This document is a Summary of the information presented at the Socioeconomic Characterization Forum held on June 22nd, 1998 as part of the Florida Keys National Marine Sanctuary's Tortugas 2000 process. This Summary is meant to provide an overview of the information presented and the questions and answers discussed at the forum only; this Summary does not include the details of every comment during the discussions. Videotapes of this Forum are is available for viewing by contacting the FKNMS office in Marathon, Florida at (305) 743-2437.

Billy Causey, Florida Keys National Marine Sanctuary: Introduction

- The Zoning Action Plan section of the Final Management Plan commits the Sanctuary to developing a second ecological reserve somewhere in the Tortugas area.
- There are five zone types defined in the Final Management Plan: three affect fishing interests. These are the 18 Sanctuary Preservation Areas (SPAs), four Research-only Areas, and the one Ecological Reserve at Western Sambos.
- All of the final zone types that were established resulted from the recommendations of the Sanctuary Advisory Council (SAC).
- A 110 square nautical mile area east of the Dry Tortugas was eliminated during the review of the Management Plan due to input from lobster fishers and shrimpers on its location
- A process to learn more about the area, so the ecological reserve will be placed in the most appropriate area, has been established.
- The Tortugas 2000 Working Group has been formed, and consists of eight Sanctuary Advisory Council representatives and ten representatives of state and federal natural resource agencies with management or jurisdiction in the Tortugas area. This group will work with NOAA in developing a set of alternatives for the ecological reserve and, if possible, recommend a preferred alternative on the location and size of the proposed ecological reserve.
- An April forum explored information on lobsters, currents, fish, birds, and other ecological characteristics of the area.
- The purpose of tonight's forum is to hear from those with socioeconomic interests in the Tortugas area. Tonight should focus on listening to the experts here and learning about the area. Questions for each presenter will be heard.
- In October, public hearings on this process will begin.
- The ground rules the Working Group and Sanctuary have established include: (1) no pre-determined lines will be drawn on the map; (2) no percent area will be discussed; and, (3) we will be moving forward with the best available information.
- At this time, the National Park Service has not agreed to include any areas within the boundaries of Dry Tortugas National Park in the proposed Ecological Reserve; however, the Sanctuary is working with them to join us in this process.

Panel: Overview of Uses

Reed Detring, Chief Ranger, Everglades National Park

- Dry Tortugas National Park is supervised by Everglades National Park.
- Visitation to Dry Tortugas National Park is rapidly increasing. It is projected to be 60,000 visitors in 1998, versus only 30,000 two years ago.

- Uses include large and small private charter boats, seaplanes, and others. Ecotourism use appears to be growing.
- 15,000 of the 60,000 visitors probably arrive via commercial activity.
- In response to this visitation growth, a Commercial Use Planning Effort has begun which will look at the resource impacts of these visitors.
- The National Park Service will be sharing data collected in this effort with the Florida Keys National Marine Sanctuary. It is hoped that the efforts of each agency will support one another, and that a common ground can be met by working closely together.

Q: What are the 60,000 visitors a year doing at the Dry Tortugas National Park? **A:** A general idea is guide fishing, submerged cultural resource diving, spending a day exploring the historical aspects, spending a "day at the beach". All activities result in some degree of impact. The number 60,000 includes Incidental Business Permit holders (15,000) which include passengers with sea plane and charter boat operators.

Q: Do you have an idea of how many people perform consumptive activities in the Dry Tortugas National Park?

A: Not yet, but research is now looking at determining that.

Q: Is the National Park Service open to rule changes in its own jurisdiction?

A: We would be open to looking at possibilities if research supports it.

Q: Is the National Park Service looking at restricting use at the Dry Tortugas National Park?

A: We may need to conduct a carrying capacity study at some point.

Q: If the Incidental Business Permits report to the National Park Service yearly, can you determine if the increase in people is from ferries and dayboats?

A: Yes, but there is also an increase in private boats from Mexico to the Bahamas.

Q: What are the total square miles encompassed by the Dry Tortugas National Park and how many law enforcement personnel do you have?

A: There is no plan to increase the size of the Dry Tortugas National Park. The exact size can be found out. [Dry Tortugas National Park encompasses approximately 100 square miles.] The commissioned rangers total three right now.

Dr. Bob Leeworthy, NOAA Economist

- A 1995 study on recreation and tourism for Monroe County residents and visitors, headed by Dr. Leeworthy, asked the question, "Did you visit the Dry Tortugas?". Of those responding, 1.5 2.0% said "yes", but this did not offer a large enough sample size.
- Currently a Socioeconomic Monitoring program has been initiated in the Florida Keys National Marine Sanctuary, which will document the economic activity that is occurring in the Sanctuary.

- The potential benefits of a Tortugas Ecological Reserve to users of this area:
 - 1. to SCUBA divers, snorkelers, and other non-consumptive users include an increased income among other benefits;
 - 2. if off-site fisheries stocks experience improvement, the benefits to both commercial and recreational fishers include long term increases in harvest and secondary increases:
 - 3. to the scientific and educational community may include benefits that are unquantifiable at this time.
- The potential benefits of a Tortugas Ecological Reserve to non-users of this area can be defined in terms of:
 - 4. Option Value, which is the value non-users would be willing to pay to preserve an area for future use;
 - 5. Request Value, which is the value non-users would be willing to pay to preserve and area for other generations to use;
 - 6. Existence Value, which is the value non-users would be willing to pay to preserve an area even though they would never visit the area.
- The potential costs of a Tortugas Ecological Reserve to the commercial and recreational fishers include lost harvest, secondary loss, consumer surplus loss, overcrowding, social disruptions, and an increased cost of harvest.
- Some statistics on the Dry Tortugas area from 1995-96 include:
 - there were 40,000 visitors to the Dry Tortugas area, providing \$1.8 million in total income:
 - the annual non-market economic use value was \$3.5 million;
 - if 1% of all families paid \$10/year toward protecting this area, the annual non-market, non-user value would be approximately \$11.3 million;
- A current problem is that cost-benefit analysis information is not available, nor are there resources to estimate non-user values.
- Recommendations at this time include adhering to adaptive management, encouraging user groups who will benefit from an ecological reserve to help develop a response to those who will suffer any losses.

Q: How can we qualitatively estimate the benefits of an ecological reserve?

A: We are starting to do that at this time.

Q: Do you have historical trend data on catch in the fishery to assess the cost of non-implementation of a reserve?

A: The information ranges from unknown catch area to known, therefore the data is unreliable. A new plan on how to gather that data needs to be devised. I have talked to John Sanchez about this.

Q: Have you projected possible visitation to the Dry Tortugas based on South Florida projections for population increase? Can you project a three times increase due to the South Florida increases?

A: Yes and no. Yes because an unconstrained forecast allows this, but no, because the conditions may not support these numbers. The Florida Keys Carrying Capacity study should address this.

Q: Could you tease out the income of the Dry Tortugas National Park's natural growth versus that of a new ecological reserve located in that area?

A: No, we do not have this information.

Q: Is there money to conduct a meaningful socioeconomic fisheries impact study?

A: Yes, there is some money available.

Panel: Recreational Fishing and Diving

Bob DeMauro, charter spearfisherman

- Most spearfishing in this business occurs on Tortugas Bank.
- Business is ten years old; 80% of customers are repeat customers. Season is from April to October.
- Good water quality and the remote access of the area mean good coral health and a visibility of 60 to 110 feet.
- Fish abundance is excellent. No decrease in catch of customers has been seen.
- Very little increase in the number of visitors to this area over the last ten years has been seen. A system of permitting was suggested.
- There is an existing, 100 square nautical mile reserve in this area already which is the Dry Tortugas National Park.
- Personally I am not an "anti-Sanctuary" person. I am a Sanctuary volunteer and know more about the underwater area of the Tortugas.
- The creation of a no anchor zone in the Tortugas Bank is thanks to Rick Pitts.
- The impact of an ecological reserve to me personally would be very severe economically. I only conduct 1000 dives/year in this area. There are that many a day in the Key West area.
- The increased visitor use is from charter boats operating out of Key West.
- The Tortugas is a very low impact area.

OUESTION AND ANSWER SESSION

Q: Where does your activity occur?

A: Right on Tortugas Bank. It is too silty in the Dry Tortugas National Park.

Q: Do most of your divers get their fish limit?

A: Most do not. They are very experienced divers but not great spearers. But, the locals do every time, and this has not decreased. On three-day trips, hogfish are 20-25", groupers are big. Fish do not leave the Tortugas; Dry Tortugas National Park is a reserve allowing the lobster to grow and they are coming to Tortugas Bank.

Q: I have seen the size of hogfish decrease off of Big Pine Key. You said you need to go to the Tortugas to catch bigger fish?

A: Yes, that is true.

Q: How large is Tortugas Bank? If some of this area were open or closed would a large enough area allow your business to still be commercially viable?

A: Tortugas Bank is approximately 10-15 nautical miles square.

A: Closed areas in deeper water would not affect me.

Q: How many divers per year does your business serve? What are your observations in terms of other commercial activity?

A: Less than 385 per year. A total of under 1000 a year between myself and Rick Pitts. A: I have seen very little fishing change. Our seasons do not overlap. I don't see a big increase. I have seen a large increase in sailboaters. My business started very small and got slightly larger, from 8 passengers to 11 passengers. My success has been in rebookings.

Rick Pitts, charter boat fishing

- I have conducted over 200 dives per year in this business.
- I am responsible for documenting (video) the freighter anchor chain damage of three different areas that had been completely destroyed.
- Closing the Tortugas Banks area to anchoring is a good idea.
- The National Marine Fisheries Service told me that 1% of all fish are removed by spearfishers.
- Closing an area to spearfishers and lobstering by hand is a bad idea. I have asked for mooring buoys to be put out but was told "no".

QUESTION AND ANSWER SESSION

Q: Thank you for the video footage of freighters on Tortugas Bank. What areas do you use?

A: In 60 - 80' of water. Very little is worth diving above 60'. The south side is not good because of turbid water and strong currents.

Q: How many customers do you take? Do you fill your boat?

A: I'd like to; usually I take 12 and have a maximum of 20. Most are amateurs and don't get their limit; I don't push spearfishing, we have a boat rule of 16" for hogfish and a "wow" rule.

Q: What percentage of your passengers are fishers versus non-fishers?

A: Maybe one third are fishers.

A: My clientele is 100% fishers.

Q: Are there places you'd like to see protected from spearfishing?

A: It never occurred to me.

Vicki Weeks, representing recreational divers

- Information presented is from Taylor Made Dive Operations and the Yankee Fleet.
- Taylor Made Diving has seen a 25% increase in business in their second year. This includes approximately 70 people per month for ecotourism, research, and birding.
- The Yankee Fleet primarily operates in the Dry Tortugas National Park. Sixty people per day on average include naturalist-types such as snorkelers and birders.
- Both companies felt [they would experience] no change and would not be affected [by an ecological reserve] unless the resources decline.
- Both supported the management of sustainability in the area.

Q: Who else did you contact?

A: Sunny Days was also contacted but I do not have any information available tonight.

Panel: Commercial Fishing

Peter Gladding, commercial handliner

- Ninety-five percent of the impact of an ecological reserve will be on commercial fishers in the Tortugas area. I fish 25% around the Dry Tortugas National Park.
- We report fish catch on the State and Federal level.
- There will never be any more commercial fishers than there are today. They are being squeezed from every angle.
- The 100 mile square area in the Fort Jefferson is our protected zone.
- No matter where you go, depending on the weather, someone will be fishing around the whole area.
- Over 25 years the fishing has changed. Fish have gotten line smart but are still as nice.
- There are about 70 commercial line boats that fish that area. They fish to the lee of the Fort in winter.
- We will not be the problem at the Tortugas in the future it will be the recreational fishers.

QUESTION AND ANSWER SESSION

Q: What did you mean by "we will not see an increase in commercial fishers"?

A: The number of commercial fishers is being limited. Key West dock space is being squeezed out. People get tired of regulations and sell out.

Q: What trends have you seen in mutton snappers?

A: An increase in Key West and Western Dry Rocks. Fort Jefferson is ringed with fish traps, the most deadly gear device.

Q: In terms of areas you fish around the Fort in the winter, is there any area you generally choose not to fish?

A: I don't fish over 100' but that will affect others. Little Bank is very important to me. The top of the Bank and south of the Fort is important to other people on this panel. The impact of a reserve will be 95% on commercial fishermen.

Q: What dictates if you've taken too much?

A: We are run by size, we know we are self-regulating. Recreational fishers take the last fish. Commercial fishers need to catch "x" pounds of fish, the price has stayed the same.

Q: How close do you fish to the Dry Tortugas National Park in the south?

A: Very close to the Park, but only when the fish are there.

Q: To what do you attribute the collapse of the New England fishery?

A: Due to gear types.

Q: What fish do you target?

A: Snapper, yellowtail, grouper, kingfish; anything we can catch.

Tony Lanassa, commercial lobsterman

- Has been lobstering for 10-11 years, and 99% of fishing is done in the area of Fort Jefferson. Formerly was a fish trapper.
- The State trap reduction program has forced me to move west: near the "A" Buoy west around the Bank and back east to north of the Fort.
- Fishing depends on productivity. I cannot pinpoint an area to give up; it might affect someone else.
- The political points between the agencies of the FKNMS and National Park Service seem to be why the Dry Tortugas National Park is not the "piece" we are looking for. The 100 square miles is working pretty well.
- Ecotours are making a lot of money. The impact is on the Fort itself, not the Banks.

QUESTION AND ANSWER SESSION

Q: Looking at the range of habitat, and assuming an area of the Dry Tortugas National Park is taken in, is there any area(s) that you would be least impacted by an ecological reserve? We are relying on experience in other areas. We are being guided by experience and are attempting to do this in a way that doesn't put you in an economic bind.

A: You all do not have the answer to what area is best. You do not have data that would show, "If we had this, we could get this". The government has not given back over the years.

Q: If the Dry Tortugas National Park is acting as a reserve supplying fish, maybe if we made it bigger you would benefit more?

A: The lobsters move, and come from all over.

Q: How many traps do you fish? Do your traps go on the coral reef?

A: I had 1000, and now have 788 left. I fish on the edges, Riley's Hump area. I use trout line which gets broken on coral, so I try to stay out of it.

Armando Gonzalez, commercial handliner

- Has 35 years of experience, 25-27 years at the Tortugas.
- Over the years I have seen the fish take care of themselves. The fish have come and gone over the years. Only a fence will keep fish there. The Bank may be full of fish one day and be all gone the next.
- Commercial fishers are an endangered species, and are the ones really getting hurt. I wish I had an answer.

QUESTION AND ANSWER SESSION

O: Where do you fish?

A: The Tortugas, up to No-Man's Land. Ninety percent is done in the Tortugas; I use the Bank when the wind is 25 miles/hours from the east. Fish don't stay in one spot, they move.

Q: Because fish move, protecting an area would not affect you, as the fish would move elsewhere?

A: I fill up my boat and move from area to area for fish.

Q: To what do you attribute the collapse of the New England fishery?

A: It was a gear issue. How can I fish a whole ocean out at one time? A fisher has to deal with fishing pressure, water quality, water temperature, barometric pressure, current, and the fish have to be hungry.

Q: Have you seen changes in water quality?

A: Water quality and clarity all depends. The Tortugas are always more clear.

Q: Have you seen the algae called "gumbo"?

A: It has been there every summer since I can remember.

Q: What is the average size of vessels in your fleet?

A: Range is 25-43'. Parallels cannot be made to the New England fishery.

Richard Diaz, commercial lobsterman & king mackerel (multi-fishery)

- I am having to do more and more to survive.
- I fish the east side of Fort Jefferson. I used to be a longliner. I view myself as a conservationist.
- Overall I don't see the reason for the ecological reserve it is the nicest place available.
- Mutton snapper have a spawning aggregation at Riley's Hump.
- Fish should be protected when they are reproducing.
- Closing the lower west part would not affect me, we don't fish there, but other fishers will move up there.
- I would like to see a reserve where the reef area is being destroyed, for example, at Looe Key where divers, sport fishermen, and sport lobstermen fish.

QUESTION AND ANSWER SESSION

O: In what areas are yellowtail spawning?

A: Yellowtail spawn from May to June. Black grouper spawn at Eastern Pulaski. The barometric pressure, temperature, and other factors move the fish around.

A: A species should be protected while reproducing, during those months of the year. Closing an area does not accomplish anything.

Q: How many fishermen fish on the east side of the Dry Tortugas National Park?

A: The majority of spiny lobster fishermen.

Q: Did you support the closing of Riley's Hump?

A: I supported the closing of Riley's Hump because it was a spawning area for mutton snapper, but other species that don't spawn don't need to be protected..

Q: The National Marine Fisheries Service and fisheries councils use size, bag, and gear limits and so forth to protect fish species. Some of these are successful, some are not. There are over 15 species that are considered "overfished". Ecological Reserves are one unsuccessful tool due to the sentiment of the public. We are looking for a tool to preserve fisheries throughout the region. There is no real comparison to New England, but it is an example of what managers are supposed to do.

A: Red snapper will not come to one certain area. The fishery should be closed in May and June to all fishers during those two months.

Q: It offends me that locally we have not protected commercial fishing better. Fishermen are not unified on many issues. Maybe a coalition is needed to give a stronger voice to commercial fishing interests. We need you at the table.

A: We are willing to discuss it. We are not united, but it is the government and we are scared.

Panel: Socioeconomic Considerations

Daniel Suman, University of Miami

- Conducted two surveys on resource uses in the Keys. The first time, survey respondents were 15% commercial fishers. Then this group was re-surveyed. The sample size was 100 people.
- Survey asked about levels of participation, perceptions, marine zoning, and other topics.
- Lessons learned from the 1995-96 survey include that respondents:
 - felt a strong degree of alienation from the process;
 - felt the government will do what it wants;
 - felt they would not be the beneficiaries of marine zoning;
 - were opposed to the Florida Keys National Marine Sanctuary and the zoning plan;
 - ranked commercial fishing organizations as the most helpful source of information, then Sea Grant.
- In the 1996 survey, 23% of the respondents said they used the Dry Tortugas area.
- In the 1998 re-survey, 33% of the respondents said they used the Dry Tortugas area.
- Species fished for include reef fish, lobster, and shrimp.
- The survey revealed that:
 - 30-37% of respondents "supported zones somewhere in the Florida Keys National Marine Sanctuary";
 - 6-12% of respondents "supported the zones as proposed in the Final Management Plan":
 - 23-33% of respondents "favor the establishment of a no-take zone in the Dry Tortugas area";
- Overall support of the Florida Keys National Marine Sanctuary was low, as reported in both the 1995 and 1998 surveys.
- When asked what process should be used to develop regulations, respondents replied as follows:
 - individual surveys = 70%
 - workshops = 40%
 - visits = 41%
 - meetings = 41%
 - newsletters and the Sanctuary Advisory Council were rated the least important method.
- The Sanctuary has to search for improved ways to reach the commercial fishing sector, and work through commercial fishing organizations and Sea grant to do this.

Q: Could the results reporting the 23-33% support of a reserve in the Dry Tortugas have been interpreted to mean within the Park itself? For example, maybe the support is to put the reserve within the boundaries of the Park.

A: That may be.

Q: Have you done other surveys with commercial fishers / fishers in other areas? Have you ever been in an area where commercial fishers have supported the closing of an area? **A:** This survey was Monroe County only. No, not initially.

Q: Can you test where fishers were from who responded in support or against the reserve? **A:** No, I cannot.

Q: Most of the Tortugas fishermen are independent fishers and can't be excluded, so information needs to come from them. Individuals should be contacted based on an area you fish (on your fishing license).

Alex Stone, ReefKeeper International

- This is an important process.
- In order to fulfill the objectives of the Final Management Plan there are core requirements we need to meet, and someone has to be impacted.
- In the Florida Keys National Marine Sanctuary, less than 1% of the Sanctuary is set aside as marine reserves. Even if a large Tortugas reserve were proposed, it would still provide less than 5% as marine reserves. We are working at the lower limits of what conservationists want.
- How do we justify displacing someone? Is the return going to justify the costs?
- An ecological reserve is not designed for the business of fisheries management.
- Non-extractive, non-use needs to be adequately considered.
- There are benefits that have nothing to do with any use of the resource at all. There are values in just having it there that are worth including. For example, as an insurance policy, for future values, for biodiversity value, and for existence value, which is the value of the ecological reserve to people who live elsewhere in the United States.
- Biodiversity value refers to the gene pool being left alone such that the area can deal with environmental changes.
- Some non-use values can be quantified, such as downstream effects, tourism, and recreation.
- A reserve may result in larval dispersal to the Keys. Larval transport is important to commercial and recreational fishers and for fish watchers tourism.
- We need to make sure we look at all the benefits of an ecological reserve:
 - benefits inside and outside the reserve:
 - consumptive and non-consumptive benefits; and,
 - non-use activity benefits.

Q: When we get the proper justification for an ecological reserve, all people should share in the burden of that equally. Would you not encourage everyone to support this? A: The goals of an ecological reserve are not restricted to fisheries management only. The marine environment in the federal zone is a public resource. My desire to leave it alone has the same weight as someone who wants to take from it. I am trying to establish some balance between what the fishers have and what we non-users do not have. That is costing us as conservationists.

Q: Where do the Dry Tortugas larvae come from?

A: For years we were told our lobster came from elsewhere, but recent studies show that this is not the case.

Q: The Dry Tortugas current does not do the same thing every month. Sometimes it is strong, sometimes not at all.

A: Dr. Tom Lee's current information from the last forum helps explain this.

Q: Would your user group be satisfied with a no-use/no-entry reserve?

A: I am also a diver, I can see a rationale for having a part of a Tortugas Ecological Reserve be a research-only area, some being a no-entry area.

Q: How can you enforce divers not touching coral? If fishers are kept out of an area, everyone should be.

A: The Sanctuary has established a monitoring program which will look at the effects of divers.

Tom Murray, Consulting Economist

- We need more information on the economic impacts of a reserve.
- The idea of standards is important maximizing benefits and minimizing cost.
- We don't have a clear idea of the economics in the area. Last year there were 7500 commercial fishing trips ("unloadings"), 1 million pounds spiny lobster harvested, 6-7 million pounds pink shrimp harvested, and 1/2 million pounds yellowtail harvested.
- The onus is on us as scientists to demonstrate to the fishermen why we want to do this, by:
 - documenting the size of areas:
 - determining what closing an area will cost (the dollar value);
 - realizing that as you expand a zone, the benefits increase but so do the costs.
- What are we trying to achieve? This needs to be defined.
- The first piece of data is what is the standard we are measuring for?
- This is just the beginning trying to begin a dialog so we have a justifiable standard.

QUESTION AND ANSWER SESSION

Q: Did the number you gave of 7500 represent the number of days?

A: It represents 7500 unloadings, from trip tix unloaded in Monroe County. This is a big fishery. It is also important ecologically - we need to know what we are trying to maintain.

Q: How do you perform risk analysis in this situation, for example, not committing all the resources to one situation?

A: You have to do this through spawning protection, for example. We are doing a lot with size limits and other restrictions.

Q: What are the benefits of a marine reserve from an economic standpoint? Is there long-term information on economic benefits?

A: I would support a well-defined reserve. Economic analyses of other marine reserves are so different they are not analogous. Reserves need to be designated properly; it needs to work the right way.

Billy Causey (providing a clarification):

The National Marine Sanctuary Act is very different than the Magnuson Act standards. It is protecting for a different purpose. The responsibilities go beyond fisheries aspects.

Billy Causey: closing remarks

- Thanks to everyone for coming out tonight. There will be the opportunity for more involvement over the next two years.
- The next Working Group meeting is in October, and a series of scoping meetings, which will be in workshop format, in groups, will occur for you to give your input.
- We are planning four meetings, to be held in Key West, Miami, Naples, and Washington, DC.
- Between now and then, we will take advice from tonight's speakers to canvass the community to see what their interests are. We will use some of Dr. Suman's methods for those of you working out in the Tortugas area.
- Each person here should identify with a Working Group member to whom you can provide your input.
- The communication tonight has been lively but important. It is good to get keep this dialog going. Don't close up come back to the next meetings and keep talking to us.