnings	61,909	38,118	47,139	29,064	29,679
	Vessel cost	163,333	218,333	235,000	190,000	217,113
	Gear cost	40,975	43,750	39,571	34,750	48,286
WSER	Harvest total	97,725	129,666	133,149	81,464	91,108
	Net earnings	27,725	45,913	44,390	22,299	24,204
	Vessel cost	138,889	140,500	185,500	146,857	171,333
	Gear cost	69,899	79,766	98,718	76,000	88,667
Collectors	Harvest total	48,200	N/A	31,958	30,109	37,382
	Net earnings	N/A	N/A	19,330	12,022	21,500
	Vessel cost	40,750	N/A	56,000	44,167	53,000
	Gear cost	17,750	N/A	17,300	15,417	18,500
General	Harvest total	96,523	113,379	129,557	92,252	95,883
	Net earnings	30,806	37,577	39,778	20,970	20,856
	Vessel cost	70,000	70,000	77,167	52,143	60,833
	Gear cost	\$47,367	\$63,416	\$67,800	\$56,243	\$65,617

Importantly, the information collected suggests that extra-Sanctuary factors may contribute strongly to interannual fishery harvests and production. For example, the higher vessel and gear costs exhibited by the WSER panel between the 1998-99 and 1999-2000 seasons were related to lost gear resulting from *Hurricane Georges* in 1998 rather than initial implementation of fully protected marine zones. The final reporting year shows that with the exception of the TER panel, all panels reported gross and net earnings higher than the previous year, but below their five-year average. The Collector's panel has experienced increases in gross and net income for the past two seasons. Overall lower levels of profitability within the three commercial fishing panels (TER, WSER, and General) since 1998-1999 reflect the overall downturn in the spiny lobster and stone crab fisheries. This is thought to primarily relate to a decline in the major crustacean fisheries in the region (spiny lobster and stone crab) rather than to displacement from fully protected marine zones. This view is reinforced when the TER and WSER panels' data are compared to those of the general, or control, panel. All three panels experienced major decreases in earnings and harvest totals from previous years. However, it should be noted that there might be local impacts of the fully protected marine zones that lead to higher operating costs (e.g., displacement, crowding), but that those are not reflected in the inter-panel analysis.

User attitudes, beliefs, and perceptions concern the opinions of all panel members as they relate to the FKNMS and its zoning strategy, and the SMP has collected such information since its inception in 1998. The information is compared with baseline attitudes, beliefs, and perceptions

from a study conducted in 1996 (Milon et al, 1997), and the present research determines whether the opinions of fishermen have changed over time.

Most recent findings suggest that most panel members (94%) do not believe that the fully protected marine zones have increased or replenished stocks in the region, and none of the fishers believes that his group has been the primary beneficiary of the zoning strategy. These statistics are similar to results from a 1995-96 study (Milon et al., 1997) conducted in the region, where 60% of the 340 commercial fishers interviewed reported that fully protected marine zones would not increase fish stocks in the Florida Keys, and 90% felt that commercial fishers would not be the primary beneficiaries of the zoning strategy. Almost two-thirds of the panel members do not favor the establishment of the current zoning plan (compared to 86% in the 1995-96 study), and 77% would oppose further zones in the Sanctuary (compared to 64% in the 1995-96 study). Finally, as in the 1995-96 study where 78% of commercial fishers interviewed opposed Sanctuary designation, a majority of the respondents (68%) remains against the establishment of the Sanctuary.

Since its third year, the SMP has collected spatial data from panel members. That information shows that there are major differences in areas utilized, by species, gear type, and home-port (Rudders and Shivilani, 2003). Preliminary results, from all three seasons analyzed, suggest that panel member fishing areas in the FKNMS are largely determined by proximity to home-ports, with the exception of the Dry Tortugas fishery and certain species (stone crab and king mackerel, in particular, and spiny lobster, occasionally). Also, fishing is quite prevalent around fully protected marine zones, and many of the species (especially lobster, reef fish, and marine life) are fished or collected near the boundaries of these zones. Also of importance in the three-year comparison has been the finding that any single year description only represents a “snapshot” of spatial fishing effort. Due to changes in regulatory conditions, financial solvency, and environmental conditions (and perhaps a complex combination of all three factors), fishers decide to expand or contract their fishing areas and activities. Figures 1-3 show total panel member use in the FKNMS for the period 1999-2002.

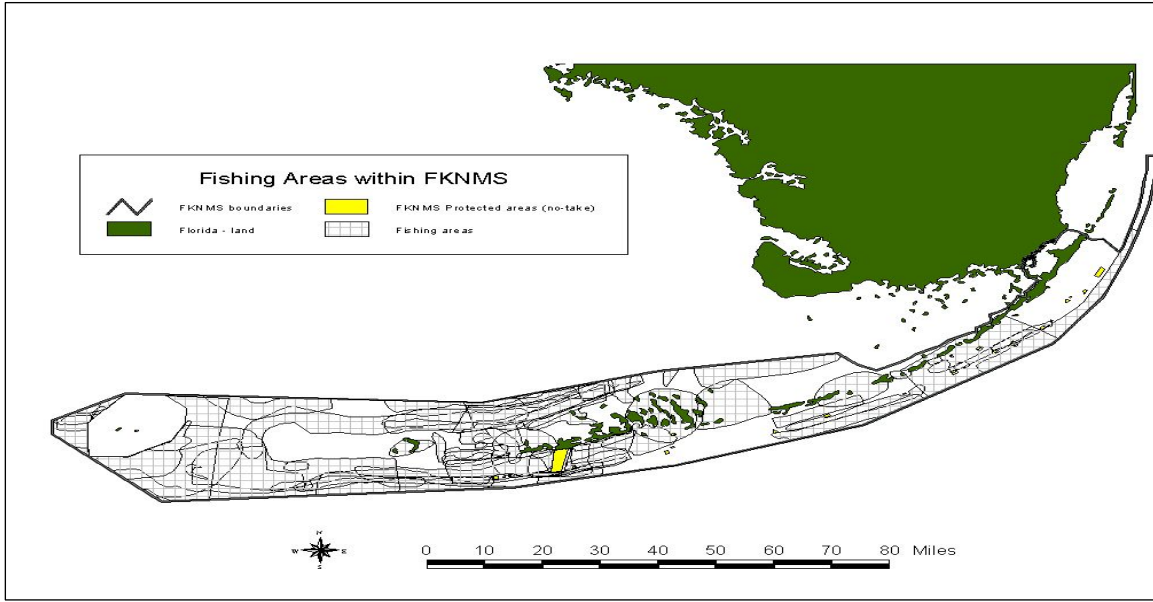


Figure 1. Fishing areas in the FKNMS: 1999-2000.

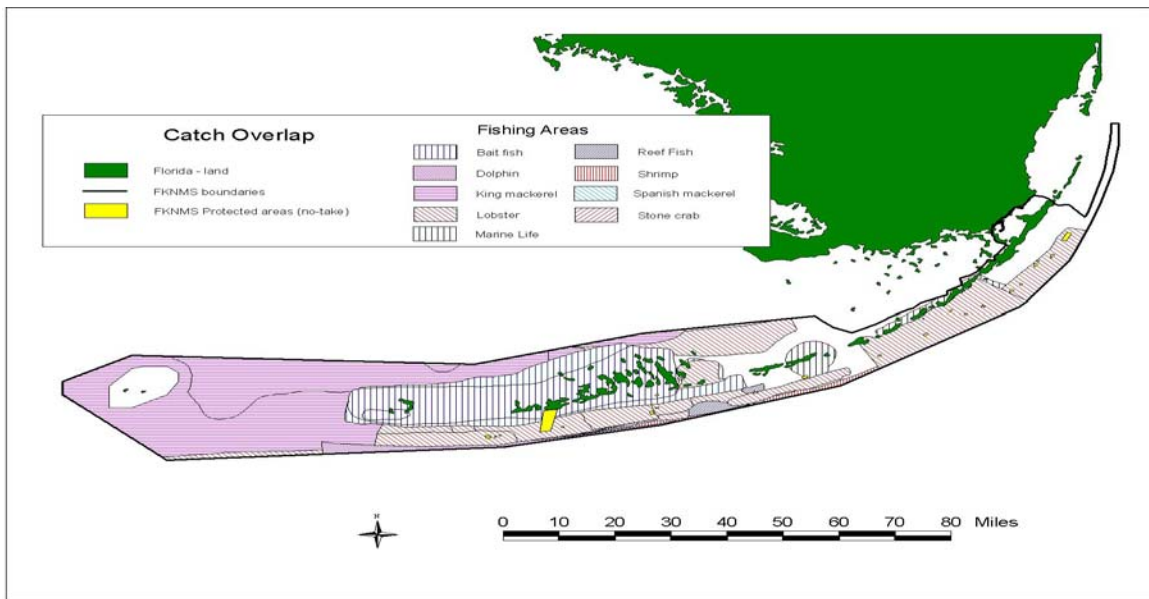


Figure 2. Fishing areas in the FKNMS: 2000-01.

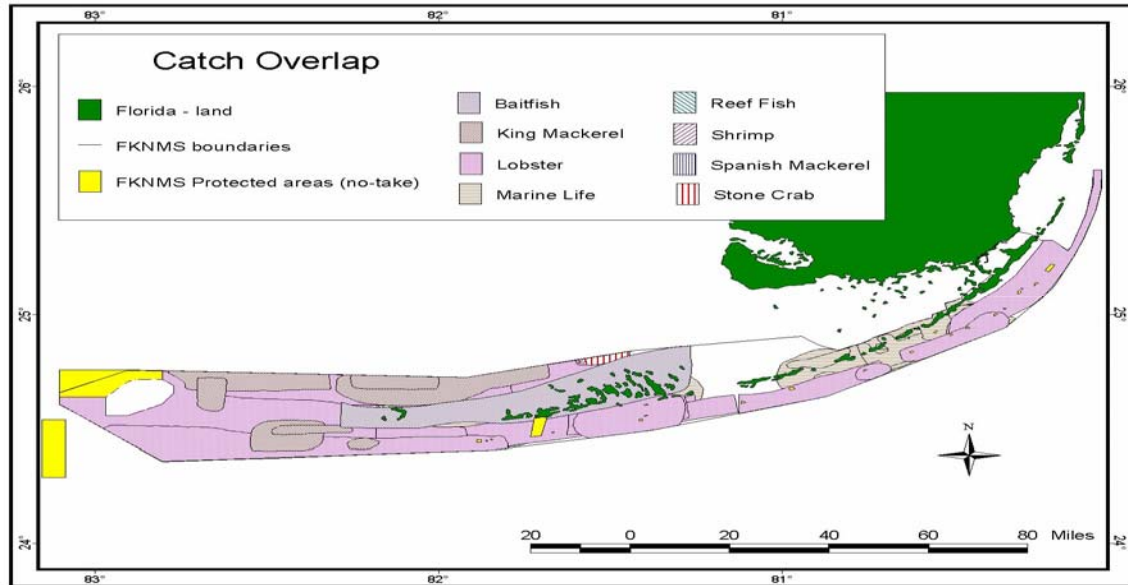


Figure 3. Fishing areas in the FKNMS: 2001-02.

References

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- Rudders, D., and M. Shivlani. 2003. Geospatial Information Systems (GIS) analysis of Florida Keys National Marine Sanctuary fishing panels. World Wide Web Document. URL: www.marineconomics.noaa.gov/SocmonFK/publications/CommFish20030409-2.pdf.

