

SOUTHEAST RECREATIONAL FISHERIES
INFORMATION NETWORK
FACT-FINDING WORKSHOP
ON CHARTER BOAT EFFORT AND HARVEST

February 29 - March 1, 1996

New Orleans, Louisiana

JULY 1996

REC-2

SOUTHEAST RECREATIONAL FISHERIES INFORMATION NETWORK

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BACKGROUND

Southeast Recreational Fisheries Information Network

The Southeast Recreational Fisheries Information Network [RecFIN(SE)] was established in 1993 as a three year pilot program through a Memorandum of Understanding (MOU) signed by the National Marine Fisheries Service (NMFS Headquarters, Southeast Regional, and Southeast Fisheries Science Center Offices); the U.S. Fish and Wildlife Service; the Gulf States Marine Fisheries Commission (GSMFC); the states of the Southeast Region, including Puerto Rico and the Virgin Islands; the National Park Service; and the three regional fishery management councils. That MOU established a set of broad goals and objectives for the collection, management, and dissemination of marine recreational fishery (MRF) data through the RecFIN(SE) including

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| Goal 1 | To plan, manage, and evaluate a coordinated state-federal MRF data collection program for the Southeast Region. |
| Goal 2 | To implement a coordinated state-federal data collection program for the Southeast Region. |
| Goal 3 | To establish and maintain an integrated, centralized MRF data management system for the Southeast Region. |
| Goal 4 | To support the development and operation of a national program to collect, manage, and disseminate MRF information for use by states, territories, councils, interstate commissions, and federal marine fishery management agencies. |

During 1994, an outside program review was conducted, through the auspices of the American Fisheries Society's Marine Fish Section, which specifically encouraged the continuation of the RecFIN(SE), beyond the pilot stage, into full implementation. Through the recommendations and results of that review, a new MOU was drafted and submitted for adoption by the signatory agencies which participated in the pilot phase of the RecFIN(SE). **The new MOU establishes the RecFIN(SE) as a long-term partnership among the signatory agencies to collect, manage, and disseminate MRF data within their combined jurisdictions.**

The Workshop - Statement of the Problem

In December of 1995, the RecFIN(SE) was contacted with a request to conduct a fact-finding workshop regarding the charter boat fishery in the Gulf of Mexico. Specifically, the request was to review data and information related to charter boat effort and harvest for calendar years 1992, 1993, and 1994. According to the estimates provided by the National Marine Fisheries Service (NMFS) Marine Recreational Fishery Statistics Survey (MRFSS), overall effort in the charter boat fishery and harvest of red snapper by the charter boat fishery increased in 1993 and 1994 relative to those estimates for 1992. There was some concern, particularly from the Gulf of Mexico Fishery Management Council, that the apparent increases were not indicative of a real event, but represented some artifact of or error in the MRFSS.

Subsequent to the above stated concerns, the NMFS MRFSS staff conducted an internal review of the data, procedures, and other pertinent information related to the collection of charter boat data and the estimates for years 1992, 1993, 1994. It was agreed that in addition to the NMFS internal review, and external review would be informative and should include data and information other than those collected through the MRFSS.

In response to the NMFS request for the workshop, the RecFIN(SE) Administrative Subcommittee scheduled a conference call to discuss the issue. At that time the RecFIN(SE) Chairman and Vice-chairman charged the Administrative Subcommittee with the responsibility to develop and conduct the workshop on February 29 and March 1, 1996, following the regularly scheduled RecFIN(SE) Committee meeting in New Orleans, Louisiana. The following individuals attended and participated in the workshop:

RecFIN Administrative Subcommittee Members

Steve Meyers	Virgin Islands Division of Fish and Wildlife - RecFIN Chairman
Nick Nicholson	Georgia Department of Natural Resources - RecFIN Vice-Chairman
Ron Lukens	Gulf States Marine Fisheries Commission - Administrative Subcommittee Chairman
Lisa Kline	Atlantic States Marine Fisheries Commission
Albert Jones	National Marine Fisheries Service, Miami, Florida
Maury Osborn	National Marine Fisheries Service, Washington, DC

RecFIN Staff

David Donaldson	Program Coordinator, Gulf States Marine Fisheries Commission
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Other Attendees

Churchill Grimes	National Marine Fisheries Service, Panama City, Florida
Skip Lazauski	Alabama Department of Conservation and Natural Resources, Marine Resources Division
John Merriner	National Marine Fisheries Service, Beaufort, North Carolina
Joe Desfosse	Atlantic States Marine Fisheries Commission
Lee Green	Texas Parks and Wildlife Department
Bob Dixon	National Marine Fisheries Service, Beaufort, North Carolina

Stephen Holiman	National Marine Fisheries Service, St. Petersburg, Florida
Nancie Parack	National Marine Fisheries Service, Miami, Florida
Gerry Gray	National Marine Fisheries Service, Washington, DC
Tom Schmidt	National Park Service
Bob Zales	Charter boat Captain, Panama City, Florida and Chairman of the Gulf of Mexico Fishery Management Council's Reef Fish Advisory Panel
Philip Horn	Gulf of Mexico Fishery Management Council Member and Chairman of the Council's Reef Fish Committee
Steven Atran	Gulf of Mexico Fishery Management Council Staff

WORKSHOP GOAL AND OBJECTIVES

Goal

The goal of the workshop, as identified by and agreed to by the workshop participants, was to determine whether or not the apparent increase in total charter boat effort and charter boat harvest of red snapper in the Gulf of Mexico in 1993 and 1994 relative to 1992 represents a real event. The workshop was based upon a review and discussion of pertinent data and information from the NMFS MRFSS, the NMFS Panama City Charter Boat Logbook Survey, a Florida charter boat captain, and other sources. It is important to note that the workshop was not intended or designed to endorse or validate any survey instrument or other sources of data.

Objectives (Workshop Agenda)

- Objective 1 - Conduct a complete review of the NMFS MRFSS related to data collected, procedures, and estimates for charter boat effort and red snapper harvest during 1992, 1993, and 1994.
- Objective 2 - Conduct a complete review of the Panama City Charter boat Logbook Survey related to data collected, procedures, and results for catch and effort for the charter boat fishery during 1992, 1993, and 1994.
- Objective 3 - Conduct a complete review of data and information provided by a charter boat owner and captain from the Florida panhandle relative to individual fishing activities during 1992, 1993, and 1994.
- Objective 4 - Conduct a complete review of data from other sources, some related and some unrelated to traditional fisheries data programs, including charter boat license sales, tourism information and U.S. Coast Guard vessel inspection and certification data.
- Objective 5 - Conduct a question and answer and summarization session to clarify issues raised during data and information presentations.

Objective 6 - Formulate a conclusion, regarding the apparent increase in total charter boat effort and charter boat harvest of red snapper during 1993 and 1994 relative to 1992, based on the data and information presented.

OPENING REMARKS

Steve Meyers, U.S. Virgin Islands Chief of Fisheries and current RecFIN(SE) Chairman, welcomed the participants to the workshop. Meyers then called for introductions and turned the meeting over to Ron Lukens, Chairman of the RecFIN(SE) Administrative Subcommittee. Lukens discussed the background information on the goal and objectives of the workshop. At this point Lukens asked the participants to express their impressions as to the problem, and thus the purpose of the workshop. That discussion resulted in agreement with the problem statement provided above.

Lukens reviewed the agenda and asked for comments. In response to the agenda item for the NMFS Panama City Charter Boat Log Book Survey, it was stressed that that survey cannot be directly compared to the NMFS MRFSS, because the MRFSS is a statistically designed intercept survey and the Panama City survey is a voluntary log book survey. The Panama City log book data were reviewed to determine if the resulting catch and effort information shows or does not show a similar phenomenon with regards to the information provided by the MRFSS. There was a discussion regarding the last agenda item, which was to begin deliberations to develop alternative methods to survey the charter boat fishery. It was pointed out that that item is much broader than the request from the NMFS, and that the issue will be addressed through the regular RecFIN(SE) process. It was agreed that if time were available at the end of the second day of the workshop, then some discussion on that issue would be appropriate. There was general consensus to accept the workshop format and agenda as clarified and amended.

DATA AND INFORMATIONAL PRESENTATIONS

NMFS MRFSS Data - Gerry Gray, NMFS HQ MRFSS Staff

Gerry Gray's full presentation, including graphs, is appended to this report as Attachment 1. Gray's appended report is a refinement of the written report which was handed out at the workshop.

Gerry Gray stated that his presentation was designed to focus on the 1992/1993 time frame and the resulting data. He presented information about how the data are taken, how the catch and effort estimates are made from the raw data, and how the differences resulted between the years in question. **He clarified that the data address the apparent increase in charter boat effort and the increase in red snapper in the charter boat fishery between 1992 and subsequent**

years, primarily 1993 and 1994. Some 1995 data were presented. He presented a graph showing the red snapper total catch between 1981 to 1995 for all fishing modes. That graph shows an increasing trend in red snapper total harvest beginning in 1991 through 1993, with total harvest declining after 1993. His next graph showed the total red snapper charter boat harvest from 1986 through 1995. That graph indicated an increase between 1990 and 1991, with a slight decrease between 1991 and 1992; however, the 1992 level was still above the 1990 harvest. The graph showed an increase between 1992 and 1993, with a slightly decreasing trend thereafter. In relation to the general trend from 1990 through 1993, Gray reported that it appears that 1992 was somewhat low and 1993 was somewhat high. Gray pointed out that the report does not include data from head boats, since the MRFSS does not survey head boats.

Q. Bob Zales asked about the definition of a charter boat versus a head boat.

A. Gray indicated that they are defined by how individuals pay to use the boat. For instance, if clients pay individually to walk on the boat and fish with a variety of other people, it is defined as a head boat. If there is one price paid by a party to secure the services of a boat, the vessel is called a charter boat.

Q. Zales asked how the survey determines how people pay to use a boat.

A. Gray indicated that there are interviewers at the dock who ask how the fee for the boat was paid. That question is also asked in the phone survey.

There was general agreement that there could be some confusion regarding the definitions of charter boats and head boats; however, some standard definition must be established and used consistently.

Gray then showed a graph indicating the total estimated weight of red snapper harvested by the charter boat fishery from 1992 and 1993. Again those data indicate a significant increase. A slight increase was also evident from the private/rental boat sector. Next, Gray discussed some of the general methodology of the MRFSS. Generally speaking, the MRFSS catch estimate for any given cell is calculated as the product of the coastal resident trips, the non-coastal trip adjustment, and the catch per trip. The weight estimates are obtained by further multiplying by the mean weight of the fish measured in that cell.

Q. Is the entire state of Florida considered coastal counties?

A. Gray indicated that all counties in Florida are considered coastal, but that the state is divided down the middle and is basically treated as two states for the purposes of sampling and estimations. If a resident of the

Florida east coast is interviewed while fishing on the Florida west coast, that person is considered an out-of-state resident.

With respect to the Florida west coast only, the estimated number of charter boat trips increased 64% between 1992 and 1993. During that same period, catch (includes fish released alive) per trip for red snapper increased from 0.619 to 0.747. In 1992, 49% of the catch was retained or released dead, a figure which increased to 88% in 1993. These factors resulted in an increase in the estimated charter boat harvest from 0.304 fish per trip to 0.658 fish per trip (116%). Also of importance, the average weight of fish retained increased from 2.01 pounds in 1992 to 2.50 pounds in 1993 (24%). All these factors combined resulted in a 3.5 times increase in estimated total red snapper harvest in the charter boat fishery between 1992 and 1993, and an increase of 4.4 times the estimated total weight harvested during that same time.

Gray then presented the estimates separately for the intercept and the telephone portions of the survey to highlight differences the years in question attributable to each survey component. Four main factors were derived from the intercept survey, including 1)percent fish retained, 2)catch-per-unit-effort, 3)mean weight per fish, and 4)non-coastal participation. All four factors combined resulted in an increase in the estimated total catch between 1992 and 1993 by a factor of 2.9.

The phone survey provides estimates of coastal and non-coastal trips taken in the charter boat mode. From about 1988 through 1990, there was a steady decline in the number of coastal household charter boat trips. That decline flattened out from 1990 through 1992, and again increased steadily from 1992 through 1995. This same increasing trend was evident in the non-coastal charter boat trips. This resulted in an estimated increase in total charter boat trips from the west coast of Florida from 375,048 in 1992 to 615,205 in 1993.

Q. Zales asked what point divides east and west Florida.

A. Gray indicated that Monroe County is the dividing line. All of Monroe County is included in the Florida west coast.

Gray indicated that, regarding the intercepts, for every west Florida coastal county resident interviewed, there are 3.8 individuals either from the east coast of Florida or from out-of-state. It was pointed out that charter boats leaving from the Florida west coast below the panhandle are probably not going out to fish for red snapper. Gray explained that data on directed effort, or target species, is not collected, so information about what people are going out to catch is not available. Zales clarified that the largest increase in trips was in the coastal residents, but the greatest number of trips resulted from non-coastal or out-of-state residents.

Gray reported that for west Florida from about 1986 through 1990, there was a precipitous decline in catch per trip of red snapper in the charter boat mode. Following that was an increase through 1993, at which time the catch per trip began to decline again, through 1995. When the estimates for percent fish retained, as provided earlier, are factored into the catch per trip, the estimated harvest per trip, or fish kept or released dead, between 1992 and 1993, increases even more precipitously than catch per trip. It was pointed out that the

implementation of regulations through the Gulf of Mexico Fishery Management Council has had some effect on the catch/harvest of red snapper throughout the years reported. The dates of implementation of regulations and their provisions should be related to the charts in Gray's paper for a full explanation of the data. Between 1992 and 1993 the average weight of red snapper harvested increased. There was a short discussion regarding the impact of artificial reefs on the size and distribution of red snapper. There was also a discussion regarding high-sizing, or culling smaller fish in favor of larger fish which may be caught later.

Gray then provided charter boat catch information for several other species, including king mackerel, gag grouper, spotted seatrout, red grouper, gray snapper, and red drum. In each case a similar increasing trend in catch was evident from 1992 to 1993, with the exception of gray snapper and red grouper which showed a decreasing trend. It should be noted that the effort information for these additional species is the same as that presented for red snapper, because information is not available to partition effort by species. The information for these additional species was provided only to place the red snapper information in context.

Gray concluded his formal presentation of the MRFSS data by saying that in the opinion of the MRFSS staff, after thorough review of the procedures and the data, the increase in charter boat effort and the increase in red snapper catch in the charter boat mode represent a real event, and are not artifacts of or errors in the MRFSS.

General discussion about Gray's information ensued. Maury Osborn pointed out that the general trend from 1990 to 1995 was an increasing trend, even though the increase between 1992 and 1993 was the most significant. There was a question regarding shifts in the fishery and shifts in sampling effort. Zales remarked that charter boats do not shift their points of landing often or significantly, because they must remain stable so their customers can locate them. Regarding shifts in sampling, Gray pointed out that the sample allocation program randomly selects sampling sites based on a subjective weighting of effort expended at the sites. Within a state, sampling shifts do not vary significantly; however, there could be a great deal of variability in allocation of the sampling at individual sites on a yearly basis.

- Q. Skip Lazauski asked if it is possible that trip length had increased from 1992 to 1993, resulting in the increases noted.**
- A. Gray reported that the MRFSS data indicate a slight decrease in trip length from 1992 to 1993. He then asked if anyone had any additional information regarding trip length during the period in question. Gray clarified that if there were more half-day trips, then a boat could go out, catch the limit, and go out again and catch another limit. This could result in an increase in effort and harvest.**
- A. Zales indicated that information that he had showed that trip length in the Gulf of Mexico had remained relatively stable.**

- Q.** Osborn reiterated that the MRFSS indicates that more coastal residents took trips in 1993 relative to 1992, and that non-coastal or out-of-state residents also took more trips, although the increase was not as great as with the coastal residents. These two things indicate that there was more charter boat business occurring. Osborn asked if this means that there are more charter boats operating, part-time captains entering the fishery, or existing captains increasing their business.
- A.** Zales replied that off Alabama business has stabilized but did significantly increase between the 1980s and the early 1990s. Off the west coast of Florida since 1991, data from the Florida Department of Environmental Protection show a decrease in the number of charter boats. He indicated that his business has remained relatively stable, with perhaps a small loss of trips. He stated further that none of the charter boat captains that he has talked to has had an increase in business of more than about 2% since 1990. Additionally, he indicated that in northern Florida, and perhaps in Alabama, there is no more dock space for additional charter boats to enter the fishery.
- Q.** Steve Holiman asked Gray to summarize why he felt that the differences between 1992 and 1993 represent a real event.
- A.** Gray replied to Holiman's question: 1) the statistical validity of the survey, 2) the lack of identifiable errors in the data that were generated, 3) the increasing trends beginning before 1992 and continuing after 1993, 4) catch rates for other species in the charter boat fishery also increased during the specified time period, and 5) when each individual factor regarding the data and the process is broken out, they all support the conclusion that the resulting increases represent a real event.
- Q.** Nick Nicholson asked if when sites are selected in Florida are the sites randomly selected from the entire coast or is the coast subdivided and sites selected based on that stratification.
- A.** Gray replied that there is no subdivision of the coast line regarding the site selection or sample allocation process.

Gray concluded his remarks by reminding the group that no one is arguing about whether or not there was an increase in charter boat effort and red snapper harvest in the charter boat mode between 1992 and 1993, the argument is about the magnitude of the increase.

This record of Gray's presentation is included in order to provide the information in the context of the workshop. For a full discussion and explanation of the data and information

provided by Gray, consult Appendix 1, which is a written report provided by the MRFSS staff.

Panama City Charter Boat Log Book Survey - Churchill Grimes, NMFS Panama City Laboratory

Churchill Grimes' full presentation, including graphs, is appended to this report as Attachment 2.

Churchill Grimes indicated that, while the log book survey cannot be directly compared to the MRFSS, there are data available from the log book survey that may shed some light on the effort question. Grimes stated that the NMFS Panama City Laboratory has been conducting charter boat log book surveys continuously since about 1982, and he provided an example log book form currently in use. Early on, the success of the survey was considered to be limited, because of low participation and changes in methodologies. In 1982, the NMFS entered into contract arrangements with charter boat captains and paid a minimal amount to the captains to fill out the log books. The success of the survey was considered to be good during this time; however, the use of contracts with the charter boat captains increased the cost of the survey by about \$100 thousand/year. In 1986, mandatory reporting was implemented for the charter boat fishery, and survey success declined due to a variety of reasons. Since 1989 the survey has again been conducted on a voluntary basis. There is no statistical or random selection of charter boats that keep logs. It is solely based upon which captains are willing to participate.

Q. Steve Atran asked what percentage of charter boats were participating in the survey during the mandatory reporting period.

A. Grimes replied that all charter boats were supposed to be reporting, because it was required in order to be able to fish.

A. Zales added that there was significant resistance to the mandatory program by the charter boat industry; consequently, actual participation in the log book survey remains poor at the present time.

Q. Holiman asked was there an attempt to get a certain percentage or a certain number of active charter boats to participate in the survey during the voluntary period.

A. Grimes replied that the attempt has been to get as much participation as possible.

Grimes stated that the objectives of the program include obtaining data for:

- 1) species composition
- 2) catch rates by species
- 3) length of trips (hours fished)
- 4) number of trips
- 5) type of fishing

Grimes then provided a chart showing the geographic coverage of the survey during the mid 1980s, showing the number of charter boats reporting from given areas. He stated that the data from the survey have been used for a variety of purposes by state, federal, and university fishery scientists, including 1) catch-per-unit-effort by stock assessment biologists for the king and Spanish mackerel VPAs, 2) analyses to determine the effect of bag limits on charter boats, 3) a variety of publications regarding catch rates, and 4) other topics. Grimes displayed the newsletter called *Channel 68*, which is distributed to fishermen. He indicated that the newsletter is extremely popular and is used to distribute a lot of information to the public. He reported that Barbara Palko, of the Panama City Laboratory, is working on a project to establish the sampling universe of charter boats for the Southeast Region, and pointed out that one of the big problems with sampling the charter boat fishery is having current knowledge about who is currently active. There appears to be quite a bit of turnover in operating units in the fishery.

Grimes next began to discuss the number of charter boats in the survey for 1993 and 1994, Gulf-wide. He pointed out that the office had sent out a lot of letters to charter boat captains during 1994, again asking for participation in the log book survey. From that effort several boats were added to the survey. He stated that some captains are very reliable regarding submission of log books, while others are not as reliable. There is no good indicator regarding percent of trips that the log books represent. A short discussion ensued regarding the possibility of conducting a validation study to determine true compliance with reporting through the log books. Grimes displayed an overhead transparency of some of the data that Palko is getting in her effort to establish the universe of charter boats in the Southeast Region. He indicated that she believes that there may be as many as 4500 charter boats operating. It was pointed out that the charter boat universe data includes small, inshore boats as well as large offshore boats. Atran indicated that when the Gulf Council proposed to place a moratorium on coastal pelagics permits for charter boats and head boats, they found out that between 50 to 90 percent of the captains in the mackerel fishery were not permitted. They reported that they did not know they needed a permit. It was suggested that that may be a good way to get charter boat operators to identify themselves. It was noted that the issue can also be complicated by part-time operators.

Grimes indicated that information can be extracted from the log book data, including number of trips per vessel, length of trip in number of hours fished per vessel, and percent of time spent bottom fishing versus trolling. The percent of time spent bottom fishing versus trolling can provide some insight into the target species for given trips. For instance, a charter boat captain could choose to spend more time bottom fishing than trolling as compared to past years without increasing total effort fishing. This could result in increased charter boat effort on the reef fish or red snapper population. On the other hand, if total charter boat effort increased, but percent

time trolling increased concomitantly, fishing effort on the reef fish or red snapper population probably did not increase. Grimes indicated that there was an increase of 2% to 3% in the time spent bottom fishing from 1993 to 1994. While Grimes' data for 1992 were not available, it was pointed out that the log book data for 1993 and 1994 were consistent with the MRFSS data for those years.

Osborn made the point that if roughly the same number of charter boats are sampled over time and their reporting is good, the CPUE provides a good picture of catch and effort for those boats. The data is also useful for stock assessment purposes. She further added, however, that those data may not be representative of the entire charter boat fishery in the Gulf of Mexico. It was pointed out that the MRFSS also does not sample a majority of charter boats in the region; however, Osborn indicated that the sampling scheme is random and designed to provide data representative of the entire fishery, Gulf-wide. **Osborn concluded that both the log book survey and the MRFSS are valid surveys, but they are designed to do different things and are not comparable. The MRFSS is designed to represent the average across the region, whereas the log book is designed to provide data from specific vessels.**

A Report from a Charter Boat Captain and Owner - Captain Bob Zales, Panama City, Florida

Captain Bob Zales' full presentation is appended to this report as Attachment 3. Zales' appended report is a refinement of the written report that was handed out at the workshop.

Captain Bob Zales provided the workshop participants with information regarding his background and business. He indicated that his family has been in the charter boat business since he was 12 years old. He left the charter business in 1975 to work in oil field work, and returned to the charter fishing business in 1985 and continues through the present. Zales developed his presentation based on information from the Research and Development Council in Panama City, Florida, the Florida Department of Environmental Protection, the NMFS Charter Boat Log Book Survey, personal communications with other charter boat operators, and his own business. Zales has participated with the NMFS Charter Boat Log Book Survey, except for a short period of time, throughout his participation in the charter boat fishery. He has been a supporter of the survey and has used some of the data himself.

He stated that the MRFSS provides important data to the regional fishery management councils to make management decisions. He indicated that he believes that the log book survey and information from fishermen in public testimony has been the least considered source of information in that decision-making process. Zales recalled that in 1990 the Gulf of Mexico Fishery Management Council (Council) proposed to drop the red snapper bag limit from seven fish per person per day to two fish per person per day. While the proposal was not adopted, it provided an impetus for increased participation in the charter boat log book survey. Charter boat operators were especially active in their participation in the survey. About two years later, the survey data confirmed that the charter boat sector was catching large numbers of red snapper. As a result, some Council members concluded that too many red snapper were being caught by that

fishery. This position angered many charter boat operators who stated that the Council was using information that they provide against them, and therefore they should not continue to participate in the survey. Participation in the survey did indeed decrease, and remains low today.

Zales provided a table from the Bay County Tourist Development Council showing tax collection figures and tourist inquiry records. Bed tax data indicate an increase each year from 1991 through 1994. Data for 1995 were not complete. Tourist inquiries decreased slightly during that period. The next table provides recreational fishing license data from the Florida Department of Environmental Protection (FDEP). Zales used data from Collier County to the Florida/Alabama state line. Monroe County was not used because it is impossible to determine which boats are fishing in the Gulf of Mexico and which are fishing in the Atlantic Ocean. He indicated that the FDEP issues charter boat licenses in three categories: 1) guide boats carry four persons or less; charter boats that carry five to ten persons; and charter/head boats that carry over 11 persons. He expressed his confusion and frustration at the lack of an appropriate definition for charter boats. He stated that he and other charter boat operators preferred that licenses be patterned after the requirements for U.S. Coast Guard licensing. The data show that license sales from 1991 were higher than 1992 through 1994. His conclusion was that for the west coast of Florida, effort should have been down, because of a reduction in license sales. His next tables provided data from the charter boat log book survey. These data are related to hours fished in particular modes. Total hours trolling versus non-trolling from 1991 through 1994 was relatively stable throughout the survey area. In the Gulf of Mexico, there was a decline in total effort during 1991 through 1994. He concluded that participation in the charter boat survey is down, and is reflected in a reduction in effort. He reasoned that the reduction in participation is from operators being upset by the feeling that the data are being used against them. He pointed out that the data show that average trip hours have not decreased from 1991 to 1994. Table 4 provides data from the charter boat survey from two boats, one of them belonging to Zales. The data from 1991 through 1994 indicate that there is not a noticeable increase in business for either vessel, average trip hours are the same, and the number of trips is roughly the same over the period. He indicated, through personal communications with other charter boat operators, that their business records show the same trend as Zales'. Table 5 again provides data for two businesses, one of them belonging to Zales. The data show that one company increased its business from 1991 to 1992, but thereafter business remained stable. The other company showed a decrease in business from 1992 to 1993 and thereafter. He concluded that in the Florida panhandle over the past four to five years, there has been no dramatic increase in charter boat business or fishing effort. While boats have changed hands, Zales knows of no new boats coming into the fishery.

Zales indicated that he believes that the charter operators should cooperate better with the surveys so that management can be better. He is concerned that regulation of the fishery will continue, perhaps even get worse, and he feels that the agencies should have the right data.

- Q. Albert Jones referred to Tables 2 and 3, and asked why there is a difference in the number of boats reported.**
- A. Zales pointed out that Table 3a is from the entire survey area and Table 3b is for the Gulf of Mexico only. He feels that the Atlantic coast**

charter boats are not experiencing the same difficulties as the Gulf charter boats, and therefore they are reporting to the survey better.

Q. Osborn asked how many people Zales' boats can carry.

A. Zales indicated that he has three boats that carry six people or less and one boat that can carry up to 25 people.

This question sparked another discussion regarding definitions for charter boats. Zales explained that all his boats are charter boats, even the one that carries up to 25 people. He provided an example, saying that if 20 people chartered his large boat, they could pay separately, but they would be with a group. If those same 20 people got on a head boat with other people, the captain would still have to consider the need to catch fish for each individual on the boat. On Zales boat, the 20 people are with a group, and the captain is primarily concerned with catching fish for the group, not necessarily for each individual.

Q. Meyers asked what kind of information Zales keeps for his own records from each fishing trip, for example number of passengers, total pounds of fish caught, etc.

A. Zales indicated that much of the kind of information Meyers asked about is kept in the personal log; however, he indicated that neither he nor other captains will give out the information in their personal logs.

Gray pointed out that some of the data provided by Zales is consistent with the data presented for the MRFSS. He pointed specifically to the increase in participation from non-coastal or out-of-state residents, the increase in non-trolling hours fished, and the increase in total hours fished. He concluded that while the Zales data do not exactly match with the MRFSS data, the two are not opposed, but rather indicate a different magnitude of increase. A discussion ensued regarding the relationship between total hours fished and the number of boats fishing. Zales indicated that his business fished with four vessels in 1992, and then sold one of the vessels and fished with three starting in 1993. He added that he fished roughly the same number of hours in 1992 and 1993. He stated that the sold vessel did fish in the charter boat fishery in 1993, but did not fish as many hours as his vessel, because the new owner was new to the area, was not in a good location, went out of business after one year, and subsequently sold the boat. It was pointed out that if he fished the same number of hours with three vessels in 1993 that he fished with four vessels in 1992, and the vessel he sold also fished in 1993, then effort increased concomitant with the hours fished by the vessel he sold under its new owner. Hours fished per vessel for Zales' vessels increased between 1992 and 1993. While this scenario may not be representative of the entire fishery, it does point to the fact that transferring vessels as described by Zales, with an increase in hours fished per vessel, can result in an overall increase in effort. There was disagreement between Zales and several other workshop participants regarding whether or not the above situation would result in an increase in effort. Atran pointed out that Zales' Table 1 was not adjusted for inflation,

which may indicate no increase or possibly a decrease in tax collections reported by the Bay County Tourist Development Council.

National Marine Fisheries Service MRFSS Information - Maury Osborn, NMFS HQ MRFSS Staff

Maury Osborn's full report is appended to this report as Attachment 4.

Osborn began stating that the MRFSS telephone survey results in an unbiased estimate of participation levels of coastal residents in recreational fishing, including charter boat use. She indicated that, upon a concern being expressed that the MRFSS estimates for charter boat effort and a related increase in red snapper catch between 1992 and 1993, the MRFSS staff immediately began to examine the data and procedures applicable to that time period. She provided a brief background on the survey methodology. She indicated that the staff contacted individuals that were originally called in the phone survey during the appropriate time period, and asked those individuals for additional information. The intercept survey participants were not recontacted. The survey was conducted nation-wide, and began in Wave 5 of 1995 by asking participants in the phone survey if their activity levels had changed over the period 1992 through 1995. The study also recalled a sample of individuals who indicated charter boat activity from Waves 1 through 4 of 1995. For the samples from Waves 1 through 4, 150 individuals from west Florida were interviewed, while 150 individuals from the rest of the country were interviewed. The emphasis was placed on sampling west Florida because of the concern over red snapper. For Waves 5 and 6, there were 69 respondents from west Florida and 445 from the rest of the country.

For those individuals who indicated that they have engaged in charter boat activity, the phone contractor asked them to consider if over the years 1992 through 1995 their charter boat activity had increased, stayed the same, or decreased. If respondents indicated that their trips remained the same, they were asked no more questions. If the respondents indicated an increase or decrease, they were asked to make an estimate or guess of their change. Osborn pointed out that this survey should be considered anecdotal; however, it does give some indication of what people who use charter boats were doing during the time period in question. She also pointed out that because of the time lag between trips taken and the survey, the data will be subject to memory and digit bias. For Waves 1 through 4, the data show a slight increase in charter boat use, with a higher increase for the Florida west coast. For Waves 5 and 6 for the south Atlantic and the Florida west coast, more respondents said that their charter boat activity increased or stayed the same than decreased. For the rest of the country, activity stayed roughly the same. **The conclusion of the supplemental survey through the MRFSS is that the data supports the increase in charter boat effort for the Gulf of Mexico and south Atlantic regions.**

Miscellaneous Information - Ron Lukens and Dave Donaldson, Gulf States Marine Fisheries Commission

All information presented by Ron Lukens and Dave Donaldson is appended to this report as Attachment 5.

Lukens indicated that he and Dave Donaldson had compiled information from various sources for the years 1992 through 1995, some related to fisheries and some unrelated. Those data included charter boat license sales, U.S. Coast Guard Certificates of Inspection for passenger vessels, personal contact with Gulf States charter boat associations, and tourism information (including total expenditures and tax revenues).

Charter boat license sales showed some increases. Mississippi did not show an increase between 1992 and 1993, but did show an increase between the years 1993 and 1994. Florida showed only a slight increase from 1992 to 1993; however, these data include inshore guide boats. Charter boat license data from the remaining Gulf States were not available.

Interviews with charter boat association presidents from the States of Mississippi, Alabama, and Florida had mixed results. For Mississippi it is believed that there was no increase in the number of charter boats or the number of charter boat trips over the last several years. The individual from Alabama reported that there have been new entries into the charter boat fishery, primarily from existing charter operators buying new boats. He also indicated that they have experienced an increase in the number of trips over the years in question. Information from an individual in Florida indicated no increase in charter boats or trips over the years in question.

U.S. Coast Guard data on Certificates of Inspection (COI) for Subtitle T vessels, defined as 65 feet or less in length, less than 100 gross tons, and used to carry passengers, indicate an increase between 1992 and 1993 through 1995. It should be pointed out that the Subtitle T category includes a variety of passenger vessels other than charter boats. It is not clear what type of vessels constitute the increase in COIs.

In almost each case, tourism information indicated an increase in total or tax revenues over the years in question. While these data probably indicate an increase in tourist traffic in the respective states, that increase does not necessarily directly translate into an increase in charter boat use, and therefore effort. **The conclusion drawn from the miscellaneous data presented was that the information does not necessarily support an increase in charter boat effort, but neither do the data refute an increase in charter boat effort.**

General Discussion - All Workshop Participants

Lukens opened the discussion by saying that the second half of the workshop should be spent considering the data and information presented during the first half, and that the discussion should lead the group to some agreement concerning the issue of charter boat effort and related red snapper harvest from 1992 through 1995. Lukens clarified that the workshop is not intended to

validate any survey or source of data. Further, it was Lukens' impression that the workshop was intended to determine if any source of data or information, other than the MRFSS, led to the conclusion that the MRFSS estimates for the charter boat sector from 1992 to 1993 are wrong. Jones summarized much of the information covered in the presentations and then offered two questions that he felt clarified the issue for the workshop participants. **The first question was have we got all the data and information available to address the issue? The second question from Jones was can the job be done better or cheaper.** If there were data on how many charter boats there are in the fishery, Gray asked, would the workshop still have been held. He believed that it would, because there would still have been a number of elements that would have to be estimated, and there still would probably have been an increase in charter boat effort and red snapper harvest from the charter boat fishery. He reiterated that the data show that the mean weight of red snapper increased by a factor of 1.2 from 1992 to 1993. The data also show that the percent of fish retained by anglers increased by a factor of 1.8, and CPUE increased by a factor of 1.2. Those factors combined account for an increase by a factor of 2.7. Consequently, if trip estimates remained the same, there still would have been an increase in the red snapper harvest of 2.7 times. Things that are not known include the number of boats, the number of hours fished per boat, or the number of anglers per boat. **Gray concluded with his belief that regardless of whether the charter boat universe is known, there would still be disagreement on the effort and harvest questions that are the subject of the workshop.**

Zales again raised his concern regarding the definition of charter boats and head boats. The traditional definition says that a fee for a charter boat is paid by a group to use the whole boat. A head boat is paid on an individual basis. Zales indicated that there is a phenomenon called the split trip, which is a case where a couple, for instance, wants to go on a charter boat trip. The captain can offer the couple the entire boat or make arrangements for another couple or other people, whom the couple does not know, to join the couple and split the cost. This can create confusion depending on how the telephone questions are asked. Lukens clarified that even in the case offered by Zales, with a charter boat, there is a price for taking the boat out. With a head boat, there is no set boat price. A head boat with the capacity of 100 people may complete a trip with only 50 patrons, and those patrons pay only the per head price for the trip. It was concluded that formulating the question correctly could get at that kind of information. There was also a discussion regarding the difference among catch, harvest, and landings. Zales' concern regarding that issue is that harvest includes fish that are landed and thrown back dead. The assumption is that fish that are thrown back dead are the same size as the fish that are landed. Zales argued that if a person is landing a two pound fish (legally), why would that person throw back a two pound fish. Atran agreed with Zales' argument. Osborn responded that it is only an assumption, because no one is observing the fish thrown back, and therefore the size is not known. Zales concluded that this could result in an overestimate of fishing mortality.

Gray continued his summary of the data from the MRFSS. The number of coastal and non-coastal trips increased by a factor of 1.67. The number of fish retained by anglers increased by a factor of 1.8. The catch per trip and weight per trip combined account for an increase by a factor of 1.5. The biological and fish retention factors account for an increase by a factor of 2.7. The trip related increase accounted for an increase by a factor of only 1.67. Consequently, Gray concluded, **even if charter boat effort had remained the same from 1992 to 1993, there still**

would have been an increase in the red snapper harvest. Gray added that the data from 1994 and 1995 corroborate that a real increase in charter boat effort and red snapper harvest did occur.

Regarding Lukens' earlier question about the purpose of the workshop, there was some discussion from Atran and Grimes, which finally concluded that the purpose of the workshop is to determine if there are any data or information that can lead to the conclusion that the MRFSS estimates for the charter boat effort and charter boat harvest of red snapper are wrong. Finally, the purpose of the workshop is not to validate or invalidate any particular survey or source of data or information. Osborn offered the statement that a statistically designed monitoring program that is consistent and standard over time and shows trends is the only scientific way to monitor a fishery. What Zales experiences with his vessels is real for his vessels, but it may not necessarily be representative of the charter boat fishery in the entire Gulf of Mexico, or west Florida. Any time a sampling program is being used instead of a census, there will be differences with what individuals experience and the results of the sampling program. She added that the MRFSS is a well-designed statistically based program; however, it can always be improved and has been improved over the years since its implementation.

Phillip Horn, Gulf Council member, stated that the MRFSS has been consistently and continuously criticized at the Gulf Council meetings, not only by individuals whose fishing activities are affected by the survey, but also by scientists from other institutions or organizations. Council members, who are not necessarily scientifically astute, must be exposed to the "best available information" and public comments, and they must weigh the relative importance of all the information that is presented. Horn contends that the data from the MRFSS are being used in applications that may not be appropriate. Osborn asked what those uses are, and Horn responded that the data are being used in allocation decisions and to track quotas. He added that Osborn stated that the MRFSS is a valid statistical survey designed to provide trend information. Zales agreed with Horn.

Jones indicated that the fact that the workshop participants are discussing an issue related to a significant increase in red snapper harvest should be considered good news. He added that there are a number of fishermen in various fisheries that are using log books along the Atlantic coast. He indicated that that system seems to be working and the data are being used in stock assessments and to make management decisions. He said that he was confused that it was stated that a log book system would not work in the charter boat fishery in the Gulf of Mexico.

Osborn responded to Horn's comments regarding the inappropriateness of using the MRFSS for allocation purposes and to track quotas. She indicated that **the original purpose of the MRFSS when it was designed and implemented in 1979 was to estimate harvest and effort on a regional basis for the marine recreational fishery.** It has grown considerably since then, and people began to use the data for smaller and smaller geographic areas, such as on a state-by-state basis. At that time the sample size was too small to yield meaningful results at the state level. In 1990, sampling was discontinued on the Pacific coast due to funding constraints, and the associated funding was reallocated to the Atlantic coast. In 1992, there was a 2.5 times increase in the sample size for the Southeast Region, associated with attempts to more closely monitor the

king mackerel fishery. Osborn indicated that with the improvements that have been made (increased sample sizes have dramatically improved the proportional standard errors associated with the estimates), the MRFSS could be used for such purposes as allocation decisions and quota tracking.

Q. Nicholson asked if the landings data for red snapper were consistent with fishery independent information used in stock assessments during that period of time.

A. Several people indicated that the 1989 year class of red snapper was the strongest seen in several years. That correlates with more larger fish being available to the fishery in 1993.

Grimes responded to Horn regarding his comments regarding scientific debate over the MRFSS. He pointed out that fisheries management is conducted in a public arena, and when scientists criticize each other it is used to cast doubt as to the validity of data, study results, or other scientific information. He stressed that the process of advancing a conclusion based on data or other study results, and the concomitant critique from other scientists, constitutes the typical scientific process of arriving at more reliable conclusions. Unfortunately, the debate among scientists is often misunderstood and misused to discredit not only the data or study results, but the scientists themselves. He further added that he agreed with Jones that log books can be used effectively, and should not be discounted as a viable alternative for acquiring data from the charter boat fishery.

Debate among the workshop participants continued regarding issues related and unrelated to the question at hand. Issues included the proper use of data, the various sources of data available, survey designs, applicability of survey methodologies, impacts of artificial reefs, among other things. Also, there were discrepancies between data on Florida charter boat license sales that were used by Zales and Lukens. After some discussion, the discrepancy was not resolved, but was likely due to counties that were included and fiscal year designations. Zales reported that for the west coast of Florida charter boat license sales, fewer boats were operating in 1993 than in 1992. Lukens reported that the numbers remained the same.

Holiman refocused the workshop participants on the original point of the workshop, indicating that, while discussions regarding methodologies and data validity are useful, the real purpose is to determine if any data or information presented during the workshop would corroborate or refute the estimates provided by the MRFSS for 1992 and 1993. Lukens agreed with that statement.

Bob Dixon, NMFS Beaufort Head Boat Survey, indicated that the head boat catch for the Florida west coast and the Gulf of Mexico, not including the Florida Keys, show slight increases, 9 to 10%, for most catches. Red snapper total weight did not increase for the Gulf of Mexico, but the total weight of the head boat catch did increase by about 69%. The head boat total catch for the Florida west coast increased about 9%. He felt that the head boat data support the notion that there was a real event between 1992 and 1993 which resulted in an increase in red snapper catch.

WORKSHOP CONCLUSION

Lukens offered the following conclusion to the workshop, and asked the workshop participants to respond: None of the data or information presented during the workshop refutes the estimates for the charter boat fishery during 1992 and 1993. Atran felt that it was not a strong enough statement to say that the workshop results do not refute the MRFSS data. He preferred to make the conclusion a positive statement. Lukens offered that there is a great deal of difference in saying that you agree with a number and saying that you have no evidence that leads you to disagree with that number. Zales stated that he does believe that there is evidence to refute the MRFSS estimates, and points to the Florida charter boat license sales as that evidence. Zales agreed that there was an increase in red snapper harvest, he disagreed with the magnitude of the increase evidenced in the MRFSS data. Horn expressed that he thinks the statement is acceptable, since the group as a whole agrees with it; although, he stated that he should not be involved in accepting or rejecting a statement on behalf of the workshop, because his role is to listen and provide information. Atran clarified that he also does not want to say that the workshop agrees with the MRFSS, but that the statement offered by Lukens is weak. Holiman suggested a way to strengthen Lukens' statement by saying that the data and information presented during the workshop leads to the conclusion that the increase in charter boat effort and charter boat harvest of red snapper from 1992 to 1993 represent a real event. There followed some discussion of Holiman's statement. A number of additional comments were made regarding specific wording of the conclusion statement for the workshop. The following is the final statement agreed to by all workshop participants:

An evaluation of existing data leads to the conclusion that the increase in total charter boat effort and charter boat harvest of red snapper in 1993 and 1994, relative to the estimates for 1992, represents a real event. Nothing presented in the workshop refutes the estimates provided by the National Marine Fisheries Service's Marine Recreational Fishery Statistics Survey.

There was agreement among the workshop participants that the RecFIN(SE) Committee should conduct an activity to investigate alternative methodologies to monitor catch and effort of the charter boat fisheries.

There being no further business, the workshop adjourned at 12:00 noon.

ATTACHMENT 1

Marine Recreational Fisheries Statistics Survey:

Red Snapper in the Gulf of Mexico, 1986-1995

Gerry Gray, Statistician

Marine Recreational Fisheries Statistics Program

Contributors: Maury Osborn, Liz Pritchard, Ron Salz, Dave VanVoorhees

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INTRODUCTION

Marine Recreational Fisheries Statistics Survey (MRFSS) red snapper estimates in the Gulf of Mexico showed an increase over the 1990 to 1993 time period (Figure 1). Due to the large change in the Gulf of Mexico charter mode estimates for red snapper between 1992 and 1993, there were many questions raised about the validity of the MRFSS estimates. MRFSS staff investigated the differences as thoroughly as possible. This document contains a summary of those investigations.

MRFSS catch estimates are calculated as a product of three factors: estimated fishing trips by coastal residents, the ratio of non-coastal to coastal angler trips (to account for trips by non-coastal anglers) and the catch per trip. An additional factor, the average weight per fish, is used to estimate the total weight harvested.

ALL FOUR OF THESE FACTORS INCREASED BETWEEN 1992 AND 1993. MRFSS staff investigated each factor carefully, and were unable to find any errors that would account for changes of this magnitude. Thus we are forced to conclude that the increase is a real event in the red snapper fishery.

MRFSS red snapper total catch, Gulf of Mexico 1981-1995

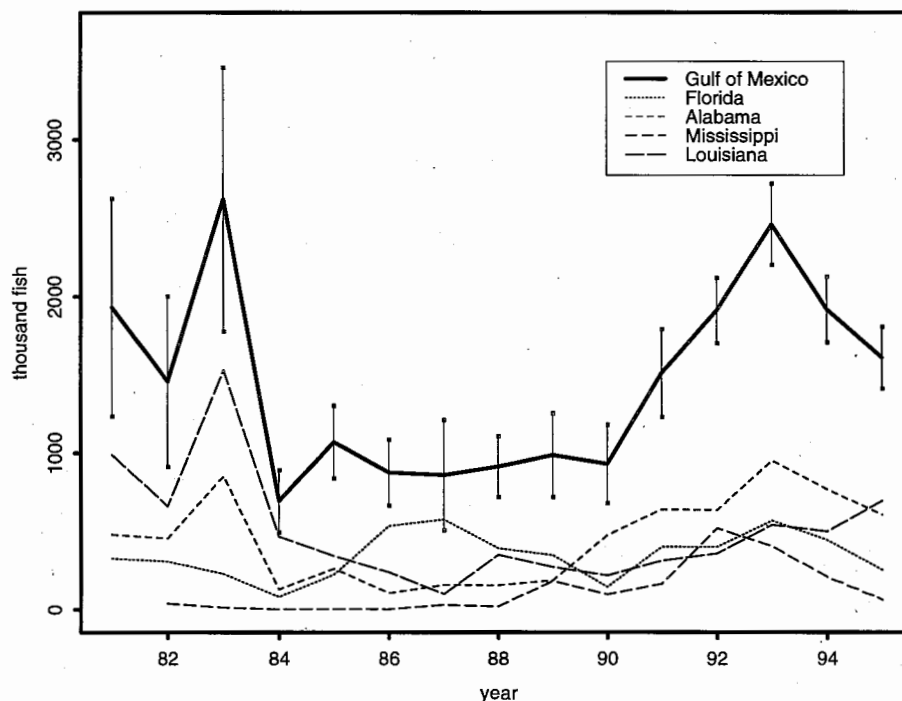


Figure 1. MRFSS red snapper total catch (including releases) for the Gulf of Mexico, 1981-1995. Vertical bars indicate 95% confidence intervals.

Since a large portion of the red snapper catch comes from the charterboat modes, it is not surprising that the trend in the charter boat fishery followed along the same lines (Figure 2). The charter boat mode can account for anywhere from about 1% up to about 70% of the total red snapper catch, depending on the state and year.

MRFSS Red Snapper charter mode total catch, Gulf of Mexico 1981-1995

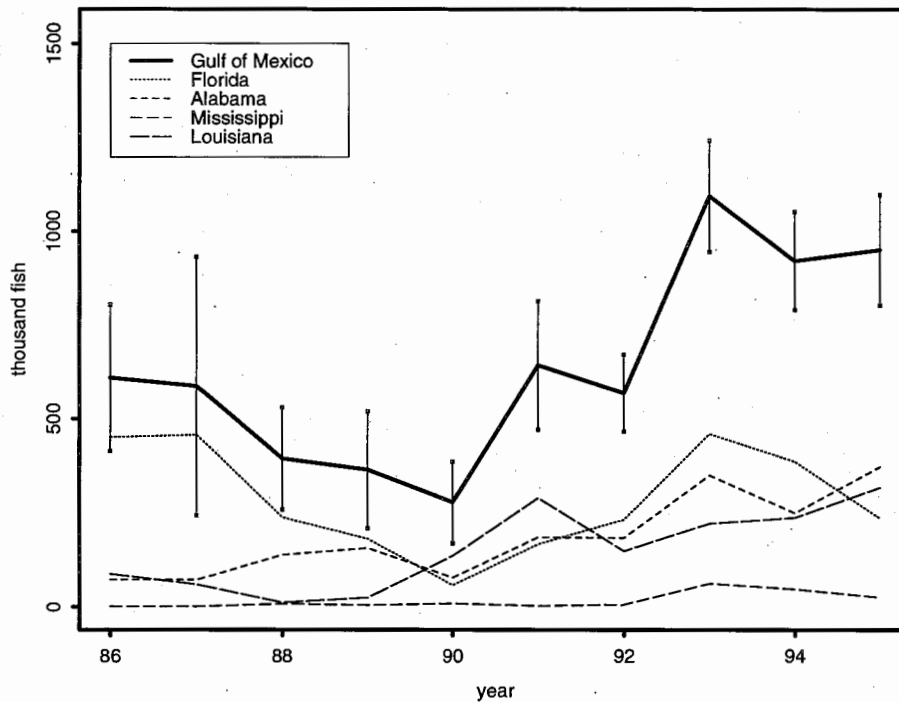


Figure 2. MRFSS red snapper total catch (including releases) for the Gulf of Mexico charter mode, 1986-1995. Vertical bars indicate 95% confidence intervals.

The charter boat catch red snapper catch shows a sharp increase between 1990 and 1991, catch dropped off somewhat in 1992 (perhaps partly explained by hurricane Andrew, which hit Florida and Louisiana in late August of 1992). Then in 1993 there was another, even larger, increase in catch. Catch dropped off slightly in 1994 and 1995.

Except for the drop in 1992, red snapper catch levels have shown an increasing trend since a low in 1990.

Focusing in on the sharpest change, the MRFSS Red Snapper catch estimates for the Gulf of Mexico charter mode increased substantially between 1992 and 1993, especially in the charter mode (Table 1).

		1992	1993
Harvested	Charter Boats	309,099	786,488
	Private & Rental Boats	663,219	703,771
	Total (including shore)	972,318	1,494,515
Released Alive	Charter Boats	259,499	306,825
	Private & Rental Boats	663,027	654,309
	Total (including shore)	936,044	963,742

Table 1. MRFSS Red Snapper catch estimates (number of fish) for the Gulf of Mexico, 1992 and 1993. The total includes a slight amount of catch by shore mode anglers.

The estimated weight caught increased even more (Table 2), again almost entirely in the charter boat mode.

		1992	1993
Weight Harvested (pounds)	Charter Boats	753,529	2,039,108
	Private & Rental Boats	1,859,901	2,086,411
	Total (including shore)	2,613,430	4,135,996

Table 2. MRFSS Red Snapper catch estimates (pounds of fish) for the Gulf of Mexico, 1992 and 1993. The total includes a slight amount of catch by shore mode anglers.

WEST FLORIDA ESTIMATES

The overwhelming majority of the catch (and the increase) occurred in West Florida, so the remainder of this report concentrates on that state. See appendix I for detailed tables of Red Snapper estimates for the entire Gulf of Mexico in 1992 and 1993. The Red Snapper

catch estimates for West Florida are given in Table 3.

		1992	1993
Number Harvested	Charter Boats	113,826	404,587
	Private & Rental Boats	51,461	46,338
	Total (including shore)	165,287	454,830
Number Released Alive	Charter Boats	118,396	55,246
	Private & Rental Boats	101,451	53,601
	Total (including shore)	233,365	111,454
Weight Harvested (pounds)	Charter Boats	228,414	1,012,687
	Private & Rental Boats	152,530	138,067
	Total (including shore)	380,944	1,160,481

Table 3. MRFSS Red Snapper estimates for West Florida, 1992 and 1993. The total includes a slight amount of catch by shore mode anglers.

To summarize for the West Florida Charter fishery:

- The estimated number of charter boat trips for West Florida was 375,048 in 1992 and 615,205 in 1993. This reflects an increase of 64%.
- The charterboat catch per trip for Red Snapper (including those fish released alive) went from 0.619 in 1992 to 0.747 in 1993.
- Of that catch, 49.0% were harvested (kept or thrown back dead) in 1992.
- In 1993 88.0% of the fish caught were either kept or thrown back dead.
- The combination of these two factors - the increased catch rate and the increased proportion of fish kept, led to an increase in the charter harvest rate from 0.304 fish harvested per trip in 1992 to 0.658 in 1993.
- On top of all this, the average weight per fish retained went from 2.01 pounds in 1992 to 2.50 pounds in 1993.
- Thus the estimated fish harvested in this mode increased by a factor of about 3.5 times, due to a 64% increase in the number of trips, a 21% increase in the overall catch rate (including releases), and a 79% increase in the percent of fish that were kept ($1.64 \times 1.21 \times 1.79 = 3.55$).
- The weight estimate increased by a factor of about 4.4 due to all of the above plus a 24% increase in the mean weight per harvested fish.

The following sections will examine each of these factors in more detail.

TRIPS PER COASTAL HOUSEHOLD

West Florida coastal resident trips per household in the charter mode have been increasing steadily since reaching a low in 1990 (Figure 3). Note that an increase in the sample size in 1990 produced much less variable estimates. There was a further increase in the sample size from 1992 onwards.

MRFSS West Florida charter mode trips per coastal household, 1986-1995

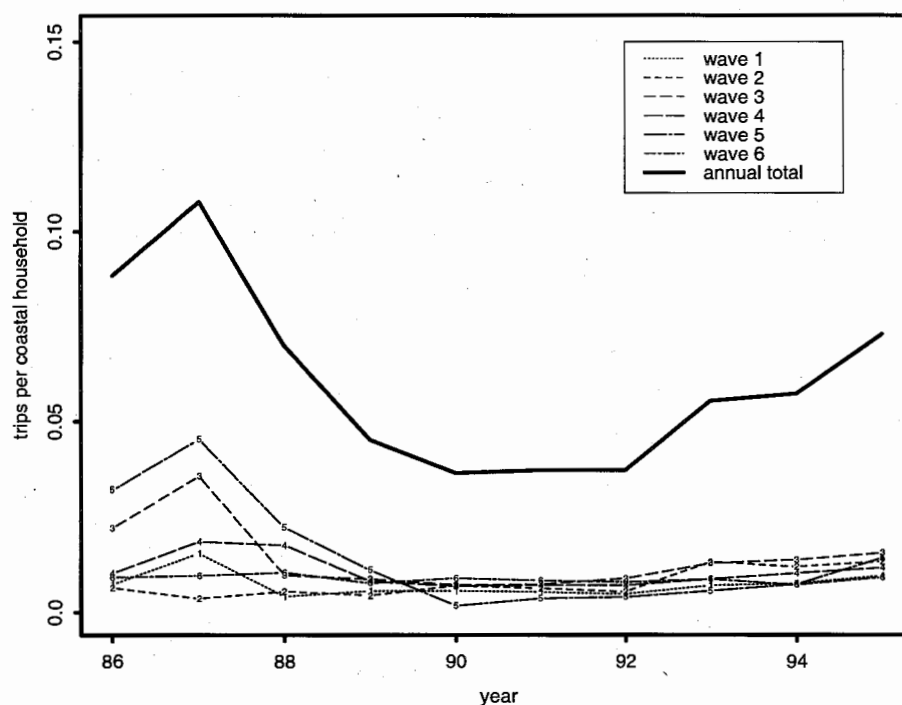


Figure 3. MRFSS West Florida coastal resident trips per household, 1986-1995. The MRFSS survey divides the year into two month periods called "waves". Wave 1 covers January and February, wave 2 covers March and April, etcetera. The solid line shows the trips per household averaged over all waves.

There were 2,269,700 coastal county households in West Florida in 1992. This number increased to 2,313,800 in 1993 (about a 2% increase). The MRFSS telephone survey contacted more than 50,000 households in West Florida in each of 1992 and 1993. The mean number of fishing trips per coastal household for 1992 and 1993 are given in table 4.

		1992	1993
Trips per Household	Shore mode	1.9185	1.7243
	Charter mode	0.0372	0.0554
	Private/Rental mode	2.3677	2.1000

Table 4. MRFSS mean number of fishing trips per coastal county household per year for West Florida.

MRFSS estimates of charter mode trips by coastal county residents thus went from 84,330¹ ($2,269,700 \times 0.0372$) in 1992 to 128,070 in 1993.

Note that the shore and private/rental modes did not show the same increase. This probably rules out any changes caused by across the board procedural differences in the telephone survey between 1992 and 1993.

Participation rates (percent of households contacted that have taken any charter trips in the previous 2 months) have generally followed the same trends as the trips per household shown in Figure 3. From 1992 through 1995 more coastal households have participated in the charter fishery.

¹NOTE: Numbers reported in this document have been rounded. Thus some of the calculations presented will not show the exact result, but may be off by some small percentage due to rounding. In the estimation procedures themselves, no rounding is done.

NON-COASTAL TRIPS

The proportion of non-coastal and out-of-state residents in the West Florida charter mode has been increasing steadily over the last 10 years (Figure 4).

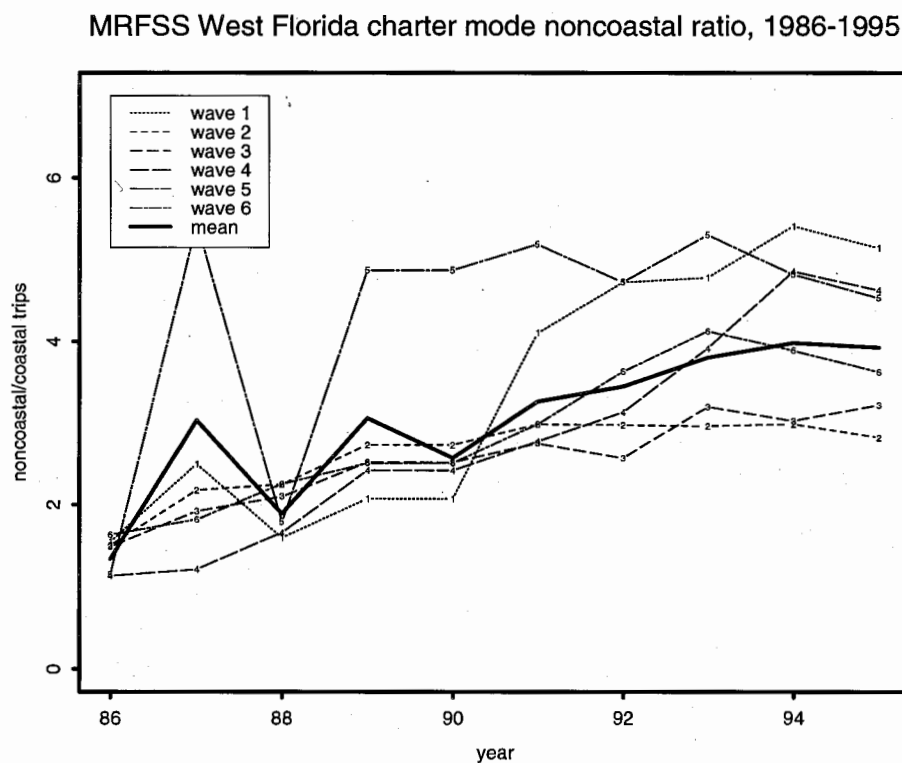


Figure 4. Ratio of noncoastal to coastal trips from MRFSS intercept data for West Florida charter mode, 1986-1995.

In 1992 there were approximately 3.45 non-coastal angler trips for each coastal angler trip in the charter mode. This ratio increased to 3.80 in 1993, and remained high in 1994 and 1995.

TOTAL TRIPS

The total trip estimate is the sum of the noncoastal and the coastal components. Thus the total trip estimate for the West Florida charter mode went from 375,048 (84,330 coastal trips plus $84,330 \times 3.45$ non-coastal trips) in 1992 to 615,205 in 1993. Figure 5 shows the West Florida charter mode trip estimates from 1986 to 1995.

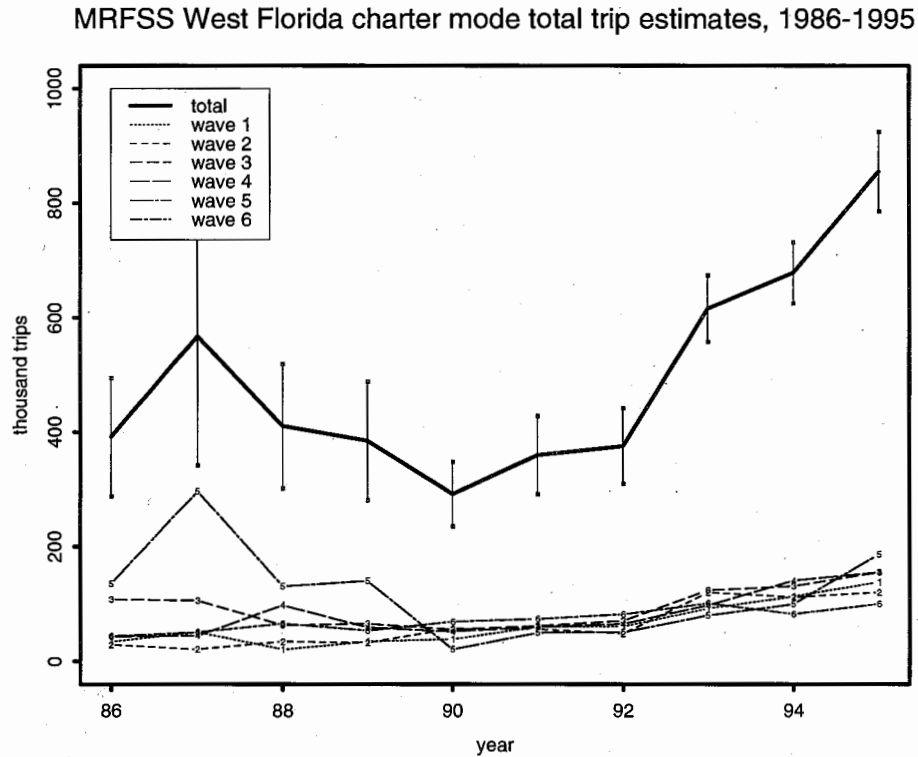


Figure 5. MRFSS West Florida charter mode trip estimates, 1986-1995. The solid line indicates the sum of the 6 waves for each year.

An independent survey of the charterboat fishery in the Gulf of Mexico is operated out of Panama City, Florida. Although the Panama City survey does not collect information needed to estimate total trips, and because of methodological differences, cannot be directly compared to the MRFSS, the number of trips reported by participants in this survey increased by 28% between 1992 and 1993.

CATCH PER TRIP

The Red Snapper catch per trip has fluctuated over the years (Figure 6). From 1990 to 1993 the catch per trip increased steadily, reaching a maximum of 0.747 in 1993. This was an increase of 21% over the 1992 value of 0.619.

A strong 1989 year class entered the fishery in the early 1990's and produced a peak in the catch per trip in 1993. This may also account for the increased percentage of harvested fish, shown by the dashed line in Figure 6.

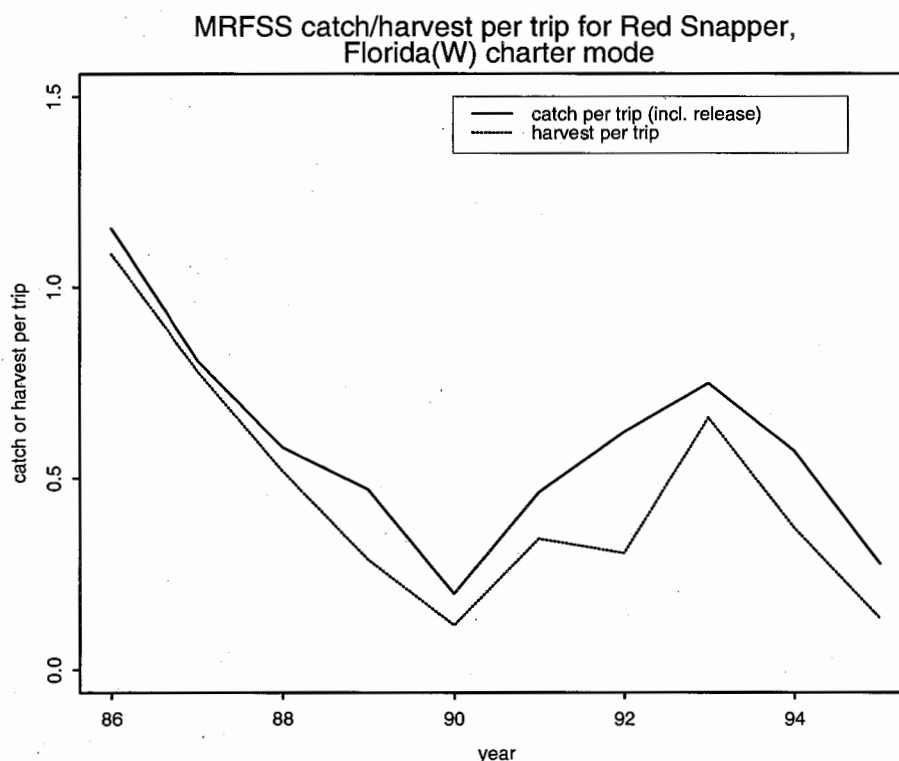


Figure 6. MRFSS West Florida charter mode Red Snapper catch per trip and harvest per trip, 1986-1995. Total catch includes fish thrown back alive. Harvest includes fish retained as well as any fish thrown back dead.

MEAN WEIGHT

The mean weight for Red Snapper in West Florida has fluctuated quite a bit over the last ten years. After a sharp increase to a peak in 1990, there was a notable dropoff in 1991. From 1991 to 1994 there was a slight increasing trend. This is shown in Figure 7. Again, a large increase in sample size in 1991-1995 shows up as much smaller confidence bounds on estimates for these years.

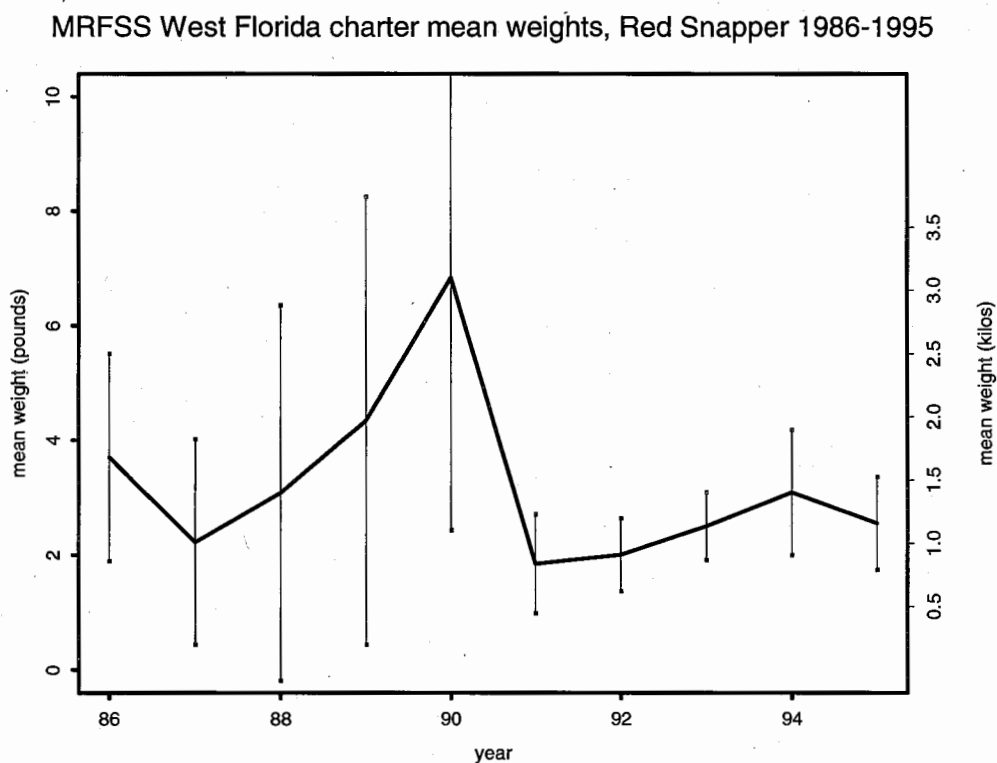


Figure 7. MRFSS West Florida charter mode Red Snapper mean weights, 1986-1995. The vertical bars indicate 95% confidence intervals.

POTENTIAL OUTLIERS

One potential explanation for a large increase in trip estimates may be the presence of a few very large observations (called "outliers") in the data.

Reduction of large outliers is a standard procedure in producing MRFSS estimates. If any single household has a number of trips that exceeds the 95th percentile from the previous 4 years in the same mode, then the number of trips is reduced to that 95th percentile in the estimation procedures. This reduces the trip estimates somewhat, but ensures that there will not be any wild swings in the estimates due to a few households that take a very large number of trips. In the charter mode, this 95th percentile is usually about 6 or 7 trips per household, depending on the state, wave, and year.

MRFSS staff examined the data thoroughly for outliers. There are very few large values in the charter mode telephone data. Table 5 shows the raw MRFSS telephone data for the charter mode in West Florida for 1992 and 1993. The entries in the table show the number of charter trips each household took, by wave. The vast majority of households did not fish in that mode and are indicated as 0 trips per household. Note that the numbers are trips per household, not per angler. A household with three anglers who each took 4 charter trips would have a total of 12 trips.

Number of charter trips per household

wave	year	0	1	2	3	4	5	6	7	8	9	≥10
1	1992	7,956	8	3	1							
	1993	8,348	13	9	2	3		3				2
2	1992	9,518	17	8	2	1		2				
	1993	9,826	17	22	6	6	1	2				1
3	1992	11,572	24	26	5	6	1	2				
	1993	10,996	15	29	9	13	3	4				
4	1992	8,801	24	14	1		1	1	1			2
	1993	11,712	55	17	6	2						
5	1992	6,364	11	2		1					1	
	1993	7,900	23	12		2		3	1	1		1
6	1992	7,107	9	5		2						1
	1993	7644	24	10	1	2	1	1	1			1

Table 5. Number of charter mode trips per household in the MRFSS West Florida telephone data for 1992 and 1993. The MRFSS survey divides the year into two month periods called "waves". Wave 1 covers January and February, wave 2 covers March and April, etcetera.

POOLING

MRFSS estimates for the party and charter modes use a technique called pooling to smooth out year-to-year fluctuations. This pooling is accomplished by using the current year plus the previous four years of data to calculate mean trips per coastal household and to calculate the ratio of non-coastal to coastal residents. Thus, both of these factors (in the party and charter modes only) are actually moving averages covering the most recent five years. The catch per trip and the mean weight per trip are based only on the current year's data.

Since both the trips per coastal household and the non-coastal resident ratio have been increasing over the last 5 years, the pooling reduces the trip estimate produced in 1993. That is, if no pooling were done the increase from 1992 to 1993 would have been even greater.

CONTRACTOR CHANGES

MRFSS data is collected by contractors conducting two independent surveys: a telephone survey of coastal households, and an interview survey of anglers as they return from fishing. The two contractors are closely monitored by MRFSS staff to ensure that the data are collected following the proper procedures. However, there was a change in the telephone contractor between the 1992 and 1993 surveys, so some investigation was necessary.

Note that the data collected by the telephone contractor is used only in the calculation of the trips by coastal county residents. It is NOT used to obtain the adjustment for non-coastal residents, to gather catch per trip information, or to obtain fish weights. These three factors all come from the intercept data. The intercept data has been collected by the same contractor since 1987. Thus, even if the telephone data had given the same result in 1993 as 1992, the estimated red snapper harvest would still have increased by approximately a factor of 2.17 (a 21% catch rate increase multiplied by a 79% increase in the percentage of fish kept). Similarly the weight would have increased by a factor of about 2.68.

The telephone contractor is well aware of the sensitivity to their data collection. Especially in the charter and party boat modes, they make every effort to ensure that the data is correct. Telephone interviewers are trained extensively in the definitions of the various modes of fishing. If any household has more trips than the outlier cutoff (usually 6 or 7 trips, depending on the wave) in the party or the charter mode, the contractor will call back several days later to verify the information for that household. In addition, during the standard interview, if an angler reports a charter mode trip the interviewer will verify the mode of the trip and that the respondent is not a charterboat operator or crewmember. This helps eliminate any errors due to misunderstanding of the questionnaire.

OTHER SPECIES TARGETED

King mackerel are another major target species for the charter boat mode in the Gulf of Mexico. MRFSS data for the charterboat king mackerel fishery shows a generally increasing trend from a low in 1985 (Figure 8).

MRFSS King Mackerel charter mode total catch, Gulf of Mexico 1986-1995

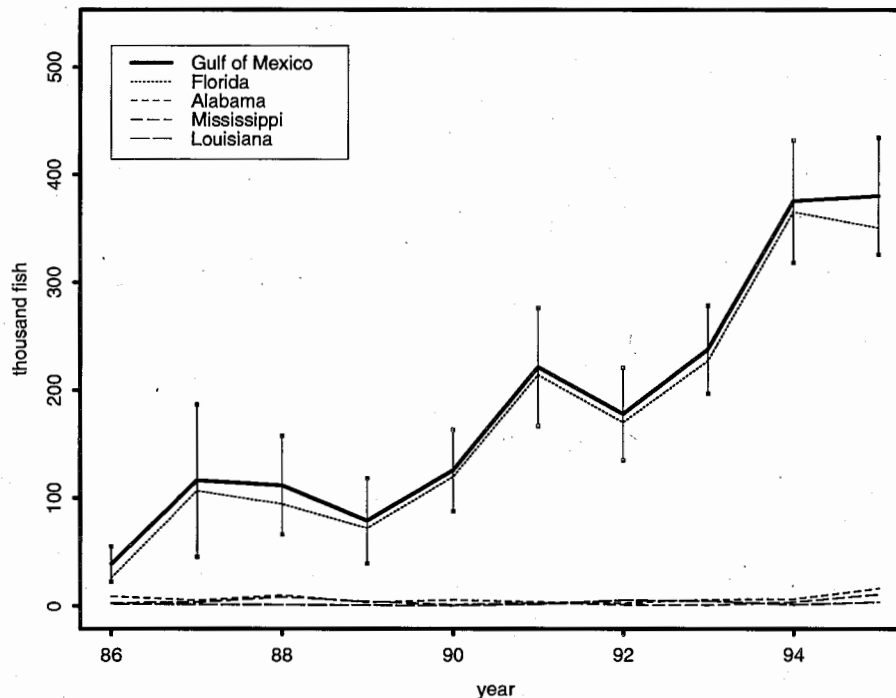


Figure 8. MRFSS king mackerel total catch (including releases) for the Gulf of Mexico charter mode, 1986-1995. Vertical bars indicate 95% confidence intervals.

Note that for this species as well 1992 was a low year, again possibly influenced by hurricane Andrew. There is no indication that the 1993 estimate of total king mackerel catch is beyond the ordinary. The king mackerel and red snapper catch estimates are both based on the same estimates of fishing effort. Any increase or reduction in the effort estimates for 1993 will show up equally in the catch estimates for these two species.

Gag are another species commonly caught in the charter mode in West Florida. Gag catch has been increasing at a rapid rate since 1991.

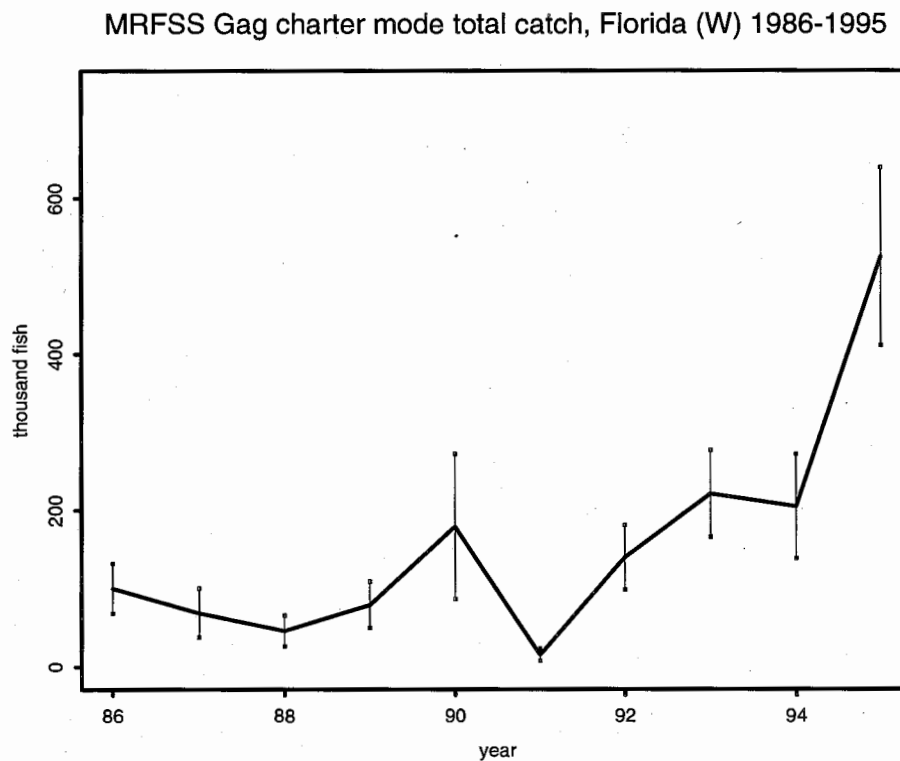


Figure 9. MRFSS gag total catch (including releases) for the West Florida charter mode, 1986-1995. Vertical bars indicate 95% confidence intervals.

Spotted seatrout catch has also increased in this mode since reaching a low in 1990.

MRFS Spotted Seatrout charter mode total catch, Gulf of Mexico 1986-1995

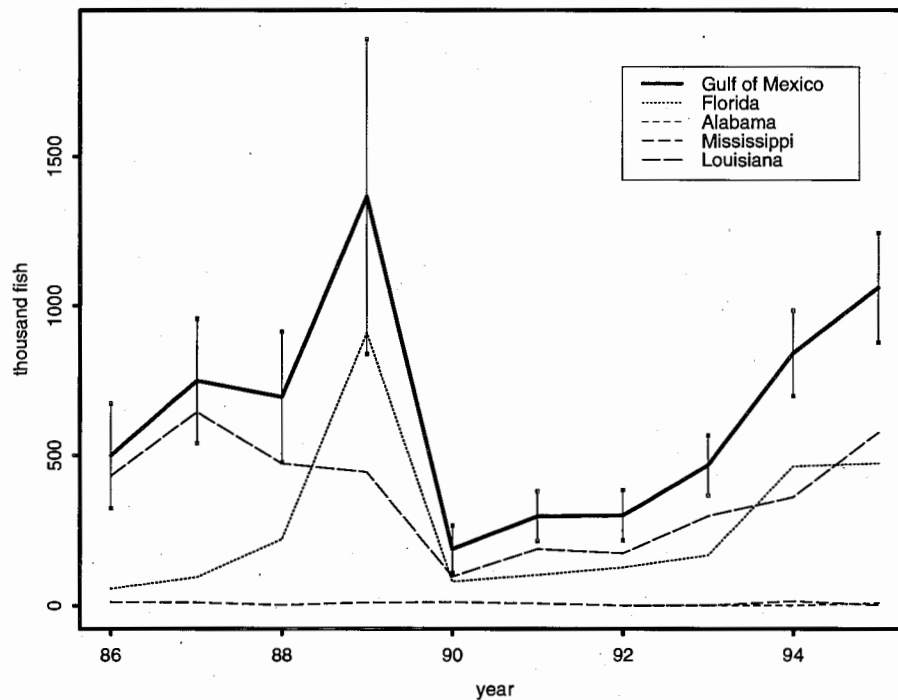


Figure 10. MRFS spotted seatrout total catch (including releases) for the Gulf of Mexico charter mode, 1986-1995. Vertical bars indicate 95% confidence intervals.

Red grouper catch fluctuated quite a bit over the last ten years.

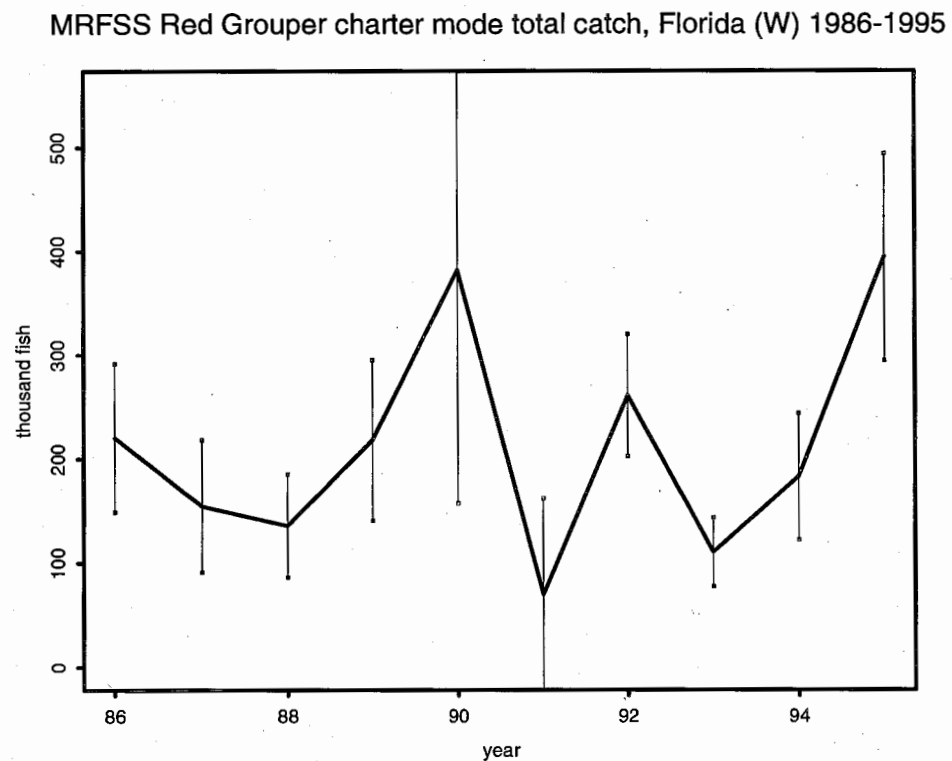


Figure 11. MRFSS red grouper total catch (including releases) for the West Florida charter mode, 1986-1995. Vertical bars indicate 95% confidence intervals.

Gray snapper catch shows a contrasting pattern to the red snapper catch in 1992 and 1993.

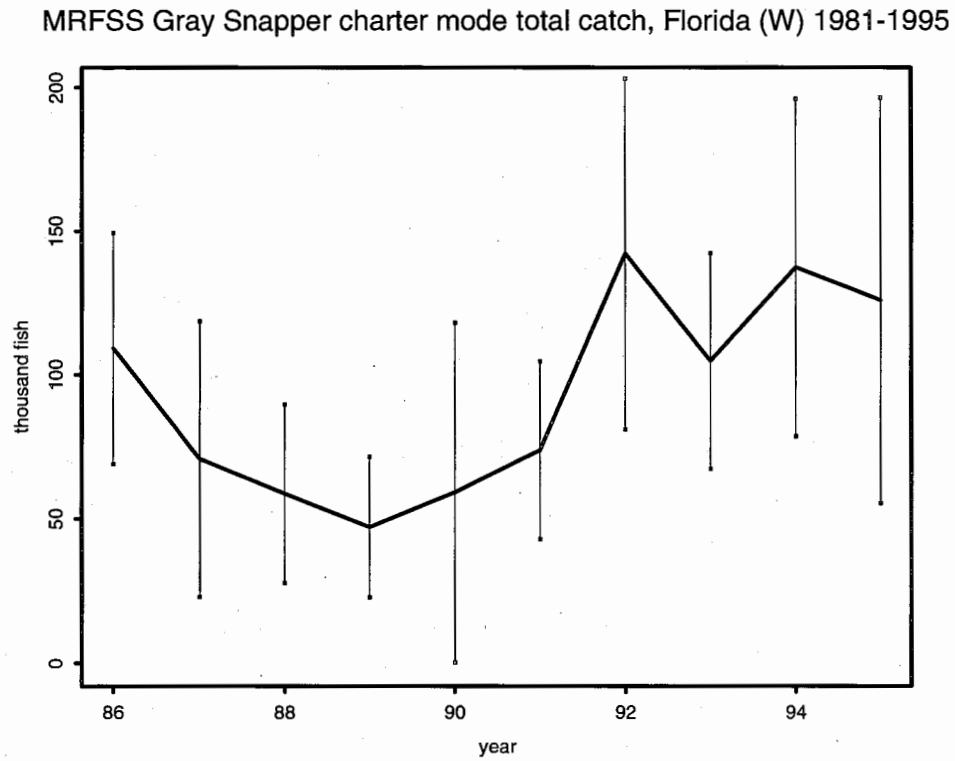


Figure 12. MRFSS gray snapper total catch (including releases) for the West Florida charter mode, 1986-1995. Vertical bars indicate 95% confidence intervals.

Red drum also shows a steady increase since 1991.

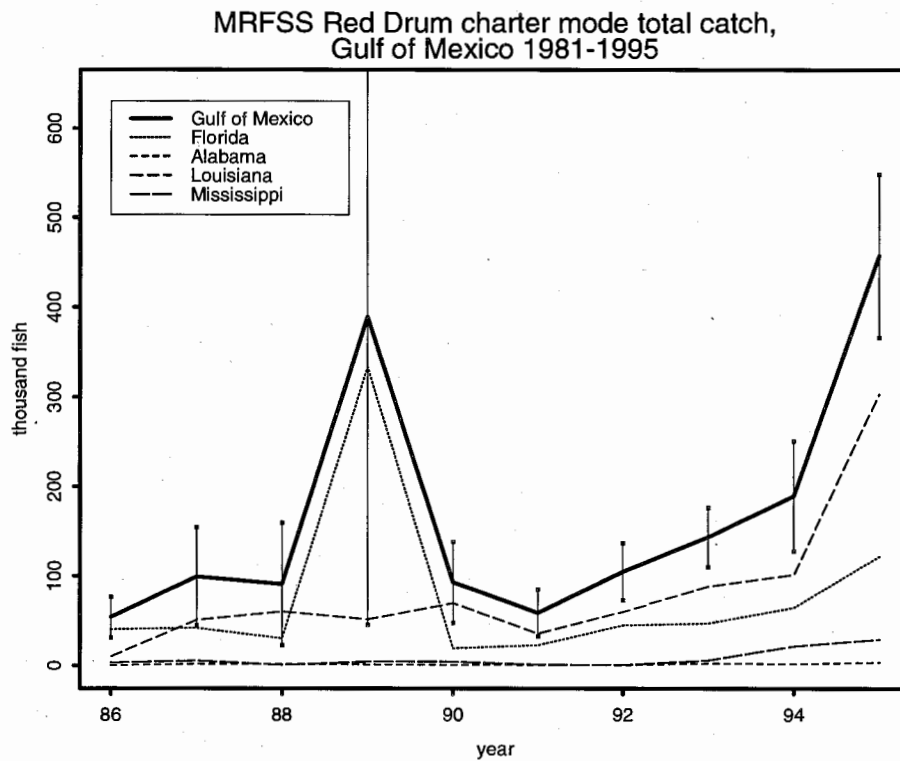


Figure 13. MRFSS red drum total catch (including releases) for the Gulf of Mexico charter mode, 1986-1995. Vertical bars indicate 95% confidence intervals.

Plotting multiple species on a single graph shows that the catch has been increasing steadily over the last five years, generally following the trends in the number of trips. That is, the overall catch per trip in the charter mode has remained fairly constant while the number of trips has increased.

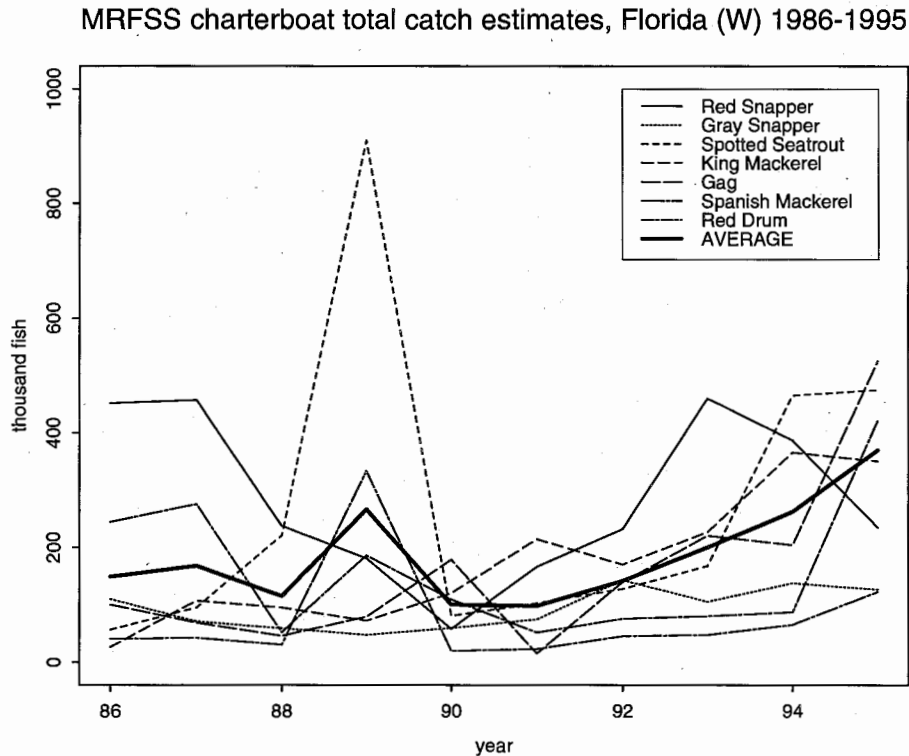


Figure 14. MRFSS total catch (including releases) of selected species for the West Florida charter mode, 1986-1995. Vertical bars indicate 95% confidence intervals.

FOLLOW-UP TELEPHONE SURVEY

In response to the concern about charter mode trips in the Gulf of Mexico, the MRFSS telephone contractor volunteered to collect additional information during the telephone interviewing for wave 5 1995. This consisted of a sequence of questions that were asked of all anglers who reported trips in the charter mode. The first question was intended to gather information directly from the anglers regarding their perception of the relative level of effort in that mode. The question reads as follows:

Earlier, you mentioned having taken (#) party or charter boat fishing trips during the last 2 months. Thinking about your recreational saltwater fishing during the past several years, would you say that your number of party or charter boat trips

*has been **decreasing** during the past 3 or 4 years - 1*
*has remained **about the same** each year for the past 3 or 4 years - 2*
*or, has been **increasing** in the past 3 or 4 years - 3*
(do not read) don't know - 4

The responses are summarized in Table 6.

Charter trips over the last few years

Subregion		decrease	same	increase	don't know	total
Southern	number	13	18	12	4	47
California	percent	28	38	26	8	
Northern	number	5	15	8	3	31
California	percent	16	48	26	10	
Pacific	number	10	10	6	6	32
Northwest	percent	31	31	19	19	
North	number	5	17	5	2	29
Atlantic	percent	17	59	17	7	
Mid	number	17	32	17	15	81
Atlantic	percent	21	39	21	19	
South	number	14	41	22	19	96
Atlantic	percent	14	43	23	20	
Gulf of	number	6	31	26	4	67
Mexico	percent	9	46	39	6	

Table 6. Summary of supplementary charter boat questioning, wave 5, 1995.

Notice that when one compares the results from the South Atlantic and Gulf of Mexico with the other five subregions, there are strong indications that the number of trips per angler has increased differentially in those subregions over the last few years. Due to the nature of the sampling involved (i.e. selecting only those who say they have taken charter trips, and only including coastal residents), one cannot obtain absolute estimates of the increase. Regardless, there is still a strong indication that charter mode activities in these two subregions is changing at a much greater rate than for the other five.

Other questions regarding the actual number of trips taken were asked. In addition, further sampling will be conducted, including callbacks to charter boat households from earlier waves. Full results of this investigation will be made available at a later date.

CONCLUSIONS

An examination of the "factors" that contributed to the difference between the 1992 and 1993 red snapper total harvest estimates in the West Florida charter fishery can be broken down as follows:

SOURCE	FACTOR
coastal resident trips	1.49
noncoastal ratio	<u>1.10</u>
Trip estimate total	1.64
percent retained	<u>1.79</u>
Angler behavior total	1.79
catch per trip	1.21
mean weight per fish	<u>1.24</u>
Biological Factors total	1.50
Total increase	4.40

So, out of a 4.4 fold increase in total weight harvested, we can attribute 1.64 to an increase in the total trip estimate, 1.79 to changes in angler behavior, and 1.50 to changes in catch per trip and weight per fish. That is, we can "factor" the increase as $4.4 = 1.64 \times 1.79 \times 1.50$.

We could also do the "factorization" in terms of trip estimates versus non-trip related estimates as follows:

Trip estimate total	1.64
Non Trip related total	<u>2.69</u>
Total increase	4.40

There is no single factor to which we can attribute the increase, and thus nothing to point to an error in data collection or in the estimation procedures. It seems as if a real increase occurred in the West Florida red snapper fishery in 1993. One might argue that various factors are either an over or an underestimate of the true change, but to have five factors simultaneously off in the same direction is highly unlikely.

After extensive investigation into the data and the estimation procedures, MRFSS staff can find no reason to reject the 1993 Gulf of Mexico red snapper estimates as unreasonable.

ATTACHMENT 2

EVALUATION OF CHARTERBOAT FISHING EFFORT IN NORTHWEST
FLORIDA DURING 1990-1995 BASED ON VOLUNTEERED LOGBOOK DATA

Barbara Palko, Jay Lacey, Sandi Neidetcher, and Lee Trent

Presented at the RECFIN Meeting
January 25 - 26, 1996
New Orleans, Louisiana

Panama City Laboratory Contribution 96-1
2 April 1996

INTRODUCTION

Personnel of our laboratory have designed and managed surveys to determine effort and catch per unit effort (CPUE) by charterboats in the southeastern U. S. since 1982. In 1982-1985 charterboat captains were contracted to maintain daily logs and return the logs weekly (Brusher, et al., 1984). The contractual survey was terminated in 1985 and replaced in 1986 by a mandatory reporting system designed to obtain data for estimating total catch, total effort, and CPUE based on data from randomly selected captains in the southeastern U. S.

Mandatory reporting produced data and information during 1986-1988 but the data were not considered reliable enough to estimate totals. In 1989 the survey was continued using captains who volunteered to maintain logbooks and mail the data to our laboratory.

The objectives of the volunteer logbook survey were to obtain data on CPUE, type and amounts of fishing on a per boat basis, and species composition of the catch by season and area for the southeastern U. S. These types of analyses are illustrated using the 1982-1985 data by Trent et al., 1987.

Recently, the Marine Recreational Fisheries Statistics Survey (MRFSS) reported a significant increase (Fig. 1) in the amount of charterboat fishing effort from west Florida and this estimated increase in effort during 1990-1995 was questioned by fishery managers and some charterboat owners and operators (Zales 1996). The purpose of this report is to evaluate our logbook data and determine if significant changes occurred in charterboat fishing effort in northwest Florida during 1990-1995 based on our data. Changes in effort in the MRFSS were estimated based on telephone contact with fishermen who had chartered and fished on charterboats. Our estimates are based on information provided by charterboat captains.

Specific objectives of this study were to compare, on a per vessel basis, number of trips, hours trolled, hours non-trolled (mostly bottom fishing), and ratio of 'non-trolling hours/total hours fished' among seasons and years. The assumptions were that if charterboat fishing effort for red snapper had changed between years, a significant change would occur in: number of trips, number of hours fished per trip by trolling or non-trolling, or in the portion of time spent non-trolling.

METHODS

The volunteer survey of the charterboat fishery by our laboratory was initiated in November 1988 by mailing out the first of a series of four letters. The first was sent to 1,780 addresses of charterboat captains, owners, personnel, and marinas/docks, inquiring about fishing habits (boat size, fishing methods, boat name, etc.) and whether the party would be interested in participating in our survey. Those who responded favorably responded favorably were sent the second mailing, welcoming them to our survey and telling them a logbook would follow. The third letter was sent to non-respondents, again requesting that they join the survey. Finally, all volunteers were sent a logbook and instructions for filling out and returning the logsheets. Logbooks containing daily forms (Fig. 2) were provided to captains who completed the forms using instructions and definitions provided (Table 1).

The area surveyed by MRFSS was from the Florida-Alabama border to the Monroe-Collier county line in south Florida. Our logbook survey included only northwest Florida, from Mexico Beach to Pensacola.

Fishing effort data from logbooks were compared using a two-way analysis of variance (Steel and Torrie, 1960). Comparisons, on a per vessel basis, of number of trips, hours trolled, and hours non-trolled (response variables) were made with years (1990-1995) and seasons (winter, Jan-Mar; spring, Apr-Jun; summer, Jul-Sep; and fall, Oct-Dec) as the factors investigated. Observations for comparisons were: total numbers of trips, hours trolled, or hours non-trolled by a charterboat within each season and year. All data were used that were reported in the survey, regardless of how infrequently a boat reported. Log transformations were made on the data prior to analysis, to adjust for the strong positive skew for each response variable.

Fractions of total fishing attributable to non-trolling were compared by first isolating the database into adjacent 2-year periods (90-91, 91-92, 92-93, 93-94, and 94-95) for each boat that fished during the 2 years being referenced, and using only data from months that the boat fished in both years. This approach was used because most boats for which we had data: 1. did not report for each of the five years and 2. a particular boat did not usually fish or report for the same set of months in adjacent years. The means by month and year were plotted and the data interpreted visually.

RESULTS

Annual and seasonal means and results of statistical comparisons of effort variables for trips, hours trolled, and hours non-trolled are reported in Tables 2 to 4. None of the differences among years were significant. Mean values for each variable are plotted by year and by season in Figures 3 to 5. There were slight increases in annual means for trips and hours non-trolled from 1991 to 1993 and for hours trolled from 1991 to 1992, but decreases occurred from 1993 to 1995 for trips and from 1994 to 1995 for non-trolled hours. Trolling among years increased from 1993 to 1995.

Seasonal differences were significant at the 95% level for trips and hours non-trolled and at the 90% level for hours trolled. For trips and hours trolled, means were least in winter and highest in summer; for hours non-trolled, the mean was highest in spring.

Non-trolling fractions of the total fishing hours tended to peak during spring and fall months and to decrease during the warmest months (Fig. 6). This drop during the summer probably resulted from boats switching to trolling for king mackerel and other coastal pelagic species. The fractions of fishing between adjacent years were similar and did not indicate a switch to bottom fishing for red snapper during any of the adjacent years.

DISCUSSION

According to MRFSS, fishing effort by charterboats in West Florida was estimated to increase from about 300,000 person-trips in 1990 to about 800,000 person-trips in 1995 (Fig. 1). In just one year, the total person-trip estimate increased from 375,048 in 1992 to 615,205 in 1993. Because of the large change in the Gulf of Mexico charter mode estimates for red snapper between 1992 and 1993, there were many questions raised about the validity of the estimates.

Based on estimates from several data sources, Capt. Robert Zales (Zales, 1996) concluded that fishing effort had not increased over the period 1990-1995. The information Zales provided was from personal records and knowledge, other captains records, personal communications with other charterboat captains, public information from tourist development councils, the state of Florida, and our Panama City Laboratory database analyzed differently than the methods used in this report.

Data from our charterboat survey in one area of west Florida did not support the conclusions drawn in the MRFSS survey that effort had increased significantly over the 5-year period. We did not have sufficient data to represent west Florida and were limited to a determination for a small part of west Florida. We were not able to compare our data with data from the MRFSS from northwest Florida because their survey was not designed to provide information from such a small geographic area.

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1996. The importance of accurate survey information: A charter fishing industry perspective. Special Report presented at RECFIN meeting, Jan. 25-26, 1996, New Orleans, La.

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MRFSS West Florida charter mode total trip estimates, 1986-1995

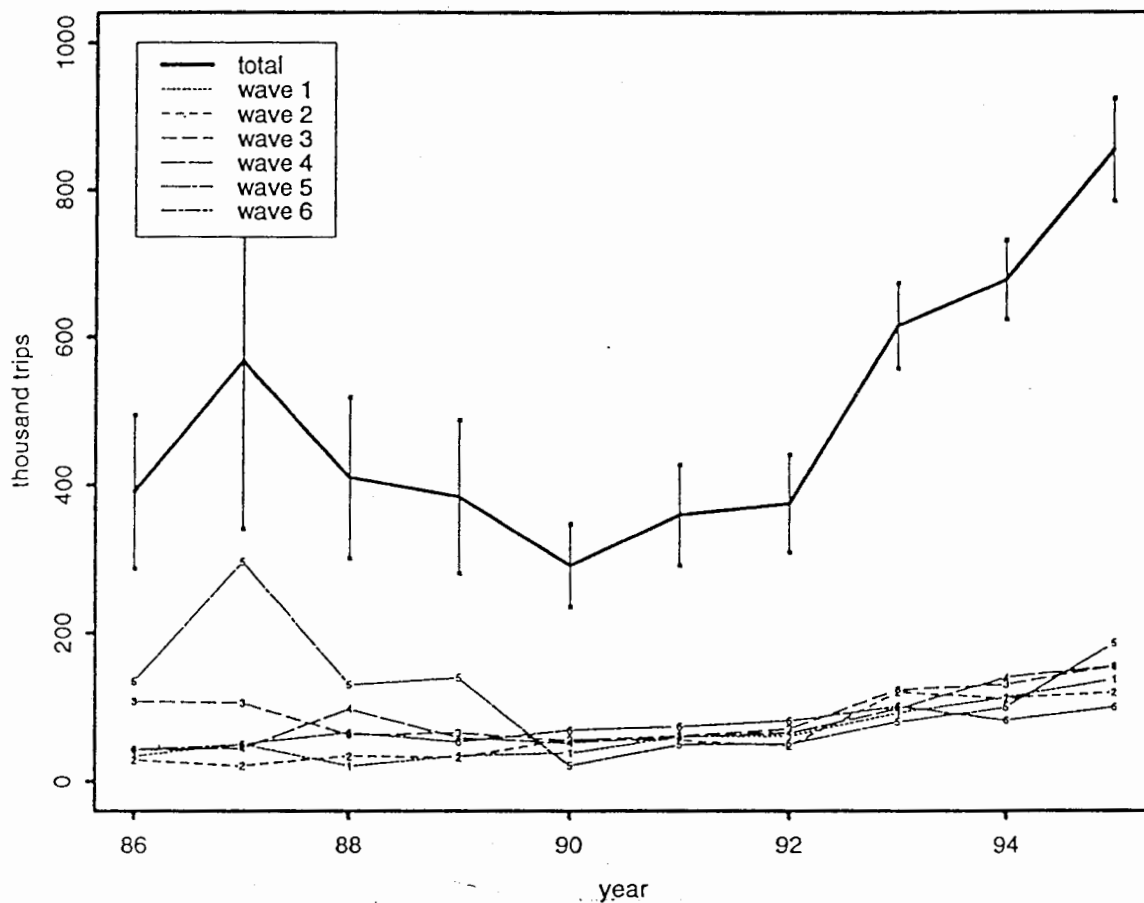


Figure 1. MRFSS West Florida charter mode trip estimates, 1986-1995. Taken directly from MRFSS 1996 (Gray, et al. 1996); trips are person trips.

Captain: Please make a separate log for each trip of the day.

Year

Non-troll

Spanish mackerel

Landing Site (City and State)

[illegible]

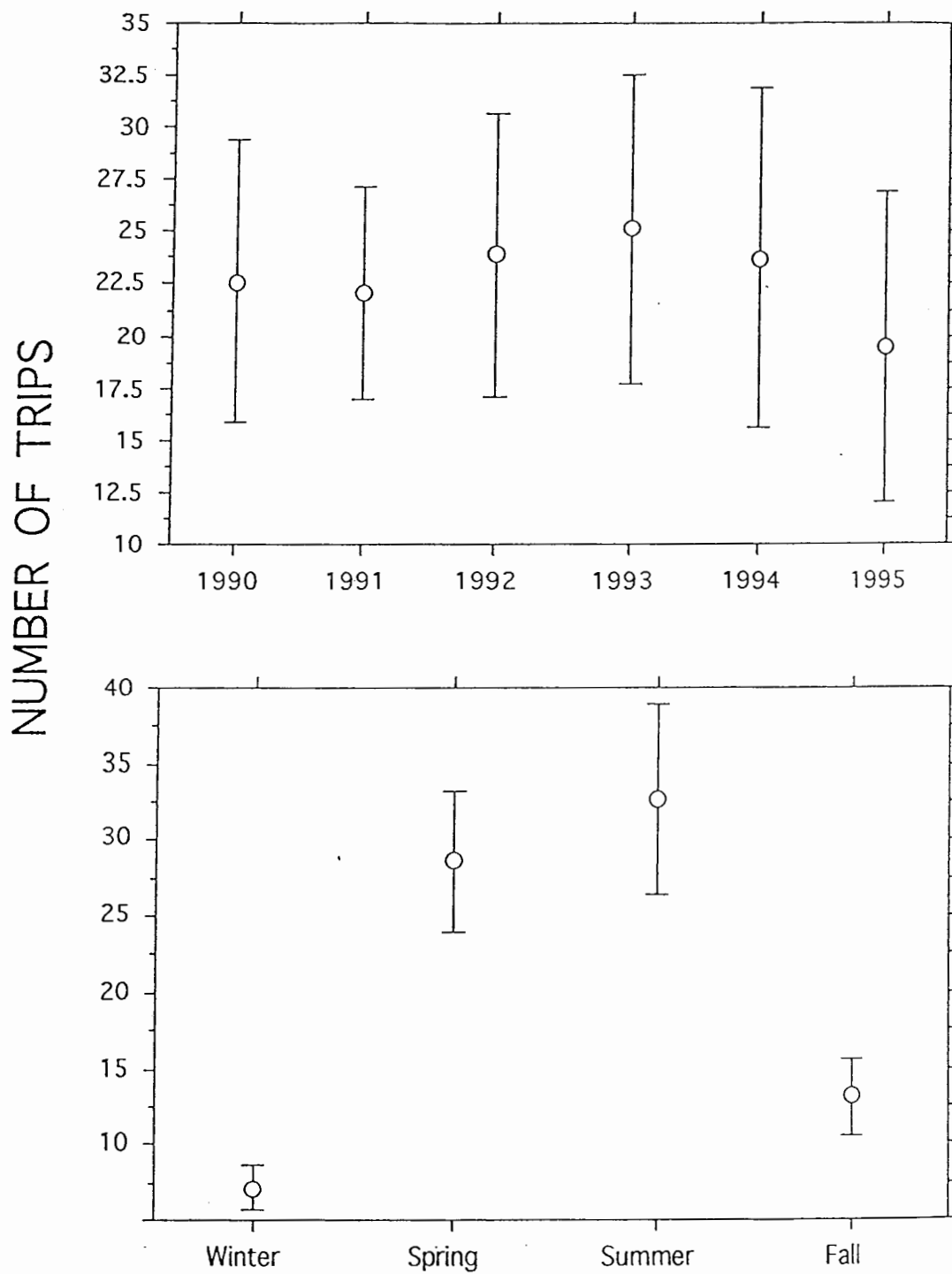


Figure 3. Comparisons of mean number of trips among years and seasons, and 95% confidence intervals of means

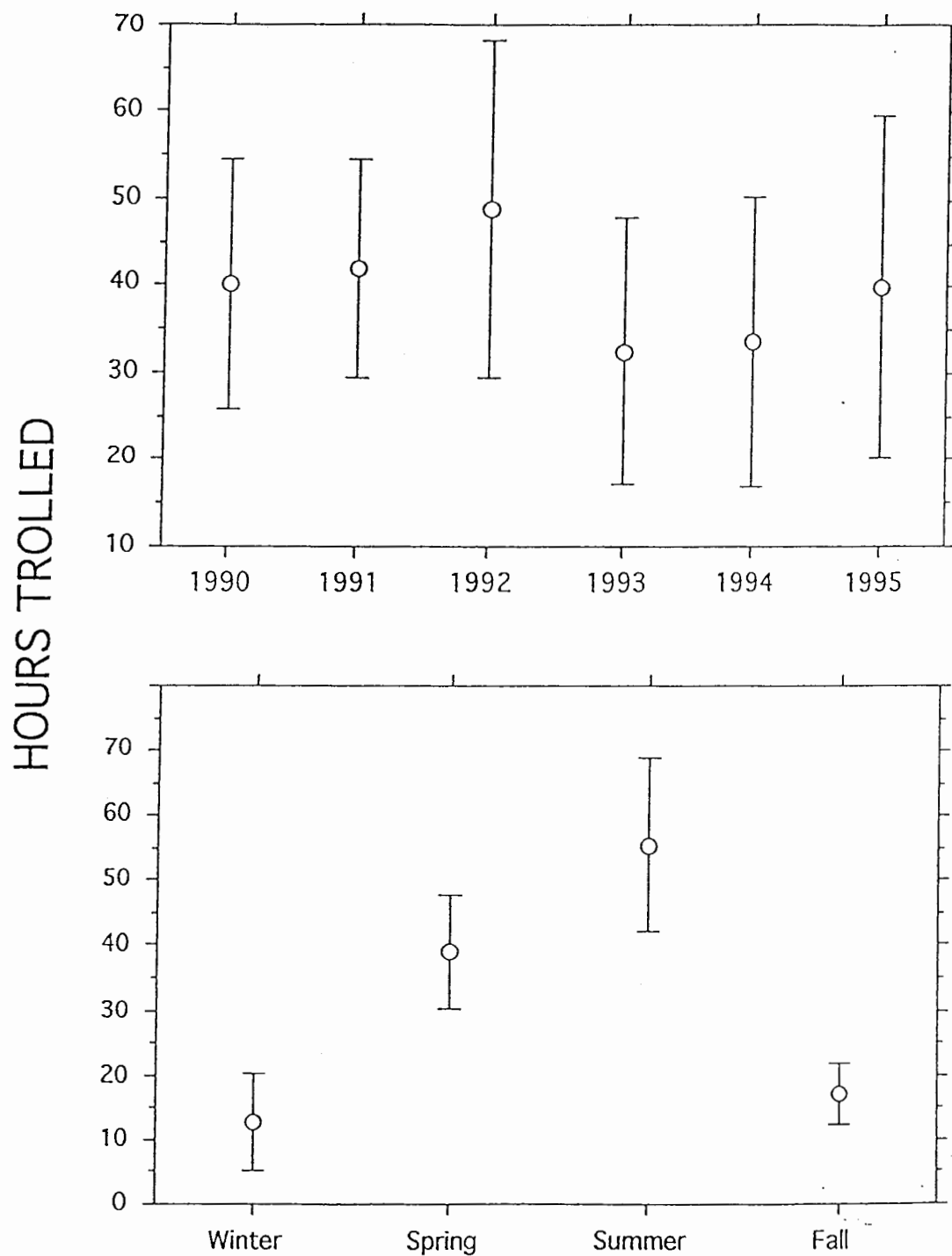


Figure 4. Comparisons of mean number of hours trolling among years and seasons, and 95% confidence intervals of means

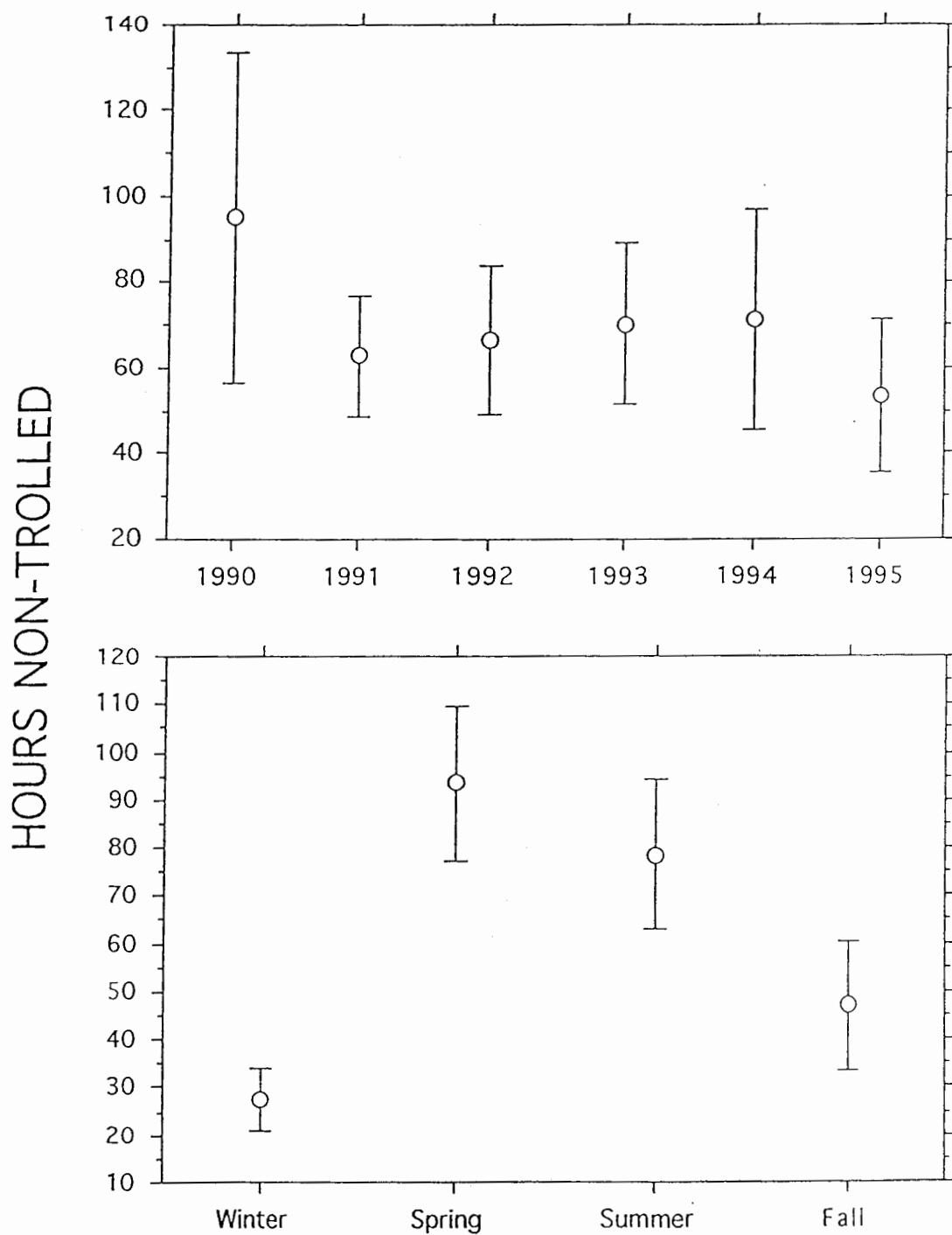


Figure 5. Comparisons of mean number of hours non-trolling among years and seasons, and 95% confidence intervals of means

FRACTION

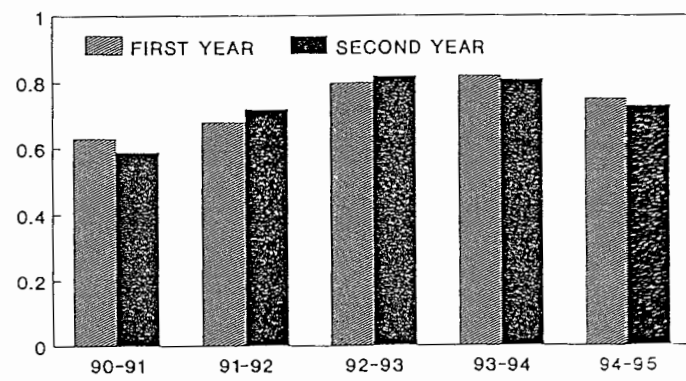
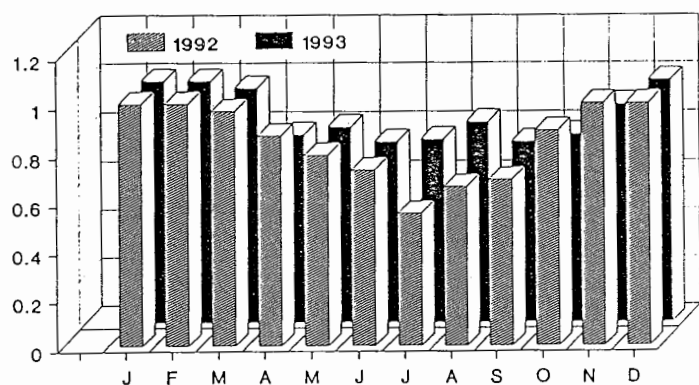
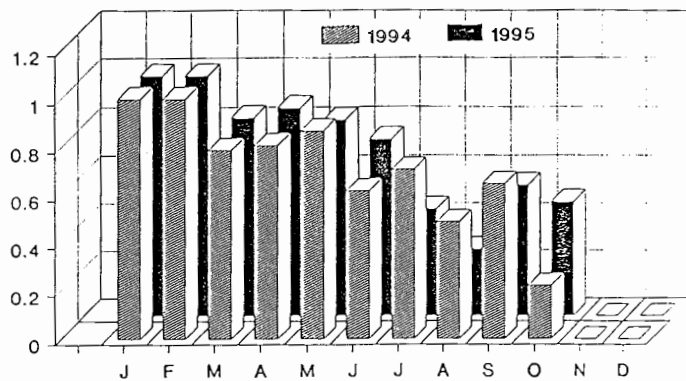
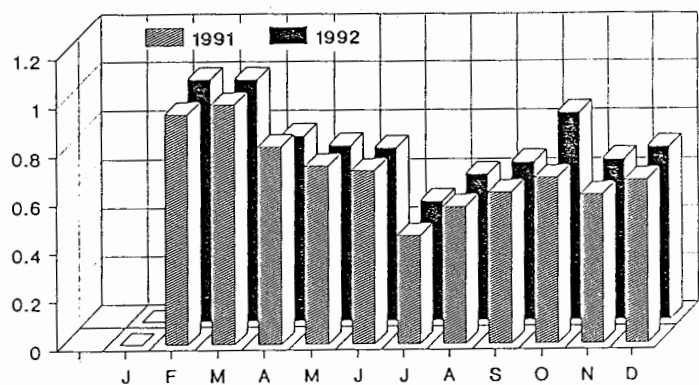
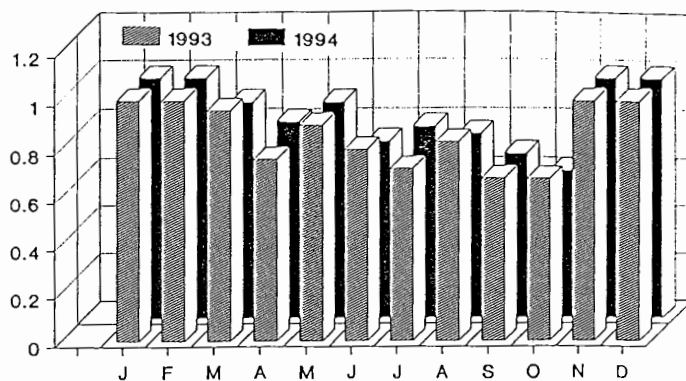
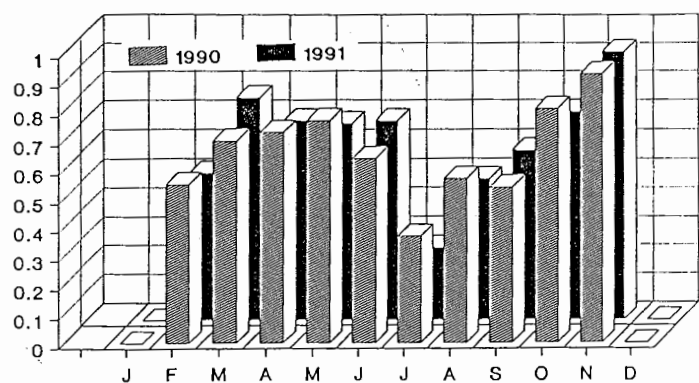


Figure 6. Fraction of total fishing trips spent non-trolling by month and year for paired-year data

Table 1. Instructions provided to captains of charterboats for filling out log forms.

For each trip, please print the date and number of anglers and:

- * Record the number of hours fished (in estuarine or oceanic waters) to the nearest 1/2 hour for each method fished.
- * Trolling includes fishing methods where baits are moved through the water with the boat under power.
- * Non-trolling includes fishing methods used while the boat is stationary (bottom fishing) or drifting (live baiting, casting).
- * If fishing for king or Spanish mackerel please indicate actual times spent trying for those species.
- * Check () the species which you were most interested in catching as the target species whether you caught any or not.
- * For each species and fishing method, please record:
 - A. Number of fish caught and kept
 - B. Number of fish caught and released
 - C. The estimated weight (in pounds) of fish kept.
- * Mail logs at end of fishing week (Saturday through Sunday) in postage paid envelope.
- * Thanks and remember the importance of this survey to future charterboat captains.

Source	df	Sum of Squares	Mean Square	F-Value	P-Value
Year	5	1.198	.240	1.114	.3536
Season	3	13.814	4.605	21.396	.0001
Year * Season	14	.825	.059	.274	.9961
Residual	247	53.158	.215		

Dependent: log(x) of Trips

Means Table

Effect: Year

Dependent: log(x) of Trips

	Count	Mean	Std. Dev.	Std. Error
1990	28	1.176	.451	.085
1991	73	1.087	.529	.062
1992	51	1.128	.541	.076
1993	49	1.164	.502	.072
1994	38	1.127	.504	.082
1995	31	1.049	.485	.087

Means Table

Effect: Season

Dependent: log(x) of Trips

	Count	Mean	Std. Dev.	Std. Error
Winter	55	.715	.380	.051
Spring	103	1.275	.484	.048
Summer	68	1.277	.541	.066
Fall	44	1.016	.317	.048

Table 2. Comparisons of mean number of trips per boat per season by year and season using 2-way ANOVA

Source	df	Sum of Squares	Mean Square	F-Value	P-Value
Year	5	1.789	.358	1.062	.3836
Season	3	2.263	.754	2.239	.0858
Year * Season	15	3.458	.231	.684	.7975
Residual	160	53.915	.337		

Dependent: log(x) of Hours trolled

Means Table

Effect: Year

Dependent: log(x) of Hours trolled

	Count	Mean	Std. Dev.	Std. Error
1990	20	1.409	.516	.115
1991	56	1.318	.565	.076
1992	30	1.332	.674	.123
1993	35	1.139	.619	.105
1994	22	1.200	.629	.134
1995	21	1.359	.522	.114

Means Table

Effect: Season

Dependent: log(x) of Hours trolled

	Count	Mean	Std. Dev.	Std. Error
Winter	15	.823	.557	.144
Spring	77	1.318	.560	.064
Summer	67	1.418	.648	.079
Fall	25	1.118	.355	.071

Table 3. Comparisons of mean number of hours trolling per boat per season by year and season using a 2-way ANOVA

Source	df	Sum of Squares	Mean Square	F-Value	P-Value
Year	5	2.039	.408	2.172	.0580
Season	3	10.373	3.458	18.417	.0001
Year * Season	15	1.964	.131	.697	.7862
Residual	239	44.872	.188		

Dependent: log(x) of hours nontrolled

Means Table

Effect: Year

Dependent: log(x) of hours nontrolled

	Count	Mean	Std. Dev.	Std. Error
1990	26	1.721	.531	.104
1991	71	1.569	.496	.059
1992	51	1.624	.467	.065
1993	47	1.671	.423	.062
1994	38	1.612	.490	.080
1995	30	1.531	.444	.081

Means Table

Effect: Season

Dependent: log(x) of hours nontrolled

	Count	Mean	Std. Dev.	Std. Error
Winter	52	1.281	.385	.053
Spring	90	1.806	.419	.044
Summer	77	1.686	.488	.056
Fall	44	1.496	.417	.063

Table 4. Comparisons of mean number of hours non-trolling per boat per season by year and season using a 2-way ANOVA

ATTACHMENT 3

The Importance of Accurate Survey Information:

A Charter Fishing Industry Perspective

by

Capt. Robert F. Zales, II

February 29, 1996

(Revised March 15, 1996)

**ReeFIN(SE) Charterboat Workshop
Maison Dupuy Hotel
New Orleans, Louisiana**

The Importance of Accurate Survey Information: A Charter Fishing Industry Perspective

Once fishing was defined as "the sport or business of catching fish." However, today fishing is much more. No longer can fishermen simply grab a hook and line and venture off to their favorite fishing hole. Today, fishing is heavily regulated by state and federal government. A key element to creating fishery regulations is trying to establish how many fishermen and how many fish exist. This information has been provided to fishery managers from several sources. The main source for recreational fishery statistics has been the Marine Recreational Fishery Statistical Survey, (MRFSS). This survey has been in existence the longest and is considered by some to be the best source of information on recreational fisheries in the United States. However, there are others who disagree.

The charter fishing industry is a prime example of that disagreement; it has been negatively impacted by fishing regulations based on, to a large degree, recreational fishing statistics. Recreational fishing statistics are primarily provided from four sources: the MRFSS, which has provided most of the fishing statistics, some state agencies, the Charter Boat Survey out of the Panama City Florida National Marine Fisheries Service Lab, and anecdotal fishing information from fishermen. Currently, the sources most heavily relied upon by fishery managers is the MRFSS and state agencies. Because of the lack of participation on the part of charter boat operators in the Charter Boat Survey, little confidence is placed in that survey and hardly any consideration is given to the anecdotal information from fishermen.

The charter fishing industry is comprised of very proud, independent business people. Historically, the industry has been slow to accept regulations and to work with fishery managers. Most charter fishermen do not trust the accuracy of the fishery statistics that are provided

because they do not experience similar situations, and in some cases, express total disdain for fishery statistics since they seem so contrary to their own experiences. Today, many fishermen in the industry are learning to accept regulations and adjust their businesses accordingly, but they still voice a need to have better and more timely fishing information than that which is currently provided by fishery managers and which comes primarily from the MRFSS.

Charter fishermen have traditionally been very reluctant to provide fishing or personal business information to anyone. The reasons for this vary, but one main reason is the fear that the information will be used against them for management purposes. An example of the fishermen's rationale for this fear can be seen in the Charter Boat Survey. In the early 1990's a great effort was made by the Charter Boat Survey to recruit voluntary participants. In 1990, the Gulf of Mexico Fishery Management Council (GMFMC) recommended a reduction of the recreational bag limit for red snapper from seven to two fish per person because statistical catch information showed the red snapper stock to be declining. A large number of charter boat captains from Alabama and other states felt that there was no need to reduce the bag limit as they had been catching adequate numbers of red snapper for years and had noticed no decline. Consequently, in 1991, a large number of charter boat captains signed up to provide information to help prove their point. This information indeed proved that charter fishermen off Alabama were catching many red snapper. Those fishermen from Alabama had been telling everyone about the great number of red snapper off their coast for years, but with the official Charter Boat Survey, it was documented. The fishermen felt that they were catching no more fish than had been caught in past years, and that the survey simply confirmed what they had long known and talked about among themselves and those who would listen. Perhaps as a result of fishermen's

survey information, some fishery managers contended that too many red snapper were being caught, thus adversely affecting the stock.

Since 1991, the GMFMC has continued to recommend lower quotas, bag limits, and increased size limits for red snapper. Charter fishermen from Alabama still believe that one reason for *these* recommendations is because of the information provided by them in the Charter Boat Survey. Thus, they felt the survey was used unfairly to their great disadvantage. To this day, few charter fishermen from Alabama support the Charter Boat Survey.

Charter fishermen from around the Gulf of Mexico have very similar fears. The king mackerel fishery is another clear example of why charter fishermen feel their fears are warranted. Their reporting has led to the continued effort of fishery biologists to reduce the quotas and bag limits on king mackerel, just as was the case with red snapper. Until charter fishermen are convinced information they provide will fairly benefit them, *as well as* the resource, they will be very reluctant to volunteer information. On the other hand, if charter fishermen can be shown that information they provide will be used to enhance and produce more timely fishing statistics from a variety of sources, it is likely that most of them would be more than willing to work with fishery managers.

The following statistics have been gathered to show what the charter fishing industry represents—actual fishing efforts by charter boats. Some of the statistics are from personal records and knowledge; others are from various charter fishermen's records, personal communications with other charter fishermen, public information from the Panama City Beach Tourist Development Council, the State of Florida Department of Environmental Protection, and the Panama City NMFS Lab. The years 1991 through 1994 have been chosen for these statistics,

as records for those years were all available. Records before 1991 were not complete and records for 1995 have not been completed.

The information from the Panama City Beach Tourist Development Council (TDC) is from bed tax collections and tourist inquiry comparisons, as shown in Tables 1a & 1b.

Table 1a

Bay County Tourist Development Council Tax Collections *

1991	1992	1993	1994
\$2,058,227.47	\$2,202,246.40	\$2,374,009.23	\$2,401,634.17

* Information provided by Bay County Tourist Development Council.

Table 1b

Tourist Inquiry Comparison, Panama City Beach, Florida *

1991	1992	1993	1994
105,308	136,474	151,463	137,763

* Information provided by Bay County Tourist Development Council.

While this information shows an increase every year for bed tax collections and an increase for inquiries every year through 1993 with a decrease for 1994, these figures do not necessarily relate to an increase or decrease in the charter fishing business; there are, after all, many things to do on Panama City Beach other than fish. A much better indicator for an increase or decrease

in the charter fishing industry is shown by looking at the State of Florida Saltwater Fishing License sales (Table 2). Florida issues blanket saltwater fishing licenses for "for-hire" boats in three categories, guide boats (4 persons or less), charter boats (10 persons or less), and charter/head boats (11 people or more).

Table 2 **

Florida Charter Boat Fishing License Sales for Gulf Coast *

1991		1992		1993		1994	
< 10	11 >	< 10	11 >	< 10	11 >	< 10	11 >
522	118	444	97	445	84	426	82

* Information provided by Florida Department of Environmental Protection.

** Revised March 15, 1996

To maintain the focus on the charter fishing industry, guide boat figures are not included. Likewise, only compiled figures for Florida counties that border the Gulf Coast are used. Monroe County is excluded; it could not be determined how many boats worked the Atlantic Coast exclusively and how many worked the Gulf Coast. As can be discerned from Table 2, 1991 was the year with the largest number of license sales. From 1992 through 1994, the figures are relatively stable indicating, if anything, the number of charter fishing vessels in Florida has decreased. These figures also show that the number of licenses for 10 people or less and 11 people or more vary comparatively. Eighty-two to eighty-four percent of charter boat licenses sold for all four years are for boats carrying 10 passengers or less. This indicates that

there has not been a shift from one type licensed vessel to another and the reduction of license sales and thus a reduction of vessels after 1991 would suggest that a similar reduction in fishing effort has occurred.

Information from the Panama City NMFS Lab Charter Boat Survey is shown in Tables 3a and 3b. The survey is voluntary and the geographic area represented spans from North Carolina through Texas. Table 3a shows total fishing hours, troll fishing hours, and non-troll fishing (bottom fishing) hours.

Table 3a
Charter Boat Survey Hours Fished Throughout Range *

	1991	1992	1993	1994
Total Hrs	21,596	20,443	21,606	20,638
Troll Hrs	11,379	11,885.5	13,092	11,472
Non Tr Hrs	10,217	8,557.5	8,514	9,166

* Information provided by the Panama City NMFS Lab.

Table 3b shows the same information, except that it includes the area from Collier County, Florida through Brownsville, Texas (Gulf Coast). The number of participants in this voluntary survey varies from year to year, as does the number and percentages of trips reported by an individual. This inconsistency is why the information from the survey lacks credibility. One can, however, make some reasonable assumptions from this information. Looking at Table

3a, one can assume that total fishing effort for the entire range of the survey has been stable and that the percent of effort of trolling hours in relation to the percent of effort of non-trolling hours has remained fairly constant. However, in Table 3b, there is a constant decrease in total fishing hours from 1991 through 1994.

Table 3b

Charter Boat Survey Hours Fished and Average Trip Hours

Gulf of Mexico (Collier County, Florida through Brownsville, Texas) *

	1991	1992	1993	1994
Total Hrs	14,163	9,247	6,395	6,130
Troll Hrs	5,703	3,453	2,165	1,833
Non Tr Hrs	8,460	5,794	4,230	4,297
# of Trips	2,937	2,152	1,624	1,370
Avg Trip Hr	4.8	4.3	3.9	4.4

* Information provided by the Panama City NMFS Lab.

The decline in total hours fished could reflect a loss of participants in the survey. This lack of participation does not seem to affect the average trip hours, as they remain stable. This reduction of participants might be attributed to Gulf of Mexico charter fishermen fearing their fishing information has been and will be used against them by fishery managers; more research

could verify this fact.

Table 4 shows fishing trip information from the Panama City NMFS charter boat survey comparing two boats from Panama City.

Table 4
Charter Boat Survey Results for Two Vessels *

		1991	1992	1993	1994
Total Hrs	Vsl A	448.5	550.5	607.5	596.5
	Vsl B	475.5	468.0	420.0	384.5
Troll Hrs	Vsl A	302.0	359.0	356.0	312.5
	Vsl B	253.0	231.0	131.0	111.5
Non-Troll Hrs	Vsl A	146.5	191.5	251.5	284.0
	Vsl B	222.5	237.0	289.0	273.0
# of Trips	Vsl A	115	153	174	161
	Vsl B	127	130	132	127
Avg Trip Hr	Vsl A	3.9	3.6	3.5	3.7
	Vsl B	3.7	3.6	3.2	3.0

* Information obtained by personal communication with the owners of Vessel A and Vessel B.

Although other charter fishermen from both Panama City and Destin Florida were asked to provide written information about the number of trips they ran during each of the years 1991 through 1994, only three people complied. Even though the fishermen contacted were very reluctant to provide written information, all of them verbally reported that they had not seen any large increase in business and had not shifted their fishing effort from their traditional habits. Without exception, they all stated that even when fishing was very good and they expected to do more business, weather eventually became a factor in how much business they had over the years. In every season since 1991, adverse weather has affected the charter fishing business. Heavy rains caused severe flooding; tropical storms, hurricanes, and heavy winds have all occurred with grave effects on the fishing industry. This loss of days equates to decreased fishing effort. This information indicates that the charter fishing industry has been fortunate to maintain its yearly business, but surely shows there has not been a significant increase in such business.

Table 5 shows statistics from two charter fishing businesses in Panama City which have operated over thirty years and ten years respectively, with the number of boats in operation ranging from one to four. The table highlights the number of trips and number of hours run for 1991 through 1994. Four boats were run in 1991 and 1992, and three boats were run in 1993 and 1994 by company A. One vessel was run by company B during the entire time. Trip numbers are based on 4 hour trips, regardless of how long the trip was (12 hour trips = 3 trips). Business remained stable for those years, but fishing effort decreased a small amount in 1993 and 1994.

Table 5

Number of Charter Fishing Trips Comparison by Year

		1991	1992	1993	1994
Number of Trips	Co. A	1062*	1062*	1020**	1020**
Number of Hours	Co. B@	810	1065	1113	1011

* 4 vessels operated ** 3 vessels operated @ 1 vessel operated

Personal information provided by the author and personal communication w/vessel owner.

To summarize, contrary to some fishing statistics, there have been no dramatic increases in the charter fishing industry. If anything, the industry has struggled to remain constant. While it seems that there are more fish being landed (a great many are now being released), this could be due to increased stock size rather than increased effort.

An improved and much more accurate data gathering system is desperately needed. A data collecting system in which participation is voluntary would be preferable, since it seems that the information recorded in a voluntary data collecting system may be much more reliable than other systems. In a like manner, a system in which participants willingly take part would encourage the participants to feel ownership of the effort and the outcome.

Nevertheless, since collecting recreational catch data is such a necessity, fishery managers may have no recourse but to *require* recreational fishermen to keep catch information. Any such requirement is going to be very difficult to implement. In situations where permits are required to participate in a fishery, the permit may have to be suspended or revoked for repeatedly failing to provide the required information. All fishermen need to understand why catch information is necessary. They need to be assured that the information they provide will not be used against,

but *for* them. An educational effort such as newsletters and seminars explaining why, where, and how should accompany any new system developed. When fishermen understand the importance of reporting their data, they will probably be glad to volunteer information. With new and better information provided by a reliable and valid reporting system, perhaps indications will show more fish are being caught. This does not necessarily mean too many fish are being caught, thus adversely affecting the stock, but may mean that the stock is larger than previously thought. Any catch recording system needs to be as streamlined as possible. Systems which are cumbersome *invite* lack of participation. A spirit of cooperation, rather than one of confrontation, needs to be developed between fishermen and regulatory agencies. Such a spirit will become a reality when agencies carefully consider fishermen's feelings, fears and ideas; a system of accurate and timely data collection can hasten the advent of that spirit and the benefits it holds for the future of the fishery and those it impacts.

Florida Charter Boat Fishing License Sales for Monroe Co. FL*

1991 <10 11>		1992 <10 11>		1993 <10 11>		1994 <10 11>	
182	28	156	15	147	13	144	14

*Information provided by Florida Department of Environmental Protection.

ATTACHMENT 4

Charter and Head Boat Activity Study, 1995

by Maury F. Osborn
National Marine Fisheries Service



Purpose

- ▶ MRFSS Telephone Survey gives a direct measure of participation levels; however
 - ▶ Concern over red snapper prompted further efforts
 - ▶ wanted to get indication of changes in activity level from P/C anglers

Methods

- ▶ Telephone Survey
- ▶ Asked respondents w/ P/C activity if activity levels changed from 1992-1995.
- ▶ Beginning with Wave 5 interviewing - all respondents w/P/C (waves 5-6)
- ▶ Sample of respondents w/ P/C activity in waves 1-4 called back

Methods

- ▶ Wave 1-4 Sample
 - ▶ Random sample across waves
 - ▶ 150 from W. Fl
 - ▶ 150 from the rest of the country in proportion to routine sampling
- ▶ Waves 5-6
 - ▶ 69 from W. Fl
 - ▶ 445 from the rest of the country

Methods: Questionnaire

- ▶ Thinking about your fishing in the past several years....
 - ▶ That is, thinking about 1992-1995, would you say that your # of party or charter boat trips
 - ▶ has been decreasing in the past 3 or 4 years
 - ▶ has remained the same...
 - ▶ Or, has been increasing.

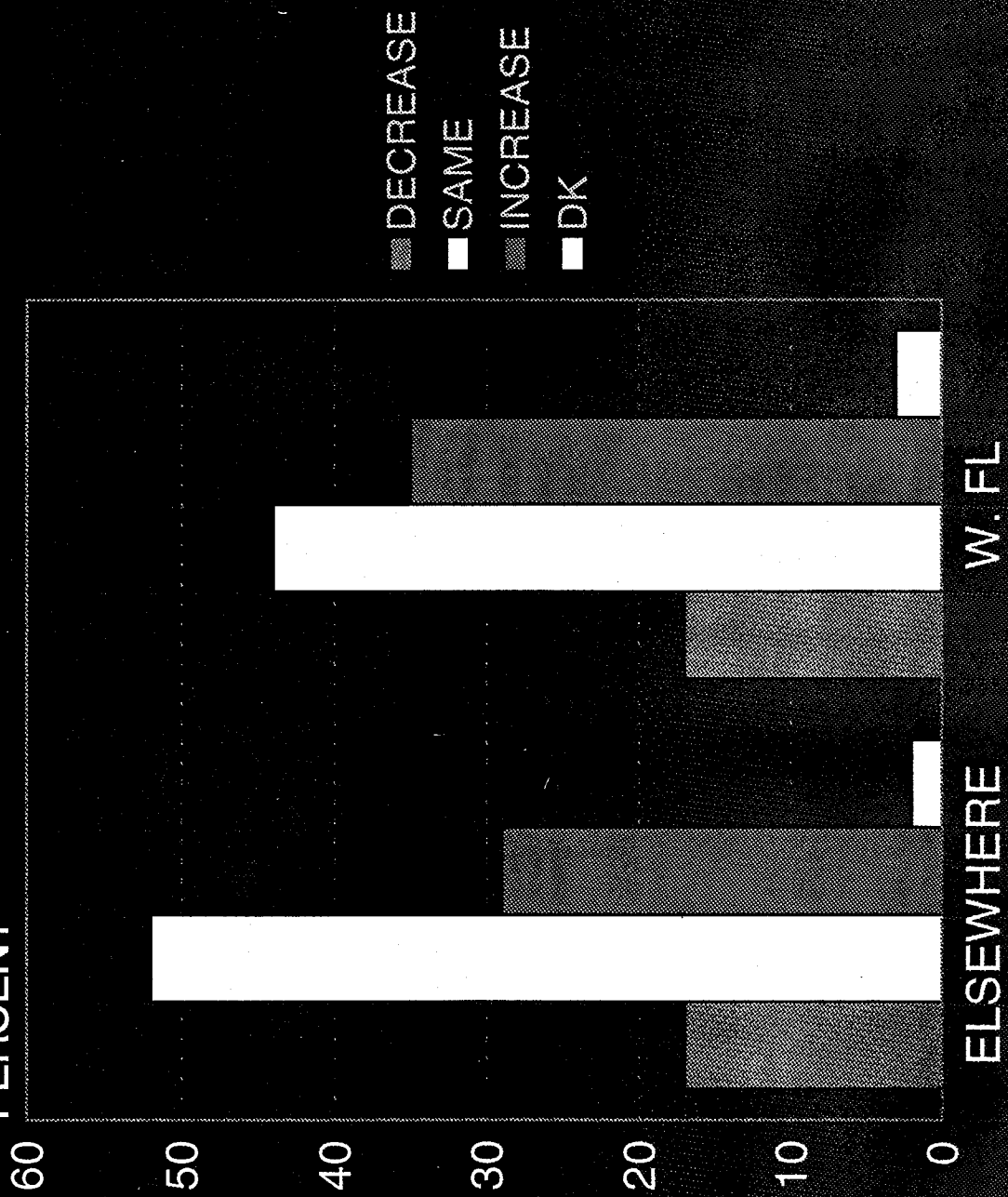
Methods: Questionnaire

- ▶ If decreasing or increasing:
 - ▶ In total, how many party or charter boat trips would you estimate you have made or will make during calendar year 1995.
 - ▶ 1994
 - ▶ 1993
 - ▶ 1992

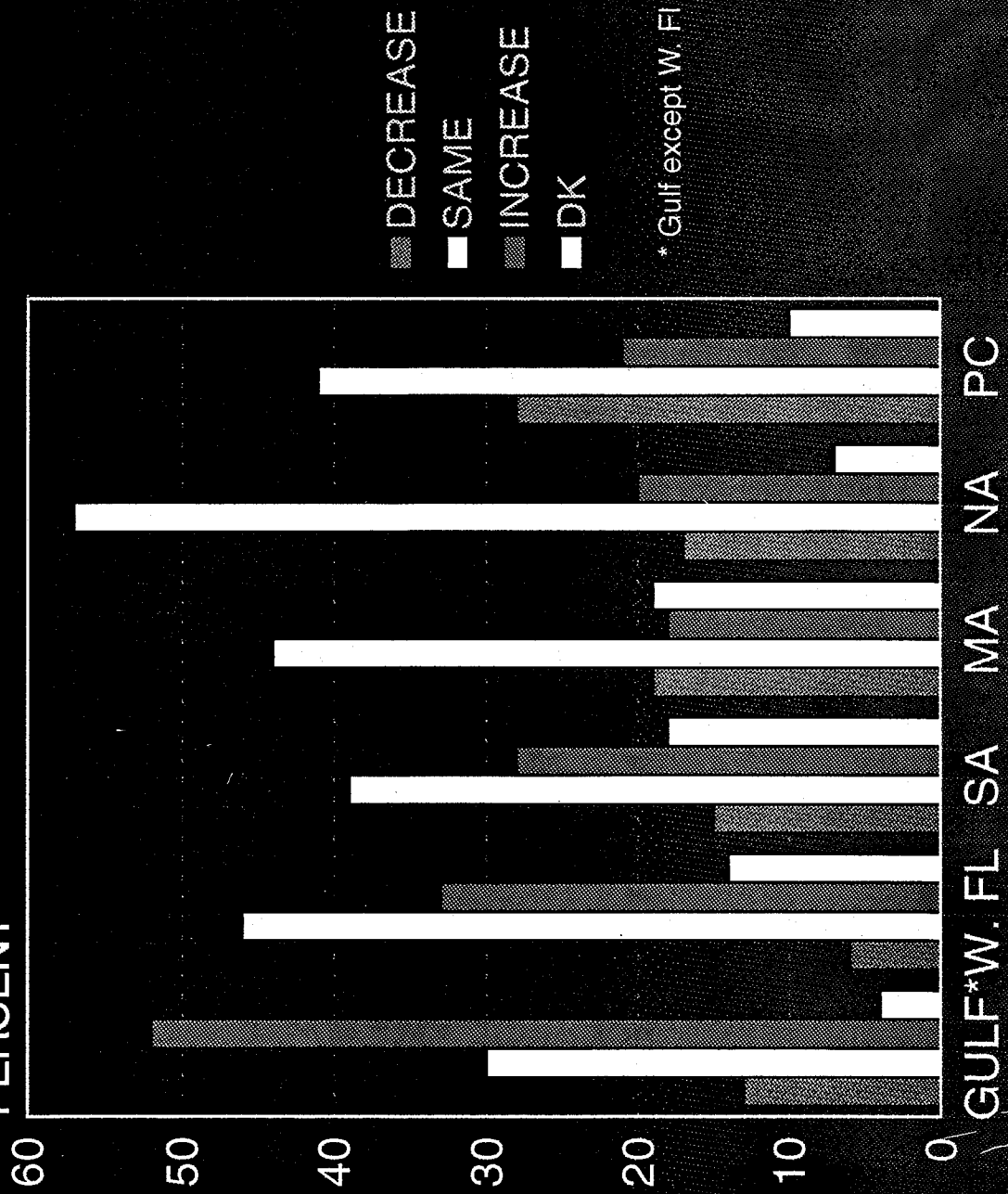
Limitations of the Data

- ▶ Like other anecdotal information, results suggest direction of trends, but should not be used as measure of rate of change
- ▶ Is not representative of entire MRF universe
 - ▶ Does not profile people who did not take a CH trip who might have taken one in another wave
 - ▶ Coastal residents only
- ▶ Memory of number of trips subject to different types of bias

WAVES 1-4 COMBINED PERCENT



WAVES 5-6 COMBINED PERCENT



Conclusions

- ▶ Increase in Charter activity indicated by SE coastal respondents in sampling universe.
- ▶ Different results across sub-regions indicate pattern not due to change in contractor
- ▶ Provides additional indication that charter boat anglers in the SE are taking more trips as shown by the MRFSS

ATTACHMENT 5

ADDITIONAL INFORMATION REGARDING CHARTER BOAT ACTIVITIES

Charter boat licenses

Texas	Texas has a fishing guide license, which is administered under their commercial program. The data base cannot distinguish between types of for-hire vessels. For example, you cannot differentiate a freshwater bass guide from an offshore charter boat.
Louisiana	Louisiana also has a fishing guide license, which is administered under their commercial program. That license began in 1995. The data base cannot distinguish between types of for-hire vessels.
Mississippi	Mississippi has a charter boat license that has been administered since 1990.
Alabama	Alabama has a charter boat license, but it is only required if a vessel is fishing in state waters. Offshore charter boats do not need an Alabama charter boat license.
Florida	Florida has a charter boat license that has been administered since 1989.
Georgia	Georgia does not have a charter boat license.
South Carolina	South Carolina has a charter boat license that has been administered since 1992.
North Carolina	North Carolina has a charter boat license, but it cannot be distinguished from a commercial fisherman's license. To operate a charter boat, you can have either a commercial fishing license or a charter boat license.

Coast Guard Subtitle T information

Subtitle T Vessels	Vessels that are 65 feet in length or less and less than 100 gross tons. These vessels are CG inspected because they will be used to carry passengers.
CC (Coastwise)	This designation is for vessels that are certified to travel out to twelve miles. These vessels are not supposed to travel outside of twelve miles.
OO (Ocean)	This designation is for vessels that are certified to travel from shore past twelve miles.

The following types of vessels are included in Subtitle T:

- Work Boats
- Towing Boats
- Pleasure Boats
- Passenger Boats
- Offshore Boats ?
- Lift Boats ?
- Fishing Boats
- Ferry Boats
- Oil Boats (not oil supply vessels)

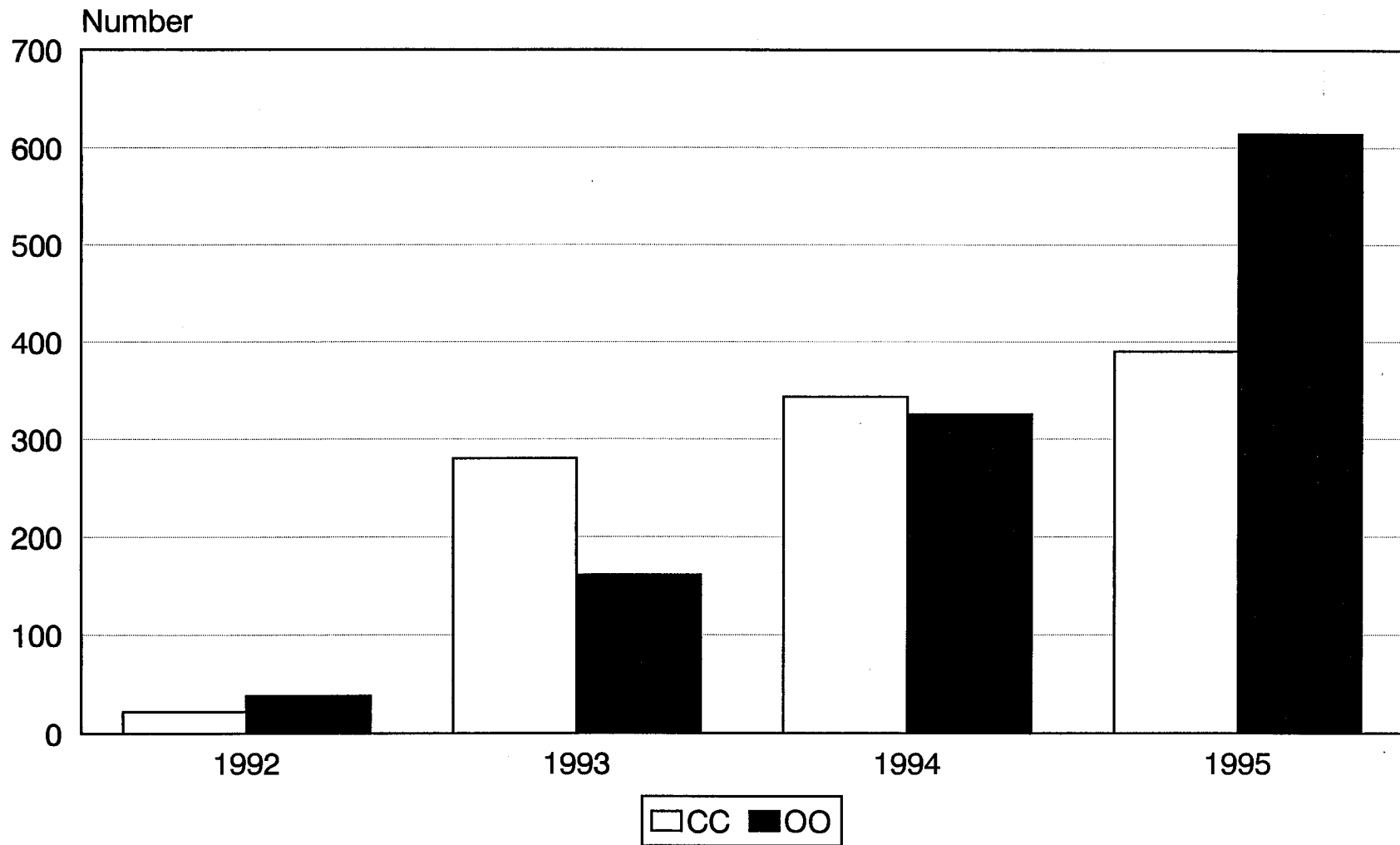
The field in the Subtitle T data base that designates vessel use is not mandatory. Therefore, it is impossible to determine which boats in the data base are specifically used for fishing.

Charter boat Associations

Mississippi	Although there has been an increased number of people visiting the coast due to gambling, there has not been a parallel increase in the number of charter boats and trips. Increases may be due to more regulations and industry organization causing the number of participants in the industry to be calculated more accurately.
Alabama	Number of charter boats has increased over the past several years. This increase is due to people already in the business buying new boats. Number of trips has also increased. Targeted species include vermilion snapper and triggerfish. Captains know the customers will get limit of red snapper so they are targeting these other species.
Florida	In the panhandle area, the number of charter boats and trips have not significantly increased over the past couple of years.

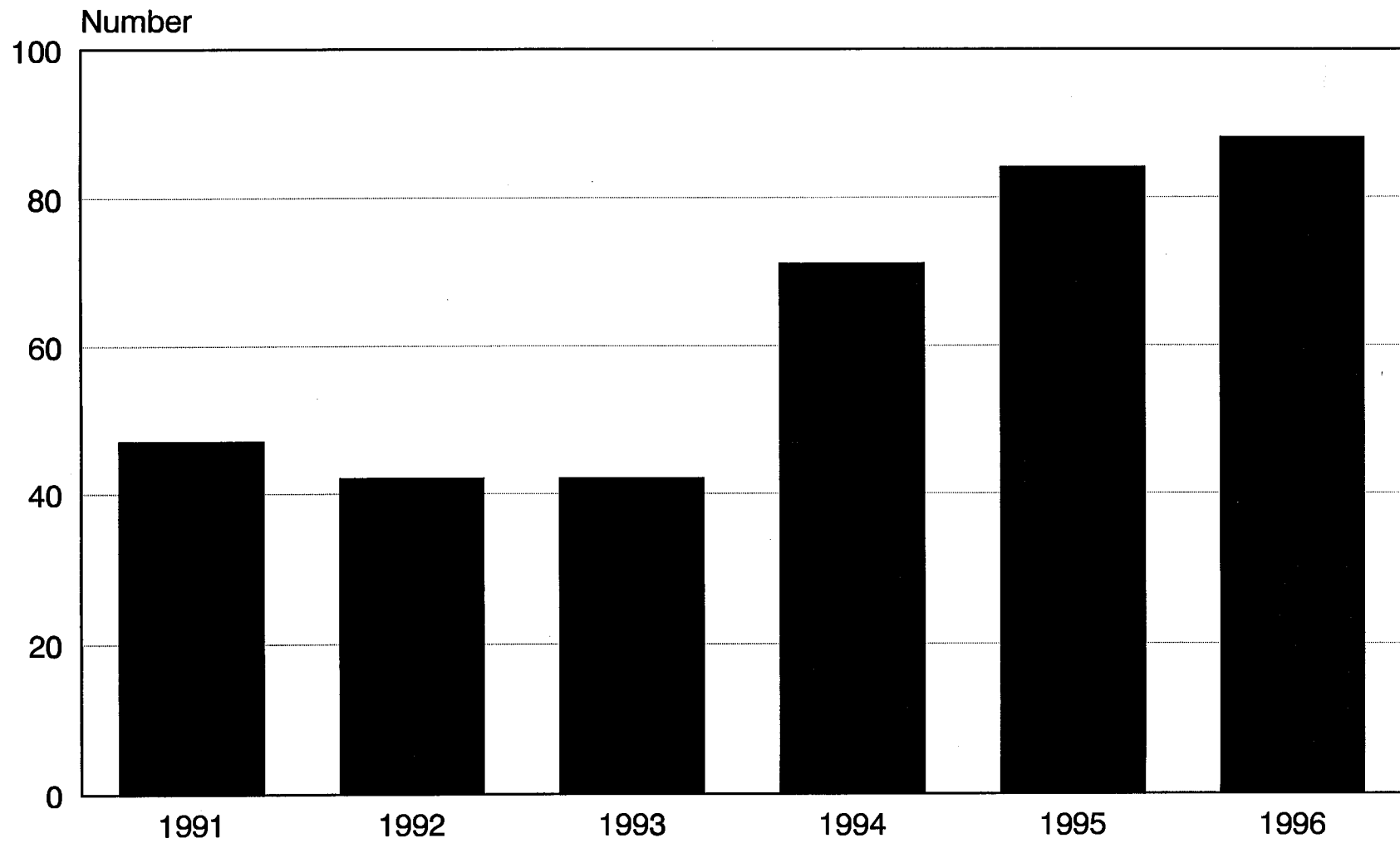
Certificates of Inspection

Coast Guard Subtitle T Boats



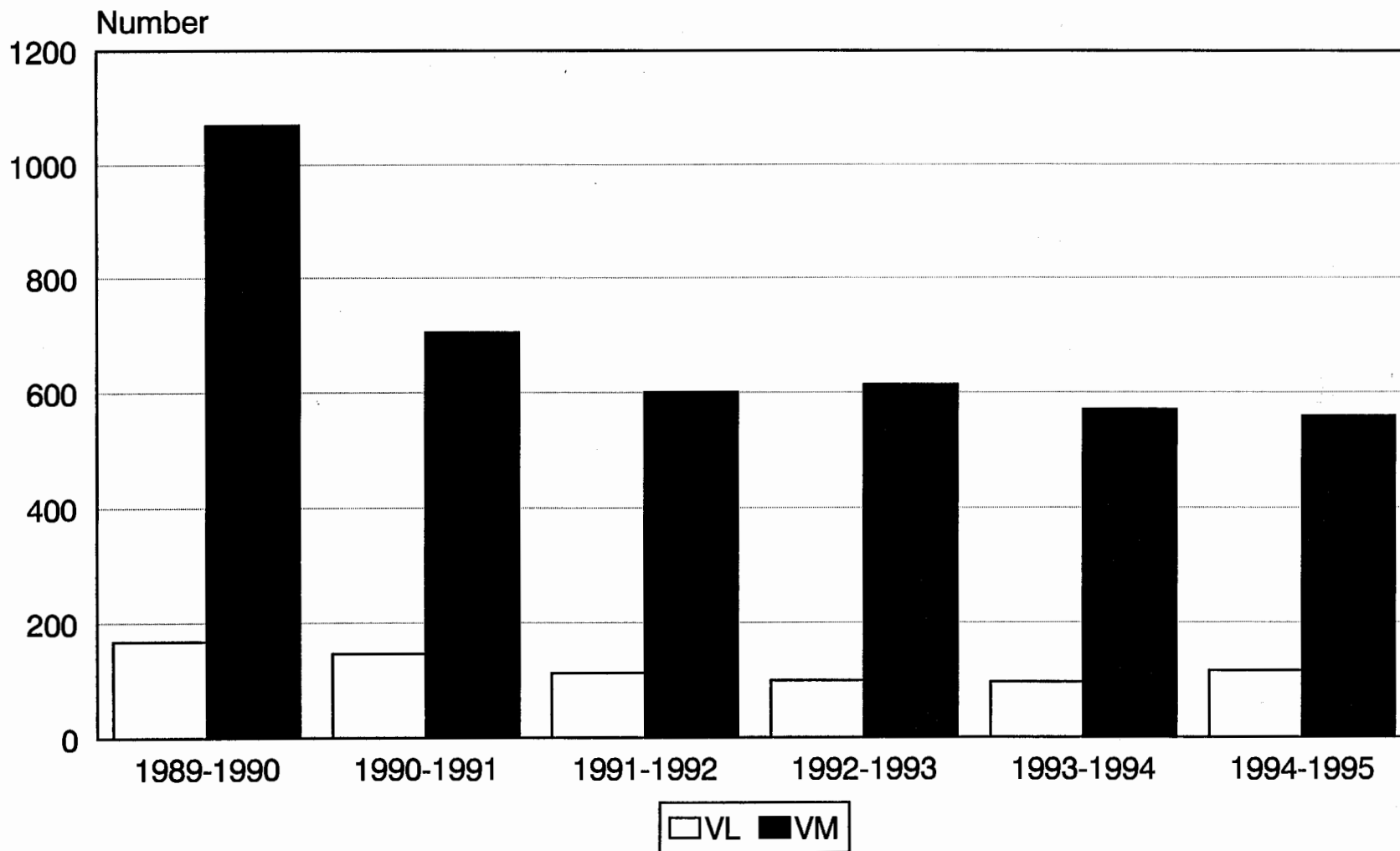
Charter Boat License Sales

Mississippi



Charter Boat License Sales

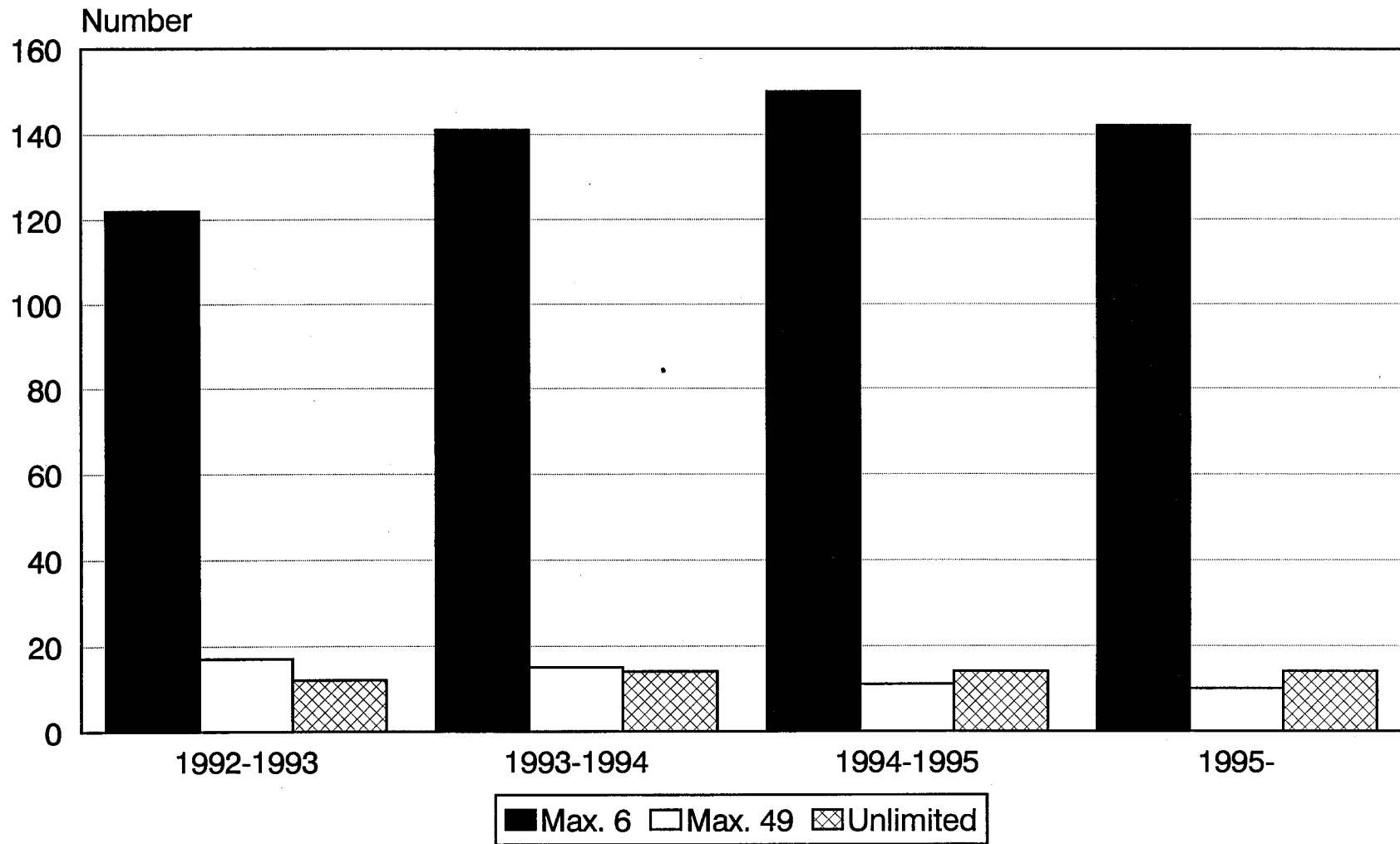
Florida



VL = vessels that carry 11 or more fishing patrons; VM = vessels that carry 5-10 fishing patrons.

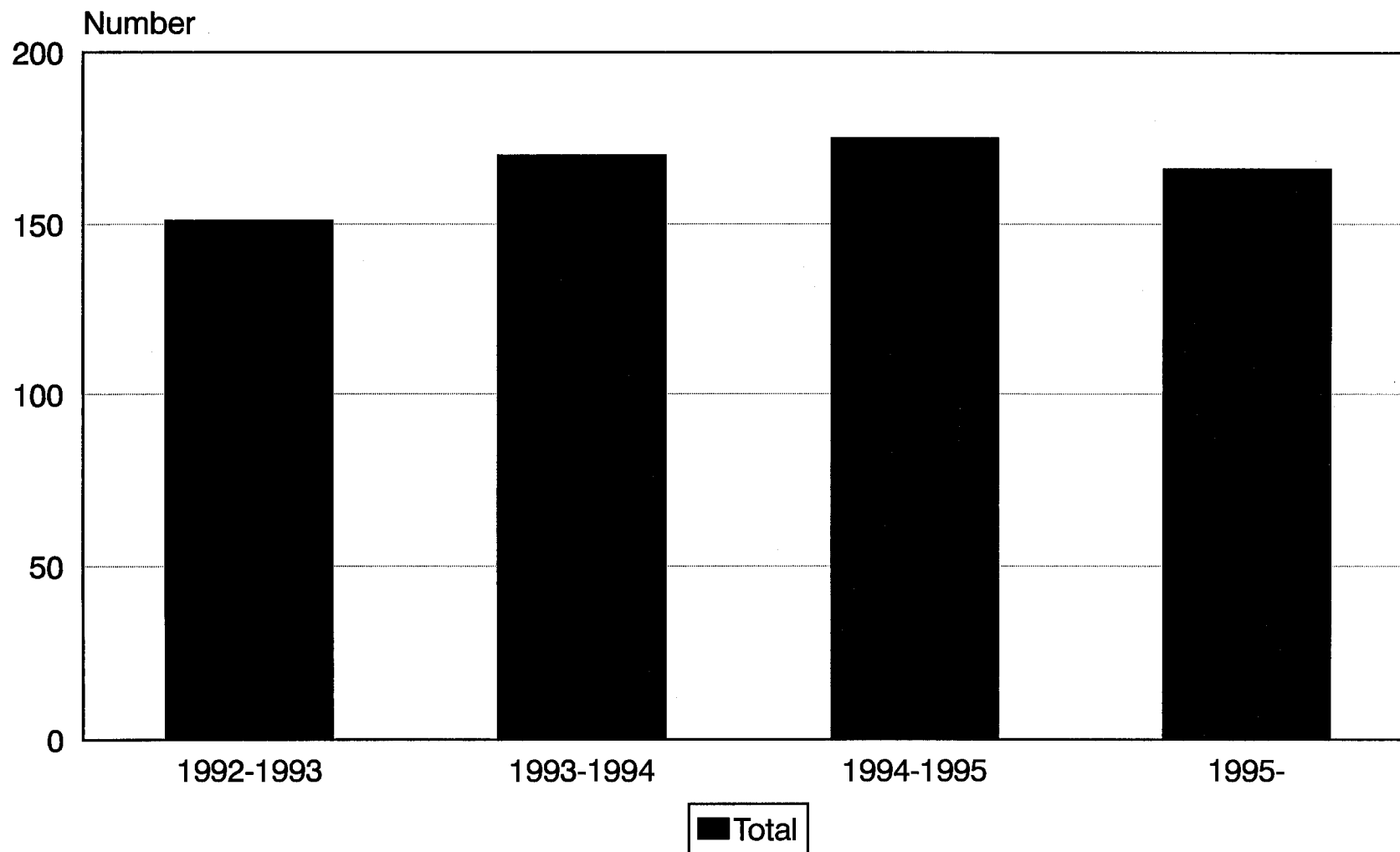
Charter Boat License Sales

South Carolina



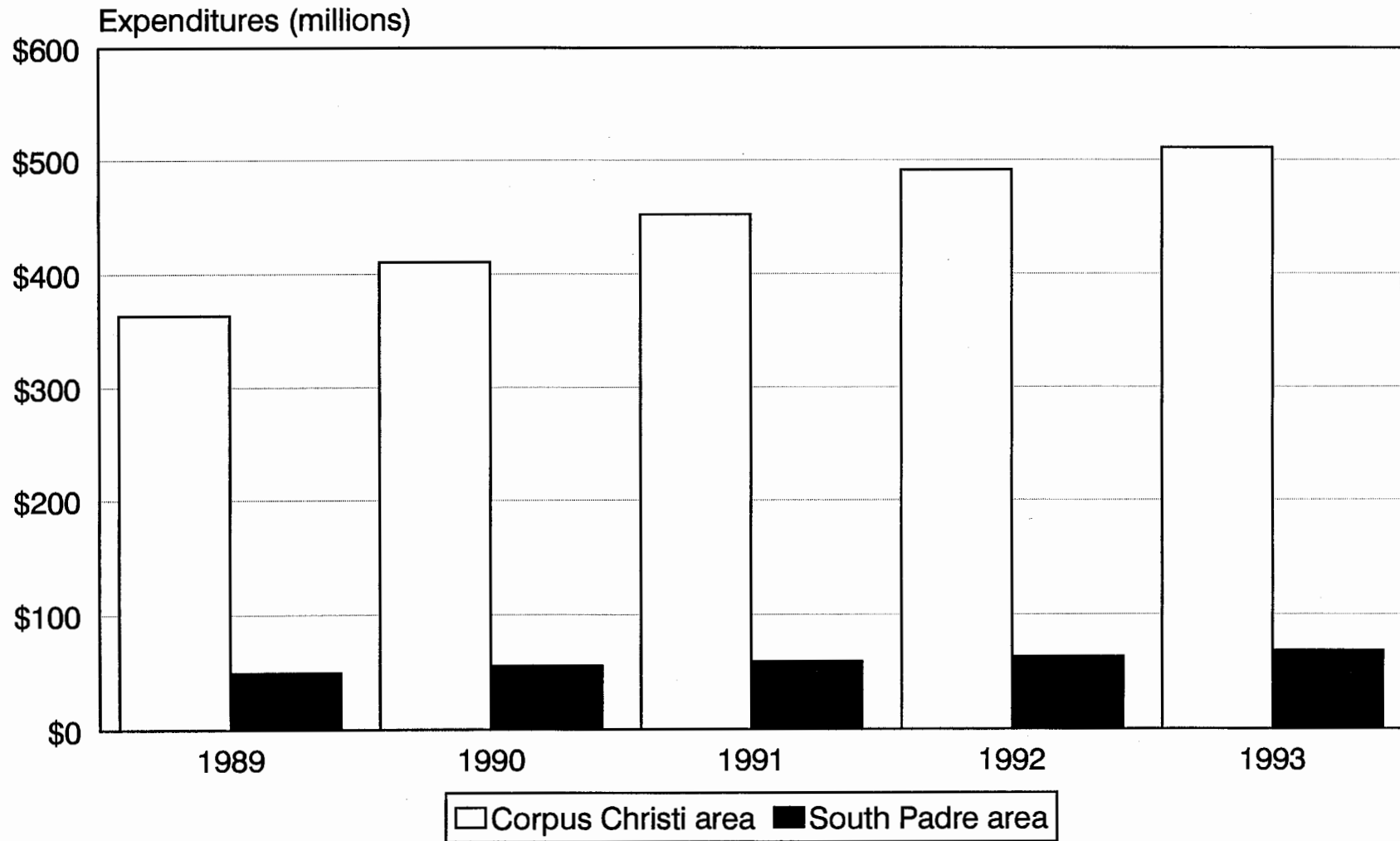
Charter Boat License Sales

South Carolina



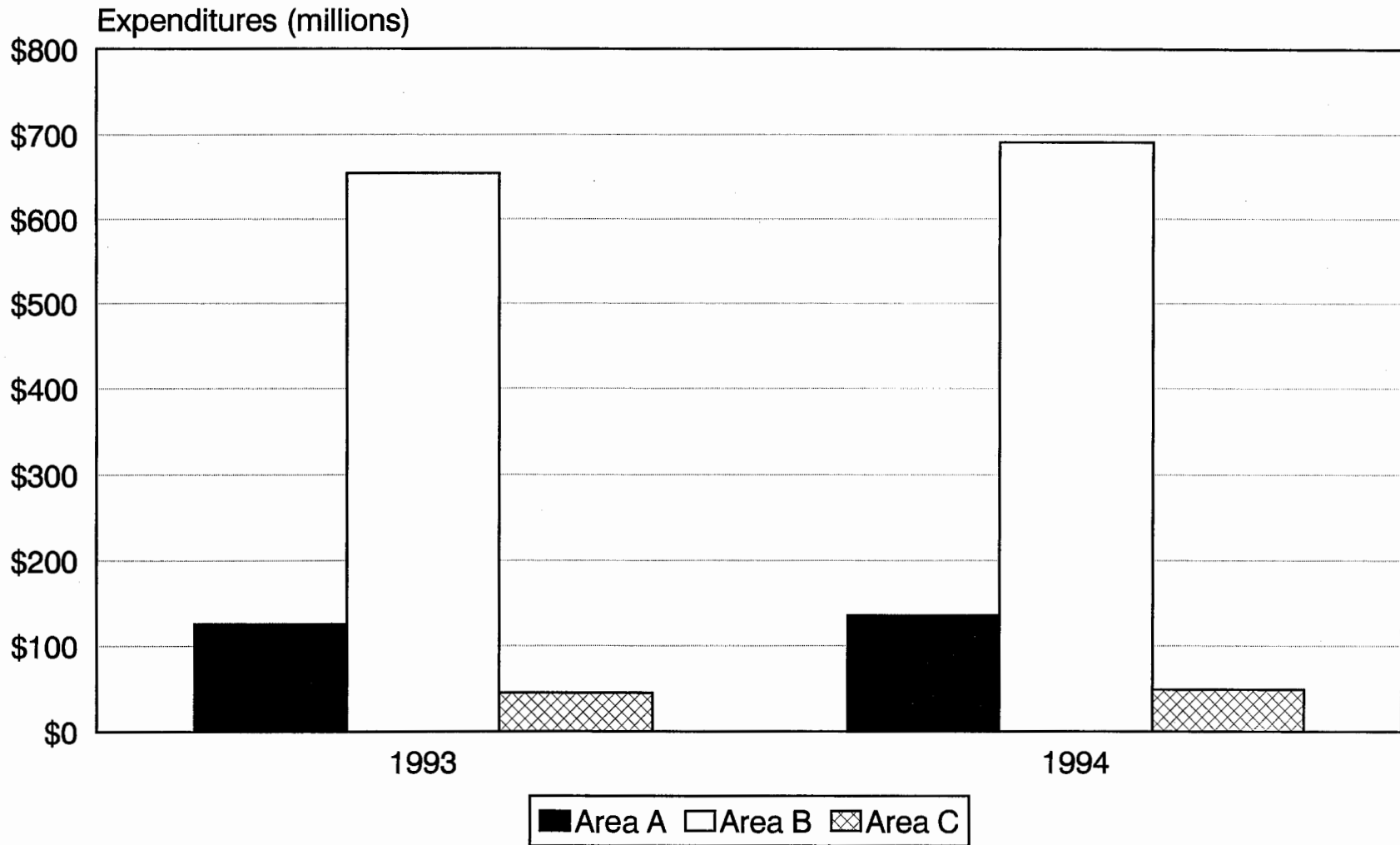
Tourism Information

Texas



Tourism Information

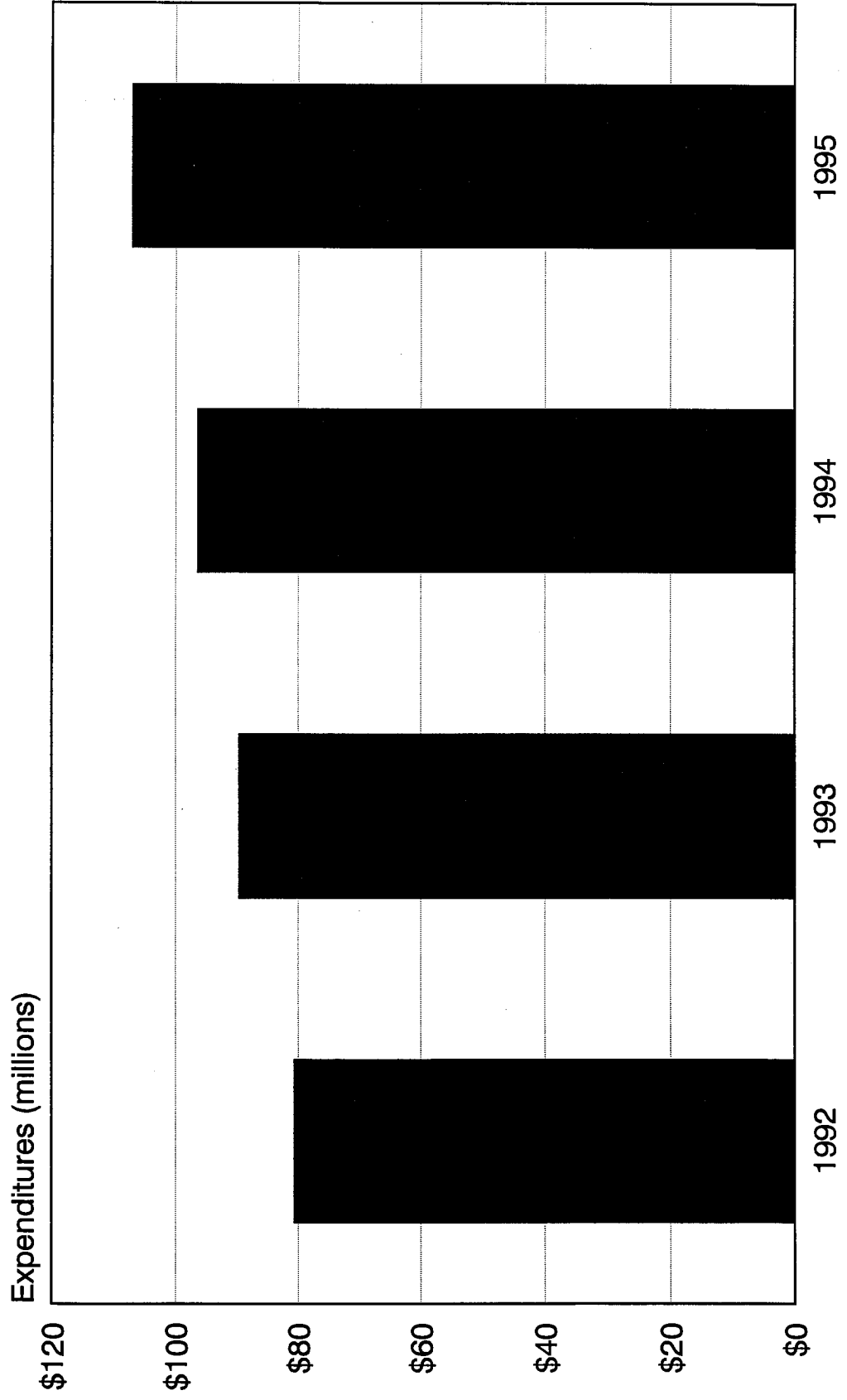
Louisiana



Area A includes Plaquemines, St. Bernard, and St. Tammany parishes; Area B includes Jefferson, Lafourche, St. Mary, and Terrebonne parishes; Area C includes Cameron, Iberia, and Vermilion parishes.

Tourism Information

Alabama



Tourism Information

Florida

