

The florida keys national marine sanctuary environmental sciences essay

[Environment](#), [Ecology](#)



In 1990 the Congress nominated the 9515 km² Florida Keys National Marine Sanctuary (FKNMS) as a portion of the National Oceanic and Atmospheric Administration 's (NOAA) National Marine Sanctuary Program. The chief end for this appellation was to protect the coral reefs, seagrasses, Rhizophora mangles, and other marine resources of the Florida Keys. NOAA was ordered by the Legislation to develop a temporal and spacial districting scheme as a portion of the Sanctuary Management Plan to guarantee resource protection. NOAA coordinated the Draft Management Plan that was focused on bettering attempts on action programs. The Zoning Action Plan proposed five distinguishable types of zones: Replenishment Reserves, Sanctuary Preservation Areas (SPAs), Wildlife Management Areas, Special-use Areas, and Existing Management Areas. The Replenishment Reserves (Key Largo, Sambos, and Dry Tortugas) and the SPAs were to be no-take countries, with consumptive utilizations restricted. The SPAs have the end to `` avoid concentrations of utilizations that could ensue in important diminutions in species populations or home ground or to cut down struggles between utilizations ''.

Special-Use Areas were besides proposed and were designated for research merely. The Wildlife Management Areas were designated to restrain human entree to birds nesting and feeding countries, every bit good as polo-neck nesting sites. In 1996 the concluding Florida Keys National Marine Sanctuary. Final Management Plan was released, with some changes from the old Draft Plan. The change in the Zoning Action Plan included merely one little no return modesty (Western Sambos) of the three that it originally had proposed, and the postponed of the constitution of the big Dry Tortugas Replenishment Reserve. The name Replenishment Reserve was changed to

Ecological Reserve to reflect public concerns over the intent of these countries ". In 2001 the Tortugas Ecological Reserve was implemented (Figure 1).

When the NOAA 's bill of exchange direction program was developed, Suman et Al (1999) and Shivlani & A; Suman (2000) did a survey to frogman's perceptual experiences and attitudes of the direction schemes and ordinances of this program.

The Tourism in the Florida Keys

In 1995-96, the tourer trip sum exceeded 3 million and an estimated 31. 3 % of the visitants participated in diving or snorkel diving activities. Many of the 80, 000 lasting occupants participated in the same activities as the tourers did. Particular activities, such as the mini-season spiny lobster attract over 30, 000 frogmen within an individual hebdomad to the Keys. The Florida Keys continue to develop its urbanization due to the demand of people that live, but largely, to the tourers that visit the islands. The roads (US 1) and the Bridges associating the islands permitted the influx of people to the islands to about 80, 000 lasting people in add-on to 2, 5 million visitants and seasonal tourers. Tourism - with 76. 8 million visitants in 2004 (a record figure), Florida is the top travel finish in the universe.

Historic Economic Impact

Entire Tourism Spending (Tourism/Recreation Taxable Gross saless) 1999-2004:

- 1999 - \$ 44. 6 billion
- 2000 - \$ 48. 5 billion
- 2001 - \$ 48. 6 billion
- 2002 - \$ 49. 5 billion
- 2003 - \$ 51. 5 billion
- 2004 - \$ 57. 1 billion
- 2005 - \$ 62. 0 billion

Entire State Gross saless Tax Grosss from Tourism 1999-2004:

- 1999 - \$ 2. 7 billion
- 2000 - \$ 2. 9 billion
- 2001 - \$ 2. 9 billion
- 2002 - \$ 3. 0 billion
- 2003 - \$ 3. 0 billion
- 2004 - \$ 3. 4 billion
- 2005 - \$ 3. 7 billion

Number of Persons Directly Employed by Tourism Industry 1999-2004:

- 1999 - 826, 200
- 2000 - 842, 900
- 2001 - 864, 500
- 2002 - 862, 900
- 2003 - 874, 700
- 2004 - 920, 700
- 2005 - 948, 700

2. 5 million tourers yearly

- - 13. 3 million visitor-days yearly
- - spend the US \$ 1. 2 billion yearly ;
- - coastal and Marine Waters support 28. 3 million occupations; and
- - United States coastal countries are the finish for 180 million yearly.

Those 2, 5 million visitants cause a large impact in the Keys as it needs

Goodall and Stabler affirm that tourism induced bounds of acceptable alteration to local environmental conditions can be understood at different degrees. Fort Collins, there are different readings of sustainable tourism that make even harder to find local environmental transporting capacity bounds for tourism activity. Stakeholders' values impact in a different manner, so when a program or an extenuation is being done to seek to minimize the impacts that tourists activities may hold and go to sustainable development, all the local users have to take part in it. It is besides deserving to look for the tourist 's position because they will be the 1s that will be coming back, divulging the topographic point and bring forth capital to it.

When we talk about tourism activities ' impacts, most of the surveys discuss their impact in the environment, such as: when frogmen are treading in coral reefs, touching the animate beings, interrupting corals (killing a settlement), suspending deposits (smothering corals and filters animate beings) or slapping corals with fives during scuba diving or snorkel diving; when people paddle into the reefs while kayaking (interrupting the corals and touching animate beings); when people feed fish during boating activities

(disequilibrium in nutrient ions in the ecosystem); when the boat anchor on reefs (aching or killing corals), and throw oil and wastewaters (besides solid rubbish) (pollution and lessening in H₂O quality) into the H₂O; and cruise ships environmental impacts such as resuspension of deposits, turbidness, wastewaters, among others among many others environmental impacts.

Figure 11:

- (a) Diver treading on coral reefs ;
- (B) A five hitting a coral reef ; (degree Celsius) Diver feeding the fish ; (degree Celsius) Anchoring on coral reefs.

The nature-based tourism in the Keys is wholly dependent on the coral reef's quality, as the tourism industry attracts 1000s of recreational leghorns, frogmen, snorkelers, and glass-bottom boat users to the part. Consequently, the Marine militias established there are expected to better the reef environment, peculiarly coral and fish copiousness and diverseness (Bhat, op. cit). In South Florida, tourists spend more \$ 1. 2 billion, which has a potency of bring forth \$ 2. 94 billion in the entire end product and \$ 1. 69 billion in income throughout the regional economic system (Bhat, op cit). As a consequence of increasing demands for entree to the coral reef for recreational and commercial utilizations, this Marine ecosystem has shown marks of unsustainability in the last old ages (Bhat, op cit). If Restoration attempts are non shortly done to diminish the existent rate of debasement, the Florida coral reef is expected to vanish in less than 10-25 old ages.

This unsustainability is acquiring every clip more seeable and tourers are detecting the environmental debasements and effects causes for quality of life. Subsequently, the touristy rankings ushers began to worsen, mentioning stretches of commercial ocular pollution along stretches of US 1. In the face of the dependence of the local economic system on touristy, some local occupants are already oppugning the perceptual experience of promoting touristy growing. Besides that, the Florida Keys still leads the State in cost of life indices, particularly lodging indices, being Key West the 4th most expensive land and lodging market in the U. S. This leads to hardadversityfor service sector employees, and to a commercial shifting endeavor from locally-owned stores and eating houses to national irons. Park et Al put out that scientists and ecologists shouldstressthe importance to set up nonmarket values of coral reefs which can be used as inputs in measuring the overall cost-effectivity of coral reef direction and extenuation plans. The debasement of such environment and the menaces to the H2O quality in the Keys has been a menace to the economic system of the topographic point.

All Keys ' stakeholders (commercial and recreational users of resources, conservationists, scientists, resource directors, occupants, and visitants) agree that the diminution in H2O quality is endangering of import resources. Causey (2002) believes that the grounds of that diminution could be: the deficiency of fresh H2O combining the Florida Bay; foods from domestic effluent via shallow-well; stormwater overflow incorporating heavy metals, fertilizers, insect powders, and other contaminations; pollution from marinas and live-aboard vass; hapless flushing of canals and embayments; an

accretion of dead seagrasses and algae along the shoreline; deposit; and environmental alterations associated with planetary climate alteration and rising sea-level. Being the most obvious causes of decline non-point-source discharges and habitat debasement, the development and overexploitation, and alterations in reef fish populations because of over-fishing.

The tourism activities call for a direction due to the impacts caused by it, with schemes that consider disproportional usage to efficaciously protect the part's environmental resources, using limited-entry system for honkytonk operators, and other users. The direction every bit good should hold the engagement of all stakeholders. There are a batch of struggles between stakeholders, as the Plan for the FKMNS create zones, which in some of them piscaries are non allowed but plunging and snorkeling are, when those last two can besides be impacting to the environment if the frogmen are noncognizant of saving of the coral reefs, if their boats slop oil and throw rubbish into the ocean. It is a conflicting state of affairs, as there are zones merely for scuba diving and snorkeling with berthing buoys (forestalling grounding on the reefs), but those zones do non hold a bound figure of frogmen that could be in it neither an environmental instruction with frogmen to do them cognizant of the impacts they may do (touching the corals, interrupting it, resuspending deposits, etc) and enforcement to see if the Scuba Diving Operators and Boating activities are esteeming it. In relation to those zones, the major struggles are among fishers and scuba dive operation, as fishers felt extremely alienated from the procedure of zone appellation and displayed a sense of impotence with regard to what

they considered to be an effort to except their group from the crop refugia. The piscaries in the Keys are divided into commercial, recreational, and charter fishing. Most of the commercial piscaries 'catch is harvest outside the boundaries of the FKNMS.

Goal

The chief end of this paper is to compare frogman ' perceptual experiences of direction schemes and ordinances in the Florida Keys National Marine Sanctuary presents with their perceptual experiences when the FKNMS was implemented (comparing the consequences obtained here with the consequences obtained by Suman & A ; Shivilani that had interviewed the Diving Operations when the Sanctuary was foremost implemented). And besides, through the interviews, detect how the FKNMS does socioeconomic impact the diving industry in the Florida Keys.

Methodology

A graded random sample of the Dive and Snorkel Operators was selected from a list of all known operators/owners in the Florida Keys. After that, a missive was sent to each Dive and Snorkel Operator selected in the sample, informing them about the research that would be realized, and the types of information that would be collected. The missive explained that a research worker would be acquiring in contact with them to set up a clip and topographic point for aninterview. The interview was based on a study that would inquire about societal economic inquiries and besides, information about their cognition, attitudes, and perceptual experiences of direction

schemes and ordinances in the FKNMS (The study 's inquiries analyzed on this paper are attached in Appendix 1). From all the Dive and Snorkel Operators interviewed until now, there are 60 Operators interviewed, being 32 Operators from the Upper Keys, 9 from the Middle Keys, and 19 from the Lower Keys. The end of the survey is to make 70 studies. The present paper will analyze the honkytonk operators ' cognition, attitudes, and perceptual experiences of direction schemes and ordinances in the FKNMS and its impacts on their economic system. All the inquiries analyzed in this paper about the FKNMS. Management has five types of reply:

1. -Strongly agree;
2. - Reasonably agree ;
3. - Neutral ;
4. - Reasonably disagree,
5. - Strongly disagree.

And all the societal inquiries about the frogman's profile have options to do the study easier and faster, and besides to ease the information analyzes. The information obtained through the interviews (studies) was statistically analyzed through the Excell and the StatMost plan.

Consequences

Economic Information

Analyzing the information obtained, it was possible to observe that

Table 1: Divers ' Operators Economic Information

	2004 Average cost Suman & A	Shivlani (1998) norm cost	2004 Sum cost Suman & A	Shivlani () sum cost
Vessel value	35. 2431, 03	167. 792, 00	20. 441. 000, 00	11. 655. 0
Dive cogwheel value	55. 675, 44	16. 885, 00	3. 173. 500, 00	1. 981. 80
Compressor value	31. 808, 82	1. 081. 500, 00		
Docking fees	15. 845, 88	6. 918, 00	538. 760, 00	283. 222,
Interest payments on vas	8. 916, 67	107. 000, 00		
Insurance	9. 582, 54	527. 040, 00		
Vessel care	2. 3162, 26	12. 372, 00	1. 227. 600, 00	581. 500,
Equipment care	3. 891, 89	2. 365, 00	144. 000, 00	176. 000,
Rent/costs	25. 313, 04	582. 200, 00		
Ad	10. 363, 04	476. 700, 00		
	Gas	Supplies	Crew	

Average	51, 8	16, 8	98
Entire	1451	420, 5	1470
Average	52, 9	14, 1	202. 9
Entire	528, 9	113	1420
Average	83, 8	37, 9	161, 4
Entire	1424	607	1775
Entire \$ \$ Upper	Entire \$ \$ Middle	Entire \$ \$ Lower	Entire \$ \$ all Ke
3341, 5	2061, 9	3806	9209, 4

FKNMS Management Information

All inquiries have options of replies and most of them have the option 1-5, discussed above. However, the analyzes were done based on the amount of the inquiries which mean an understanding (reply 1 plus answer 2) or dissension (reply 4 plus 5) with the inquiry. As good were analyzed replies in which the fishermen were impersonal to the inquiry (answer 3) and besides replies which the fishermen would state. I do non cognize " for the inquiries made.

Discussion and Decision

Comparing the consequences obtained in this survey with the survey developed by Milon et Al (1997), it was possible to observe that even 10 years after the execution of the Sanctuary, the fishers still feel the same manner they did ten years ago. It is notably the struggles between commercial fishers with recreational fishers and leghorns. And besides, the struggles between recreational and commercial frogmen with the commercial fishers. The SPAs (Sanctuary Preservation Areas) that had as chief end the decrease of user struggles have failed to accomplish that. Actually, the struggle seems to hold even increased, as the commercial fishers feel that the regulations and ordinances for the Sanctuary developed by NOAA, were unjust to them.

With the present size that the zones have, even though the chief end is of the Sanctuary may not be increasing the stocks, how worth is it to maintain them with that size, if it will not be efficient to refill the stocks and has lead to so much users struggles? I am not proposing that those countries should be re-open or neither stating that they should be increased (to be able to back up the refilling of some species) because this would increase even more the user's struggles. However, I do believe that if they are to protect and conserve the reefs and its habitant species, not besides research should be allowed in at that place. If fishers can not travel in it, frogmen should not be allowed. Besides, if there are zones that merely the frogmen can travel, there should be zones that merely fishermen could travel. That manner could be scientific compared to which countries would be more wedged and every bit good, those could be sacrificed " countries. NOAA could besides make

rotary motion through the zones through the old ages, still, go forth some closed zones for everyone.

When NOAA developed the regulations and ordinances for the Sanctuary they were unjust to the fishers because they closed the countries for their usage, but left it unfastened to the frogmen. If the SCUBA diving activity does non work with environmental instruction, intending non merely verbal instruction, but besides practical instruction (teachers and dive Masters plunging with the frogmen, commanding their floatability and learning them to nonstop on the corals (treading) or touching anything) the activity can be really wedged to the environment, chiefly in countries sensitive such as coral reefs. In the Sanctuary, this practical environmental instruction does non go on and the frogmen can make whatever they want under water. This is an issue that NOAA shall develop in the Sanctuary. The tourist industry has besides been a job to the fishers, due to the addition of the monetary values in the Keys. It is much more expensive to populate in Keys today than it used to be ten old ages ago. When I talked to some fishers that left the piscaries in the Keys, most of them seemed to hold left it because of the extreme cost of living in the Keys combined with their economic loss in the piscaries (with the last hurricanes a batch of them lost a batch of traps a could non return to the piscaries or had to get down fishing for a person else).

Some of the fishers would besides correlate the touristy growing with the lessening in H₂O quality. Even though most of them feel that the Sanctuary was non the most responsible for the existent conditions of the resources;

they would besides notice that NOAA should be more concerned and turn to the issue of H₂O quality. The other issue, besides addressed by the commercial fishermen is the deficiency of enforcement to the recreational fishers and leghorns. Most of those users, harmonizing with the fishers, transgress the regulations most of the clip and stop up nonbeing caught by the governments. Harmonizing to the interviewed fishers, a batch of them truly do non cognize about the regulations and ordinances, and some of them merely pretend that they do non cognize. In both instances, when it happens that they are caught, they are most of clip non penalized as the authorization believes that they did cognize about the regulations and ordinances. This being truth or non, once more, NOAA has the duty to turn to that issue, informing the recreational users about the Torahs, for illustration, giving them explicative booklets about the zones, and so, if they are in the countries where they should non be or if they are transgressing any piscary ordinance, they should be punished.

The commercial fishers besides feel that there is a deficiency of information about the regulations and ordinances for themselves every bit good. They said that it is invariably altering and if they are uninformed and they do something incorrectly, they are punished anyhow. In that instance, NOAA could direct enlightening news sheets updating them about the piscaries regulations and ordinances and this newssheet should be written in English and Spanish, as a high per centum of the Hipic fishermen do non talk in English. With all these regulations and ordinances that have been input through those old ages, I believethat has been a loss in the societal cultural

individuality of the fishermen. The civilization of the Keys Fishermen, the individuality of being a Fisherman is acquiring lost. Now there are all those divisions (because of certifications) which they have to option what sort of fishermen will they be. They need to make up one's mind whether they want to catch grouper and center or lobsters or rock pediculosis pubis or pelagic and so one. This may non look to be a job for some directors but merely a consequence of piscaries' direction. In my sentiment, it is an of import issue because somehow they are fring their individualities as fishermen, but it is a job that it is really difficult to turn to if attempts should every clip more be decreased.

As a decision of the present research developed, it was noted that most of the commercial lobster fishers interviewed seemed to be excluded from the determinations (in any procedure of the Sanctuary) and experience powerless against the system. That is a large issue as in the dimension that the Keys are right now it is difficult to propose a direction based more on the local community or a co-management based. However, in some manner, the fishermen need to be more participative in the procedure to develop regulations and ordinances. My chief suggestion still would be the closing of the bing zones for everyone and the resettlement of some to specific diving activities, others for commercial piscary, and others for recreational piscaries.