



**Knowledge, Attitudes & Perceptions of
Management Strategies and Regulations
in the FKNMS for Commercial Fishers,
Dive Operators, and Members of Local
Environmental Groups**

By

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- **Baseline Study 1995-96**

- 1. Final regulations went into effect July 1997.**
- 2. Some significant changes in zones from what was being proposed and what was implemented.**
- 3. Replenishment Reserves changed to Ecological Reserves (ERs).**
- 4. Only one ER (Sambos) implemented and Tortugas put off for separate process (Tortugas 2000).**
- 5. Baseline Study was a Florida Sea Grant Project with researchers at University of Florida and University of Miami, RSMAS.**
- 6. Baseline Study was adopted as baseline for Socioeconomic Research & Monitoring Program for FKNMS at 1998 Workshop.**



10 – Year Replication

- 1. Generally 2005-06. Survey of Members of Local Environmental Groups delayed by OMB until 2007.**
- 2. Project funding obtained from NOAA's Coral Reef Conservation Program in FY 2005.**
- 3. Same researchers from University of Miami, RSMAS (Daniel Suman and Manoj Shivlani), but economist from University of Florida replaced by Tom Murray from VIMS.**
- 4. Data archived from Baseline 1995-96 Study at RSMAS to allow tests for statistically significant differences.**
- 5. Replication plus new baselines:**
 - Management is dynamic and adaptive so many changes have occurred over the past 10 years.**
 - a. Tortugas Ecological Reserve (July 2001)**
 - b. 7 new Wildlife Management Areas (WMAs) – resolve conflicts between boaters and flats fishers.**



Baseline and 10-year Replication: Both Studies Included

- 1. Stakeholder use patterns (commercial fishers & Dive Shop Owners/Operators).**
- 2. Socioeconomic Profiles of the Three User Groups.**
- 3. Sources of Information on FKNMS Management Strategies & Regulations.**
- 4. Views on Sanctuary designation and development of rules and regulations process.**
- 5. Perceptions on the “Expected Effects” or “Outcomes” and Performance of the FKNMS with special emphasis on zones.**



FKNMS Zone Outcomes



1=Strongly Agree; 2=Moderately Agree; 3=Neutral; 4=Moderately Disagree;
 5=Strongly Disagree; A= Moderately to Strongly Agree; D=Moderately to Strongly Disagree

a. FKNMS zones have reduced conflicts between different user groups

GROUP	1996		2006		Statistical Difference
	All Zones	ERs	SPAs	WMAs	
Commercial Fishers	74.8% D	57.3% D	48.4% D	48.0% D	YES
mean	(4.39)	(3.73)	(3.45)	(3.45)	YES
Dive Shop Owners/Oper.	49.2% D	33.8% A	50.7% A	30.4% A*	YES
mean	(3.44)	(2.12)	(2.44)	(2.52)	YES
Member Local Env. Grp.	43.1% A	26.7% A	28.8% A	29.0% A*	YES ER only
mean	(2.69)	(2.74)	(2.57)	(2.61)	NO

* High proportion of Don't Know Responses.



FKNMS Zone Outcomes



1=Strongly Agree; 2=Moderately Agree; 3=Neutral; 4=Moderately Disagree;
 5=Strongly Disagree; A= Moderately to Strongly Agree; D=Moderately to Strongly Disagree

b. FKNMS zones have been effective in restoring coral reefs in the Florida Keys to what they used to be.

GROUP	1996		2006		Statistical Difference
	All Zones	ERs	SPAs	WMAs	
Commercial Fishers	69.3% D	49.7% D	46.7% D	48.2% D	YES
mean	(4.10)	(3.42)	(3.28)	(3.50)	YES
Dive Shop Owners/Oper.	49.1% D	33.3% D *	43.5% D	27.4% A*	NO
mean	(3.33)	(3.16)	(3.11)	(3.07)	NO
Member Local Env. Grp.	53.1% A	40.7% D *	39.5% D	38.8% D*	YES
mean	(2.29)	(3.49)	(3.43)	(3.49)	YES

* High proportion of Don't Know responses.



FKNMS Zone Outcomes



1=Strongly Agree; 2=Moderately Agree; 3=Neutral; 4=Moderately Disagree;
5=Strongly Disagree; A= Moderately to Strongly Agree; D=Moderately to Strongly Disagree

c. I support the establishment of FKNMS zones as they are established currently.

GROUP	1996		2006		Statistical Difference
	All Zones	ERs	SPAs	WMAs	
Commercial Fishers	86.2% D	48.3% D	45.7% D	44.2% D	YES
mean	(4.66)	(3.23)	(2.98)	(2.91)	YES
Dive Shop Owners/Oper.	42.6% D	55.1% A *	72.5% A	48.8% A*	YES
mean	(3.11)	(1.90)	(1.84)	(1.91)	YES
Member Local Env. Grp.	34.1% A	51.4% A	51.9% A	50.9% A	YES
mean	(2.81)	(2.17)	(2.17)	(2.16)	YES

* High proportion of Don't Know responses.



FKNMS Zone Outcomes



1=Strongly Agree; 2=Moderately Agree; 3=Neutral; 4=Moderately Disagree;
5=Strongly Disagree; A= Moderately to Strongly Agree; D=Moderately to Strongly Disagree

d. I support establishment of FKNMS zones in the Upper Keys.

GROUP	1996		2006		Statistical Difference
	All Zones	ERs	SPAs	WMAs	
Commercial Fishers	65.1% D	44.5% A	43.5% A	41.5% D	YES
mean	(4.00)	(3.17)	(3.01)	(2.97)	YES
Dive Shop Owners/Oper.	65.5% A	46.4% A *	62.3% A	44.9% A *	NO
mean	(2.37)	(2.00)	(1.92)	(1.85)	NO
Member Local Env. Grp.	65.6% A	64.0% A	64.3% A	63.1% A	NO
mean	(1.94)	(1.76)	(1.75)	(1.75)	NO

* High proportion of Don't Know responses.



FKNMS Zone Outcomes



1=Strongly Agree; 2=Moderately Agree; 3=Neutral; 4=Moderately Disagree;
 5=Strongly Disagree; A= Moderately to Strongly Agree; D=Moderately to Strongly Disagree

e. I support establishment of FKNMS zones in the Middle Keys.

GROUP	1996		2006		Statistical Difference
	All Zones	ERs	SPAs	WMAs	
Commercial Fishers	71.4% D	45.8% D	42.2% D	39.2% D	YES
mean	(4.18)	(3.25)	(3.04)	(3.06)	YES
Dive Shop Owners/Oper.	63.9% A	44.9% A	59.4% A	44.9% A	NO
mean	(2.36)	(1.91)	(1.91)	(1.76)	NO
Member Local Env. Grp.	65.3% A	65.9% A	65.5% A	65.0% A	NO
mean	(1.97)	(1.76)	(1.74)	(1.74)	NO



FKNMS Zone Outcomes



1=Strongly Agree; 2=Moderately Agree; 3=Neutral; 4=Moderately Disagree;
5=Strongly Disagree; A= Moderately to Strongly Agree; D=Moderately to Strongly Disagree

f. I support establishment of FKNMS in the Lower Keys.

GROUP	1996		2006		Statistical Difference
	All Zones	ERs	SPAs	WMAs	
Commercial Fishers	70.5% D	47.2% D	41.4% A	38.1% A	YES
mean	(4.13)	(3.30)	(3.07)	(3.11)	YES
Dive Shop Owners/Oper.	70.5% A	46.3% A *	59.4% A	44.9% A*	NO
mean	(2.26)	(2.02)	(1.93)	(1.86)	NO
Member Local Env. Grp.	66.4% A	68.3% A	67.9% A	68.3% A	NO
mean	(2.00)	(1.77)	(1.77)	(1.75)	YES

* High proportion of Don't Know responses.



FKNMS Zone Outcomes



1=Strongly Agree; 2=Moderately Agree; 3=Neutral; 4=Moderately Disagree;
5=Strongly Disagree; A= Moderately to Strongly Agree; D=Moderately to Strongly Disagree

g. I support the establishment of FKNMS zones in the Dry Tortugas.

GROUP	1996		2006			Statistical Difference
	All Zones	ERs	SPAs	WMAs		
Commercial Fishers	N/A	49.3% D	41.0% D	44.4% D	N/A	
mean	N/A	(3.28)	(3.10)	(3.22)	N/A	
Dive Shop Owners/Oper.	N/A	46.3% A*	59.4% A	44.9% A*	N/A	
mean	N/A	(2.06)	(2.05)	(1.88)	N/A	
Member Local Env. Grp.	N/A	69.7% A	68.7% A	69.4% A	N/A	
mean	N/A	(1.69)	(1.69)	(1.66)	N/A	

* High proportion of Don't Know responses.



FKNMS Zone Outcomes



1=Strongly Agree; 2=Moderately Agree; 3=Neutral; 4=Moderately Disagree;
5=Strongly Disagree; A= Moderately to Strongly Agree; D=Moderately to Strongly Disagree

h. There should be more FKNMS zones in the Florida Keys

GROUP	1996		2006			Statistical Difference
	All Zones	ERs	SPAs	WMAs		
Commercial Fishers	N/A	85.8% D	82.4% D	84.6% D	N/A	
mean	N/A	(4.50)	(4.35)	(4.46)	N/A	
Dive Shop Owners/Oper.	N/A	46.3% A	59.4% A	44.9% A	N/A	
mean	N/A	(2.17)	(2.34)	(2.02)	N/A	
Member Local Env. Grp.	N/A	60.2% A	60.4% A	58.7% A	N/A	
mean	N/A	(1.98)	(1.95)	(1.99)	N/A	



1=Strongly Agree; 2=Moderately Agree; 3=Neutral; 4=Moderately Disagree;
5=Strongly Disagree; A= Moderately to Strongly Agree; D=Moderately to Strongly Disagree

4. I generally support the establishment of the FKNMS.

GROUP	1996	2006	Statistical Difference
Commercial Fishers	78.4% D	42.0% D	YES
mean	(4.38)	(2.81)	YES
Dive Shop Owners/Oper.	64.0% A	87.0% A	YES
mean	(2.23)	(1.63)	YES
Member Local Env. Grp.	74.9% A	71.7% A	NO
mean	(1.85)	(1.65)	NO



Commercial Fishers

- Moved from a highly negative position to a supportive or neutral position in overall support for FKNMS management.
- A plurality still don't support zones in FKNMS, but there has been a statistically significant softening of that stance. A movement from 86% against in the baseline to less than a majority against the zones 10 years later.
- An overwhelming majority don't support more zones in FKNMS.
- A plurality believe NOAA/FKNMS has made a positive contribution to the environment and economy of the Florida Keys.



Dive Operators

- A majority supported establishment of the FKNMS in the baseline, but this support has grown significantly over the past 10 years.
- A plurality did not support the zones in the baseline, but 10 years later a majority support the zones, especially the SPAs, with a majority believing the SPAs are resolving user conflicts.
- A majority support more SPAs, while a plurality support more ERS and WMAs.
- An overwhelming majority believe the Florida Keys has benefited both environmentally and economically from FKNMS management.



Members of Local Environmental Groups

- In the baseline an overwhelming majority supported the establishment of the FKNMS and that support continues 10 years later.
- Only a plurality supported the zones in the baseline, but a majority now support the zones. On a region-by-region basis, two-thirds supported the zones in the baseline and 10 years later.
- A majority support more zones in the FKNMS.
- A majority believe the Florida Keys has benefited both environmentally and economically by FKNMS management. On the economic, there was a decline, but not statistically significant.