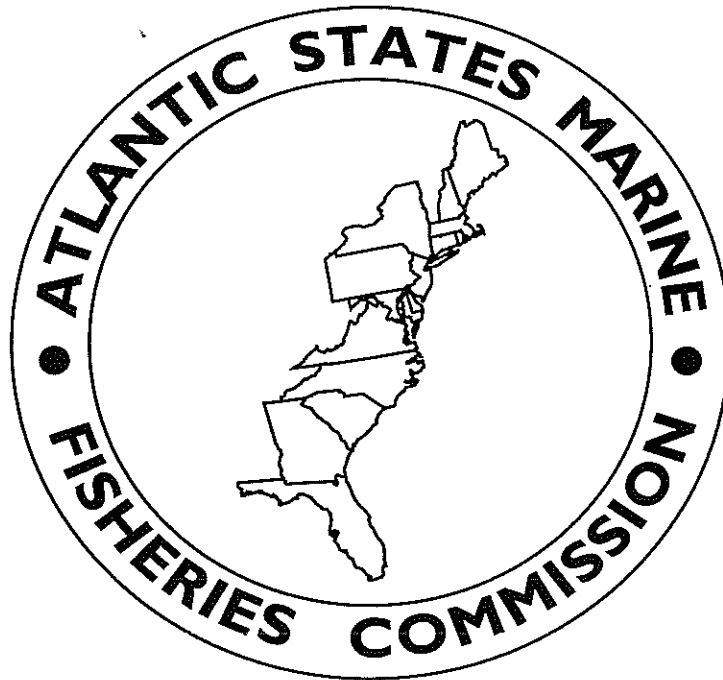


*Special Report No. 59
of the*

Atlantic States Marine Fisheries Commission



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**Cooperative State/Angler Reporting Programs of the
Atlantic Coastal States**

March 1996

**Special Report No.
Atlantic States Marine Fisheries Commission**

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Atlantic Coastal States**

By

**Richard Christian
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Washington, D.C.**

March 1996

Preface

The Marine Recreational Fisheries Committee of the Atlantic States Marine Fisheries Commission was established in 1984 to provide critical advise to the Commission on developing issues relative to state saltwater sport fisheries along the Atlantic Coast. The committee composed of the senior state scientists responsible for the marine sport fishing programs of the Commission's fifteen member states acted as a standing committee up to December, 1995. Representatives of the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, and also participated on the committee. The following report was produced at the request of and with information provided by this committee. Special thanks go to Mr. Rod McLeod of the Connecticut Department of Environmental Protection, Fisheries Division, Marine Fisheries for his assistance and collection information contained in this report. Also, special thanks go to Mr. Bruce Halgren (NJ), committee chair and Mr. Charles Moore (SC), committee vice chair and all who have served on this vital committee for the past 11 years.

Financial assistance for this project was provided by Federal Aid in Sport Fish Restoration Program of the U.S. Fish and Wildlife Service under a cooperative grant (no. 14-48-0009-95-1256) with the Atlantic States Marine Fisheries Commission.



Table of Contents

	Page
Preface	i
Table of Contents	ii
Introduction	1
Methodology	1
Results	2
State Programs	3
Maine	4
New Hampshire	5
Massachusetts	7
Connecticut	9
New York	10
New Jersey	13
Delaware	15
Maryland	17
Virginia	19
North Carolina	21
South Carolina	21
Georgia	29
Florida	30
Appendix A: Survey Questionnaire	32

Cooperative State/Angler Reporting Programs of the Atlantic Coastal States

by

Richard T. Christian

Introduction

Since implementation of the Wallop-Breaux Amendment to the Federal Aid in Sport Fish Restoration Program in 1986, coastal states have undertaken many innovative and beneficial sport fish restoration programs utilizing the saltwater split of state Wallop-Breaux allocations. Recognizing the importance of projects which involved fishermen in the collection of information on recreational fishing, the Marine Recreational Fisheries (MRF) Committee set out to enumerate and describe such state programs among the members states of the Atlantic States Marine Fisheries Commission.

This report provides information collected by the MRF Committee relative to angler tagging programs, angler logbooks, and other innovations of Atlantic coastal state marine recreational fisheries programs.

Method

States were requested to provide information on past to present projects which collect marine recreational angler and catch information concerning finfish and invertebrates in their state or regional area. Information was requested for projects including cooperative work with the National Marine Fisheries Service Marine Recreational Fishery Statistical Survey, trophy fish award/citation programs and state angling records, tagging programs, recreational crab/lobster information, and SCUBA. The information was collected via a mail questionnaire sent to state employee responsible for state saltwater recreational fisheries programs. Information requested in the questionnaire for each project included:

- project title;
- goals and objectives;
- a brief description of the project including type of data being collected, data set format, number of project personnel, and the name of principal project

- leader(s);
- results and benefits of the project;
 - project duration; and
 - project cost/funding breakdown (State, Federal, or other).

A copy of the questionnaire is included in Appendix A.

Results

All but two of the 15 Atlantic coastal states (Rhode Island and Pennsylvania) responded to the questionnaire. The 13 responding states identified 80 projects in their states which met the criteria requested in the survey. Information on individual projects is provided below by state.

STATE PROGRAMS

MAINE

Projects in Maine are conducted under the auspices of the Maine Department of Marine Resources. The following are responses to the questionnaire from state employees.

1. Party and Charter Boat Survey Along the Coast of Maine

The purpose of this survey is to conduct the party and charter boat survey for waves 3 through 5 in accordance with the requirements of the NMFS's Marine Recreational Fisheries Statistics Survey (MRFSS). Intercept sampling is conducted on party and charter sports fishing boats along the entire Maine coast in accordance with the MRFSS. Approximately 100 intercept interviews are conducted during each 3 waves. In addition field biologists: determine actual location of fishing, quantify the fishing effort in terms of # of fishermen and time, measure fish, remove otoliths, examine the stomach contents and collect gonadal samples.

BEGINNING: May 1994 / **ENDING:** 1999

Cost: State: \$58,036; Federal: \$174,107 (W-B) Total= \$232,143

2. NMFS MRFSS for Maine II

The purpose of this project is to conduct the field intercept portion of the NMFS MRFSS in Maine. In addition to the NMFS base quota we will be at least doubling the # of intercepts collected in all 3 modes. In Party/Charter mode, biologists will continue to sea sample party boats to accurately determine catch and effort, particularly the catch of sublegal species. Intercept sampling will be conducted along Maine coast as in MRFSS. Approximately 2 times the NMFS base number of intercepts will be collected across all modes and waves.

BEGINNING: APRIL 1996 / **ENDING:** OCT. 1996

Cost: State: \$16,840 Federal: \$50,520 Total: \$67,360

3. Tacklebusters Club/Maine State Saltwater Angler Records

1. Saltwater angler records of largest fish by weight. 2. Tacklebusters club- Fish over a certain weight eligible for certificate.

BEGINNING: JAN 1996 / **ONGOING**

Cost: W-B and Other: Industry

NEW HAMPSHIRE

Projects in New Hampshire are conducted under the auspices of the New Hampshire Fish and Game Department. The following are responses to the questionnaire from state employees.

1. New Hampshire Lobster Reporting System

Five percent of the recreational lobstermen are randomly selected from the lobster license database to report the following years of catch and effort. The reports are returned to the NH Fish and Game Dept. on a monthly basis. Data collected includes: month, whether or not fishing occurred that day, area pots were set, number of pots hauled per day, total pots fished for the month, trap haul set over day (THSOD), weight, incidental catch, and gear size. The results consist of an estimate of total landings from both recreational and commercial lobstermen and the effort involved to land lobsters. The trends observed from yearly landings data is used for managing the lobster fishery.

BEGINNING: 1980 / ONGOING

2. Monitoring of the Rainbow Smelt Resource and Winter Ice Fishery in Great Bay, New Hampshire

The purpose of this project is to annually monitor the resource of rainbow smelt (*Osmerus Mordax*), and the fishery for it, in the Great Bay Estuary System. The survey is conducted each year from ice-in to ice-out (generally Dec. to March) in Great Bay and several tributaries. It is stratified by weekend/weekday and by four distinct fishing areas. Information is collected from each angler on the total catch of smelt, effort (hrs. fished), and age, length, and sex data from a sample catch. Monthly and annual estimates of catch, effort and CPUE are made by area. A state fisheries management plan (FMP) has been developed and implemented. Information is used to evaluate effectiveness of management measures recommended in the FMP and to assist in determining needs for, and effect of, any future management measures.

BEGINNING: 1987 / ONGOING

Cost: 1994 Estimate State: \$5,000; Federal: \$15, 000 Total: \$20,000.

3. Volunteer Angler Creel Survey for Striped Bass Anglers

Goal: To annually monitor the recreational fishery for striped bass in NH waters in order to identify trends and evaluate the effect of management measures.

Volunteer angler logbooks are distributed to any angler expressing a willingness to participate in the program. The log book includes angler's name and address and all info is stored in an RBASE database. Information includes: date, number of hrs. fished, number of anglers in party, number of fish caught and kept/released, # of legal sized fish released, fished from boat or shore, terminal tackle used, and length of striped bass caught. The log book survey provides info about night time striped bass trips, not covered by the MRFSS or NH MRFS. The most valuable info collected includes catch/effort data on a larger # of striped bass trips and length info on several hundred.

BEGINNING: 1993 / ONGOING

Cost: 1994 ESTIMATE State:\$1,250; Federal \$3,750 Total: \$5,000

4. NH Marine Recreational Creel Survey

Goal: To provide annual estimates of the marine recreational fishery harvest, fishing effort, and catch per unit effort in the state of NH in order to identify trends and evaluate the effort of management measures. From 1979 to 1982, the department conducted a marine recreational fishing survey in New Hampshire coastal waters from June to September. It was repeated in 1984 in July and August and in 1989 from June to October. Since 1987 it is conducted annually from April to October. Data: total catch, total effort, catch per unit effort, per cent species composition of the catch, and length frequency data for harvested fish. The survey is stratified by weekend/weekday and by fishing type (party boats, bridge-pier-jetty. Information gathered has been used to monitor trends in the fishery and utilized in jurisdictional FMP for groundfish, bluefish, winter flounder, rainbow smelt. Important because NMFS doesn't produce state specific information accurate in states with small cost.

BEGINNING: 1986 / ONGOING

Cost: 1994 ESTIMATES State: \$13,750 Federal: \$41,250 Total: \$55,000

5. Trophy Fish and Catch/Release Program

The purpose of this survey is to recognize exceptionally large fish caught in New Hampshire. Anglers who catch exceptionally large fish that exceed minimum weight or length (for catch and release fish) standards set by the Dept. are encouraged to submit entry forms about fish and how it was caught. The data set from 1991 to present is in WordPerfect files and paper files for the years prior to 1991. The program assists in tracking location and occurrence of fisheries for large specimens of a given species. The program also tracks state size records for species of recreationally important fish.

BEGINNING: MID-1970's / ONGOING

6. Cooperative Marine REcreational Statistics Data Collection

To improve the comparability of recreational statistics collected in NH with other state, regional, and coastwide estimates and to eliminate the duplication of effort currently taking place with concurrent state and federal surveys. NH Fish and Game used Atlantic Coastal Fisheries Cooperative Management Act funds to purchase a 3x increase in the # of field intercepts conducted by the NMFS 's survey in NH. Five hundred telephone contacts were conducted and the sampling area for the telephone survey was expanded into 2 non-coastal counties with high population centers. Increasing the sampling level of field intercepts and phone surveys will increase the precision of these estimates to a level sufficient for management purposes. The state survey duplication of effort is eliminated.

BEGINNING: March 1, 1995 ENDING: Feb. 28, 1996

Cost: Federal \$42,000; Total \$42,000

MASSACHUSETTS

Projects in Massachusetts are conducted under the auspices of the Massachusetts Division of Marine Fisheries (DMF). The following are responses to the questionnaire from state employees.

1. Marine Recreational Fisheries Statistics Survey (MRFSS)

To collect supplemental information from marine recreational finfish fisheries conducted in Massachusetts so that estimates of catch effort and participation are improved and deemed adequate for management purposes. This project is an "add-on" to the NMFS's MRFSS. The DMF add-on enhances the MA's field intercept component of the MRFSS by tripling the NMFS base number of field interviews from approximately 2,000 to 6,000. The DMF executes and administers the survey via a contract to a private consultant, also known as the NMFS' "sub-contractor." The sub-contractor follows guidelines outlined in the MRFSS Procedures Manual. While the add-on has provided enhanced estimate in terms of total #'s of fish caught and harvested for all top species targeted, improved st.bass stats have proven to be valuable in complying prevailing st.bass management strategies.

This project began in 1988 and is on-going.

Cost: State - \$33,750, Federal - \$101,250, Total - \$135,000

2. Cooperative Saltwater Angler Survey (CSAS)

To develop estimates of catch rates and size @ capture, to provide marine recreational anglers with a "hands-on" opportunity to contribute to the research effort, to reduce mortality on recreational important species by offering sound educational and informational advice. A survey booklet was designed and distributed to collect voluntary information from marine recreational anglers. A pilot study was initiated in 1993 and a wider distribution was sought in 1995. The booklet allows participants to provide length, weight and catch rate information on all legal and sub-legal size fish that they catch. Anglers reported info. for 6 species caught from 18 geographical areas. In terms of descending order of abundance these included striped bass, Atlantic cod, Atlantic mackerel, bluefish, winter flounder, and bonito with striped bass being the major species.

Pilot initiated in 1993 and increased participation was sought in 1995. The survey may continue in 1996.

Cost: State - less than \$5,000 Federal - \$0, Total - Less than \$5,000

3. Striped Bass Fisheries Statistics

The objective of this project is to improve management capability of the striped bass resource by continuing a statistical data gathering and analysis project established as part of a coastwide monitoring system. The project focuses on collecting striped bass landing and effort statistics from commercial and recreational anglers for several categories of catch. Data is collected from mandatory catch reports provided by commercially licensed striped bass anglers. Many of these anglers provide additional voluntary information. The 1994 commercial striped bass season began on 1 July and lasted 24 days and was successfully monitored by this project. **Additional info available in folder

This project began in 1988 and is on-going.

Cost: State - \$15,500, Federal - \$46,500, Total - \$62,000

4. Tournament Monitoring Program (TMP)

The objective of this project is to characterize the status and relative abundance of pelagic tunas, sharks and marlins off the Massachusetts coast. The project has been collecting catch and effort data @ selected fishing tournaments since 1987. In addition, DMF biologists have assisted tournament organizers and participants with technical info on species ID, conservation, and tag and release. Although the imposition of minimum sizes, species eligibility restrictions, and other tournament related biases are introduced to these data, it still provides

accurate catch and effort info which is often lacking for offshore recreational fisheries.

This project began in 1987 and is on-going.

Cost: State - \$2,500, Federal - \$7,500, Total - \$10,000

5. Striped Bass Tagging Program

The objective of this project is to characterize the status and relative abundance of pelagic tunas, sharks and marlins off the Massachusetts coast. The study specifically targets striped bass greater than 28 inches for tagging in order to effectively monitor the impact of fisheries on striped bass stocks along the eastern coast of the U.S. Total length of each fish is recorded but weight is estimated based upon a weight-length relationship

This project began in 1991 and is on-going.

Cost: State - \$13,000, Federal - \$39,000, Total - \$52,000

6. Massachusetts Saltwater Fishing Derby

Promote recreational fishing in coastal waters. Monitor status and relative abundance of recreational fish species. Coastwide fishing contest held each year from March 1st to November 30th. Trophies are given to largest fish in each category at the end of the derby year. A list of state angling records is maintained. Awards are given to all entries for 24 species which meet minimum weight requirements. Weights, lengths, and location of catch are collected. Increases interest in marine recreational fishing. Anglers become more aware of the need for habitat protection and effective fisheries management. Improved recreational fisheries data base.

ONGOING

Cost: State - \$20,000, Federal - 0, Total - \$20,000.

CONNECTICUT

Projects in Connecticut are conducted under the auspices of the Connecticut Dept. of Environmental Protection, Fisheries Division, Marine Fisheries Office. The following are responses to the questionnaire from state employees.

1. A Study of Marine Recreational Fisheries in Connecticut/Job 1/Part 1: Marine Angler Survey

Collect marine recreational angler info on angler effort, catch composition, and catch disposition. Determine annual estimates of angler catch and effort. Estimate the # of marine recreational anglers in CT. Initiated in 1979 to provide basic

rec, fishery stats required for stock assessment and fishery management plan development and implementation. In July 1987 CT's DEP and NMFS's MRFSS increased the precision on catch and angler trip estimate. Data: a telephone survey of households (increased by 2000 calls in 1987), and an intercept survey of anglers at fishing sites. During 1981-83 330,000 anglers made about 1.5 million trips in CT. MRFSS's two primary objectives are to provide accurate data on marine recreational fishing and to produce accurate regional catch estimate to assess the impacts of recreational fishing on finfish stocks. The MRFSS initial state intercept quota was tripled.

BEGINNING: 1979 / ONGOING

Cost: State: \$20,903 Federal: \$62,708 Total: \$83,611

2. A Study of Marine Recreational Fisheries in CT/Job1/Part 2: Volunteer Angler Survey (VAS)

Collect size composition and catch frequency data on both kept and released/discarded bluefish and striped bass. Determine the % of legal size striped bass released by anglers. Purpose to provide supplemental marine recreational fishing effort and catch stats. concerning finfish, with emphasis on size of kept and released striped bass and bluefish. Designed to collect trip and catch info from avid marine recreational anglers via logbooks. Logbook format consists of recording fish effort, target species, fishing mode. areas fished, catch info (kept and released), and finfish measurements. 50 anglers sent logbooks in for 1994. VAS measured 1,379 bluefish (59.5%) out of a total of 2,356 caught. The mean size of bluefish was 251/2 in. for both modes combine. Boat mode 71% and total catch 92%. Boat anglers released 55.3% and shore anglers 77.4% reported.

BEGINNING: 1979 / ONGOING

Cost: Project cost is included as part of Job 1/Part 1

3. American Lobster Recreational Fishery

To collect recreational catch data concerning American Lobsters in CT. A licence is required for the recreational harvest (not for sale) of lobsters in CT waters. The legal methods are not more than 10 per person. All sub-legal lobsters and egg bearing females must be returned unharmed. A report of daily catch is required to be submitted at the end of the year. Catch data is entered and computer stored in the CT DEP Marine Fisheries Info. System. Annual licence fee is \$50 per person.

BEGINNING: 1978 / ONGOING

4. CT Fresh and Saltwater Trophy/Record Fish Award Program

The purpose of the Trophy Fish Award Program is to recognize and reward

angling skill and maintain a listing of CT record fish. CT record fish and trophy fish in freshwater category, nearshore category, exotic marine species category and offshore category. Kind of fish, weight, length, girth, where caught, town (port), how caught: fly fishing, bait casting, spin fishing, live bait, trolling, ice fishing, day/night, date caught, kind of lure or bait used.

BEGINNING: 1983 FOR SALTWATER SPECIES / ONGOING

NEW YORK

The following projects were conducted by employees of the New York State Department of Environmental Conservation.

1. Striped Bass Cooperative Anglers Survey

The goal of this project is to ascertain size and age composition of recreational caught striped bass in the Marine District of New York in order to provide an annual estimate of mortality, develop from catch curve analysis; and to collect catch data relative to the striped bass fishery. Staff supplies anglers interested in this program with an instruction sheet and a supply of scale envelopes. Angler data collected include length, weight (if fish is kept), scale sample, and trip info. Log book were initiated in 1994 to collect additional catch and effort info. Provides an estimate of size and age structure of NY's recreational striped bass catch and an estimate of annual mortality. The catch and effort info will provide a means to evaluate the status of stocks and augment the MRFSS data sets on striped bass.

BEGINNING: 1985 / ONGOING

Cost: Salary, supplies, and materials. State-\$4,550, Federal-\$43,500 TOTAL: \$48,050

2. Weakfish Cooperative Angler Project

The goal of this project was to collect weakfish age and length data from recreational weakfish fishermen in New York. Volunteer anglers provided number of fish caught, total length, and scale samples. The project discontinued due to staff shortage.

Initiated in 1987; discontinued in 1994.

Cost: Funding was provided by the State allocation of Federal Aid in Sport Fish Restoration (Wallop-Breaux) program.

3. Winter Flounder Partyboat Survey

The objective of this project was to collect age, size, and catch per effort data

on New York's recreational partyboat fishery for winter flounder. Data collected provided estimates of total mortality, age, size (TL), catch/effort.

BEGINNING: 1987 / ENDING: 1994

Cost: Funding was provided by the State allocation of Federal Aid in Sport Fish Restoration (Wallop-Breaux) program.

4. Summer Flounder Partyboat Survey

The objective of this project was to collect age, size, and catch per effort data on New York's recreational partyboat fishery for summer flounder. Data collected provided estimates of total mortality, age, size (TL), catch/effort.

BEGINNING: 1985 / ENDING: 1994

Cost: Funding was provided by the State allocation of Federal Aid in Sport Fish Restoration (Wallop-Breaux) program.

5. Blackfish (tautog) Partyboat Survey

The purpose of this survey is to monitor the size and age composition of the NY recreational catch of blackfish and to monitor trends in catch per unit effort for this species. All blackfish caught are counted; as many as possible are measured to the nearest millimeter of total length. Operculars are obtained from fish being filleted. Twelve trips were made in 1993, thirteen trips were made in 1994. Sex of blackfish, based on external morphological characteristics, is recorded when possible. Number of anglers and hours are recorded.

BEGINNING: 5/93 / ONGOING

Cost: Funding was provided by the State allocation of Federal Aid in Sport Fish Restoration (Wallop-Breaux) program.

6. SCUP Partyboat Survey

The purpose of this survey is to monitor the size and age composition of the New York recreational catch of scup and to monitor trends in catch per unit effort for this species. Six trips were monitored in 1992; twenty-one trips were monitored in 1993; and twenty trips were monitored in 1994. All scup caught are counted, and as many as possible are measured to the nearest millimeter of fork length. Scale samples are obtained from a subsample of scup for age determination. Number of

anglers, catch per day, and hours fished are recorded.

BEGINNING: 10/92 / ONGOING

Cost: Funding was provided by the State allocation of Federal Aid in Sport Fish Restoration (Wallop-Breaux) program.

7. Scup/Black Sea Bass/Blackfish Cooperative Angler Survey

The purpose of this survey is to monitor the size and age composition of the New York recreational catch of scup, black sea bass, and blackfish; and to monitor trends in catch per unit effort for these species. Anglers are issued a logbook and measuring board. They are asked to measure as many fish as possible and asked to take scales from a subsample of scup and black sea bass. Eleven anglers returned logbooks in 1993; seven have returned logbooks in 1995. Info. requested in the logbooks includes number of anglers, number of hours fished, area fished, fishing mode and method, and number of each type fish caught, kept and released. This project is being discontinued due to staff reductions.

BEGINNING: 10/92 / ENDING: 12/94

Cost: Funding was provided by the State allocation of Federal Aid in Sport Fish Restoration (Wallop-Breaux) program.

NEW JERSEY

Projects in New Jersey are conducted under the auspices of the New Jersey Division of Fish, Game and Wildlife. The following are responses to the questionnaire from state employees.

1. The Striped Bass Sportfishery Survey

The goal of this project is to obtain catch, effort and harvest data as well as biological characterization on striped bass caught in marine waters. Data is acquired via fishing logs submitted from participants in New Jersey's striped bass program. Data is broken down by area, fishery type, length of fish, number of hours fished, etc. These data are utilized for CPUE, catch/harvest by area, and fishery type, length frequency, and fish kept and released.

This project provides supplemental data for the NMFS MRFSS.

The project was initiated in 1990 and is ongoing

Budget information:

Fiscal Year '95- State: \$13,936; Federal: \$41,810; Total: \$55,746

2. Diver's Environmental Log

The goals of this project is to document physical conditions of ship wrecks and other artificial reefs, to document biological succession of reef structures, and to compare biology of various reef structures. This information is used as an indicator of biological health of the states artificial reefs. Volunteer divers record and report their observations on biology and physical condition of reefs/wrecks. The project provides a qualitative examination of encrusting organisms and health of wreck and a qualitative estimate of numbers of fish seen, biological comparison of reef structures and other shipwrecks. Data are used to assess environmental health of reef communities from year to year and to compare various reef structures.

The project was initiated in 1987 and completed in 1995.

Cost: Annual State contributions were \$500 to match a Federal amount of \$1,500.

3. National Marine Fisheries Service Marine Recreational Fishery Statistics Survey

At the present time, New Jersey has no add-ons to the normal MRFSS as conducted by the NMFS. The State uses these data in their participation with the Atlantic States Marine Fisheries Commission and the Mid-Atlantic Fishery Management Council in development of various fisheries management plans. This information is used in developing state level participation in these plans

4. NJ Skillful Angler Awards Program

This project is designed to supplement the record program by recognizing anglers who catch fish of "not quite record," but nonetheless substantial size. The projects provides incentive and promotes sport fishing by encouraging anglers (especially the young) to participate and hone their skills. The State provides 100% of the project costs.

5. NJ State Record Fish Program

The project is designed to recognize the heaviest fish of both marine and freshwater species caught in NJ waters. The project collects information on species weight, length, girth, date caught, place caught, method of catch, boat name, captain, type of rod, type of reel, type of line, lure/bait used. The objective is to promote the sport of fishing and add incentive to participate in the sport. The state provides

100% of the project cost.

6. Survey of the Sport Fishery of Delaware Bay

The goal of this project was to obtain estimates of participation, effort and catch of fishermen fishing in the New Jersey portion of Delaware Bay during the spring. In 1981 state employees worked with Delaware to include both sides of the bay. The project eventually was expanded to be for the entire season (April - October). Creel clerks collected information on number of anglers in the fishing party, number of hours fished, length of trips (hrs.), catch in number of species, length of subsample, and county and state of residence. Aerial surveys were conducted to determine the number and type of boats used. During 1980, 1981 and 1982 expenditure data also was collected. After 1982, New Jersey and Delaware conducted creel surveys on their side of the bay. Delaware conducted aerial surveys and prepared the report. Information from the study was used to track fishing effort, species relative abundance, and economic value of the sportfishery. Information on weakfish was useful in dealing with conflict between sport and commercial fishermen.

The project was initiated April, 1980 and completed April 1988.

Cost: New Jersey's cost in 1986) State: \$4,125; Federal: \$12,375; TOTAL: \$16, 500
1980-

DELAWARE

Projects in Delaware are conducted under the auspices of the Delaware Division of Fish and Wildlife. The following are responses to the questionnaire from state employees.

1. Delaware Marine Fishing Survey

The objective of this survey is analyze and compile marine sport fishing catch and effort data in the form of a report that will provide a basis for fisheries management programs. This was a survey conducted in 1976 and again in 1978. Project was discontinued and eventually replaced by the F-33-R project. Utilized mailed questionnaires, aerial flight counts, and personal interviews to determine fishing effort, usage of state fishing areas, and catches by species and number. Annual effort (man-days) of sport fishing in the DE Estuary was determined, along with catch estimates, party size, length of average shore and boat fishing trip, and the proportion of resident anglers.

BEGINNING: 1976 / ENDING: 1978

Cost: (1979 Figures) State: \$1,200 Federal: \$3,600 Total= \$4,800.

2. Project F-33-R Survey of marine recreational fishing in DE

An aerial survey was conducted statewide to estimate marine recreational fishing effort (angler-trips) for 3 modes of fishing: shore, private/charter boat, and headboat. This survey is intended to complement effort estimates from the MRFSS. A bi-weekly aerial survey was conducted from mid-April through October covering all marine waters under state jurisdiction. The instantaneous count was regressed using multiple regression analysis of climatological parameters. Data include: instantaneous count, by area and fishing mode, flight time (morning, afternoon, evening), day type (weekend/weekday), weather conditions for that day (maximum air temp, average wind speed, and rainfall). Annual effort of marine recreational fishing by mode and area was determined using a multiple linear regression model based on climatological parameters.

BEGINNING: 1982 / ONGOING

Cost: (1995 Figures) State: \$2,802.50 Federal: \$8,482.50 Total= \$11,310.00

3. Project F-33-R [MRFSS Add-on] The NMFS MRFSS

The NMFS conducts an annual marine rec survey statewide to estimate MRF catch and effort (angler-trips) for 3 modes: shore, private/rental boat, charter/headboat. Involvement is to add-on intercept interviews and phone survey. The survey is conducted March-Dec. covering all marine waters, as well as the Atlantic Ocean beyond 3 miles. DE samples 3 times the base sample allocation. Catch and trip estimate are made by wave, area fished, and mode. Subcontractor conducts 2,723 phone contacts and 2,577 intercept interviews annually. Most interviews pertain to private/rental boats. 487 party/charter interviews, 481 for shore-based. Estimates are comparable with other states, it can be post-stratified in order to provide fisheries managers with more area-specific catch and effort estimates. We have determined weighted length-frequency distributions for selected fishes.

BEGINNING: 1989 / ONGOING

Cost: (1995 FIGURES) State: \$21,149 Federal: \$63,447 Total= \$84,596

4. Project F-24-R JOB 1: Aerial Survey of Fishing Boats and Fishermen in the DE Estuary. JOB 2: Interviews with Sport Fishermen

Job 1: An aerial survey was conducted statewide to determine sport fish effort on the DE estuary. Preceded F-33-R. Job 2: Determine catch stats. by dockside

interview. Used to identify, evaluate, and develop priority public access sites. Weekly aerial survey conducted May - Oct. Fishing effort determined by multiplying average flight count by total # days comprising entire survey period. Total fishing effort was sum of weekday effort plus weekend effort. Job 2: # and species of fish caught, hrs. fished per day, party size and residency of the sport fishermen utilizing the DE Estuary. Annual effort of sport fishing was determined, along with catch estimate, party size, length of average shore and boat trip, and the proportion of resident anglers. The Div. of Fish and Wildlife was able to prioritize development of public access sites.

BEGINNING: 1971 / **ENDING:** 1973

Cost: (1972 Figures) State: \$950. Federal: \$2,850 Total= \$3,800

MARYLAND

Projects in Maryland are conducted under the auspices of the Maryland Department of Natural Resources. The following are responses to the questionnaire from state employees.

1. Maryland Sport Fish Tournament

To promote sport fishing opportunities in MD, as well as provide size and distribution data on sport fishing species. The data are compiled on a spreadsheet from applications sent in by official citation centers. It includes the anglers identification, species, length, date of catch, location, bait used, and charterboat information. Recognition to anglers with significant sport fishing catches, spatial time and geographical distribution of targeted sport fishing species, length/weight frequency data, historical sport fishing catch data since 1965.

Ongoing

Cost: State: \$43,000

2. Commercial Fisheries MSSA Striped Bass

To acquire data relating to size(length), disposition of catch (kept/released), and geographic distribution of catch of striped bass which were recreationally harvested in MD waters during the 1995 seasons. Information is utilized to aid in determining length frequency distributions for kept and released fish and ratios of pre migratory resident stock/non resident migratory stock and the corresponding catch and release rates for those stocks. Date, effort (hrs. fished and # of anglers), spatial (geographic by NOAA code), catch (both targeted and composition), # of each species kept and released and striped bass length. Aided in: characterizing the composition of MD recreational striped bass harvest, segregating pre migratory and

migratory stock, determining catch/release ratios for seasons, assessing length frequency distributions, characterization of geographic data.

Beginning: 4/95 / Ending: 12/95 but ongoing

Cost: State: \$5,000; Other: \$6,000; Total: \$11,000

3. Estuarine Tagging Survey

To provide the US FWS Cooperative Coastal Striped Bass Tagging Program a pool of striped bass tagged in MD waters and supplement the coastal striped bass tagging program. Striped bass are tagged during 3 separate surveys; 1. A specialized mark/recapture study (Aug. to Dec.), fishery independent spawning stock survey (April to May), US FWS cooperative tagging cruise for Atlantic coast (Jan. to Feb.) Biological release and recapture data; release date, length, sex, age, tag number, temperature, salinity, recapture date. The mark/recapture study conducted in the main Chesapeake Bay and Potomac River is used to estimate directed instantaneous fishing mortality rate (F) on the resident / premigratory component of the Chesapeake Bay striped bass stock.

Ongoing

Cost: State: \$6,801; Federal: \$20,404; Total: \$27,205.

4. Estuarine Choptank Creel Survey

To collect Choptank River Spring sport fishery harvest data and compare these findings with other stock assessment information collected in order to evaluate management practices. This survey is part of a larger project which collects information on 13 species. In this survey, a randomized angler creel survey of bus route design of bus route design is conducted on the Choptank River at 17 access points, survey begins in March through mid-April with twice weekly interviews and then once a week. Provides info on species harvested during spring spawning run fishery. These fisheries are not covered by MRFSS. Info can help in evaluating stock status, effectiveness of regulations and need for regulations.

5. Fish Statistics

To obtain catch and effort information on charter industries' activities. Charterboat Striped Bass. Weekly reports by boat. Data is stored in a DBase III file. Consisting of species, number and pounds caught, location, anglers, and trips for each day. Able to keep track of fishing activity within the charter industry, and also track the amount of effort extended in landing important fish species such as striped bass.

ONGOING

6. Fish Statistics

To estimate recreational fishing participation in MD beaches and Oceanside bays and in the month of July, August and September. Oceanside Recreational Fishing Survey, 1994. Survey has 2 parts: 1) An aerial count of anglers in the survey area (bays and beaches) on randomly selected days in July, Aug, Sept. 2) An intercept survey of Road 50 Bridge, Assateague beach, and boat ramps in Ocean city on randomly selected basis. The objective of this intercept survey is to estimate fishing activity curve, average number of fishing trips per angler, and ratio of licensed anglers to unlicensed anglers. Provide information on MD oceanside bays recreational fishing participation. This information is useful in fishery management and it is the first time that such information is directly collected by a state agency.

BEGINNING: July 94 / ENDING Sept. 94

7. Fish Statistics

Estimate MD 1995 fall season recreational striped bass harvest. Recreational Striped Bass The project includes a random telephone survey, a field intercept survey, and a final data analysis and estimation. The objective of the telephone survey is to estimate the total # of fishing trips concerning striped bass permit and in 1995. The objective of the intercept survey is to estimate average catch rate and average length or fish kept. Obtained estimates of 1995 fall recreational harvest, fishing efforts, mean catch per trip, and mean length of fish kept.

BEGINNING: Sept. 1995 / ENDING: Jan. 1996

VIRGINIA

Projects in Virginia are conducted under the auspices of the Virginia Marine Resources Commission. The following are responses to the questionnaire from state employees.

1. Cooperative Tagging Program

Recreational Fishermen assist in tagging program. Promotes catch-and-release fishing. Educate proper fish handling and release tech. Foster conservation ethic. Obtain info on growth, migration and movement. Up to 100 volunteer anglers are enlisted each year. State broken into 4 regions--goal 25 anglers from each area. Taggers attend workshop for proper tagging, data collection. For each tagged fish; species, size and location is collected. Present Target: Red drum, Black drum, Cobia, Tautog, spotted sea trout, Spade fish. Create and maintain database of all tagged fish with recapture info when and if it occurs. Foster C-and-R ethic. Involve active

members of recreational community in fish. management. Timely info can be obtained at minimal cost by alerting taggers to target participation.

BEGINNING: 1/1/96 **ONGOING** until 12/31/96; IF FUNDING REMAINS AVAILABLE.

Cost: Funded through saltwater Licence Money State: \$35,00

2. VA Saltwater Fishing Tournament

Promote Saltwater Fishing in Virginia. Awards plaques to anglers for 25 species of fish which meet certain minimum weight. 12 species eligible for release awards. Info includes angler, home address, phone #, where and how caught. Maintains state records. Database goes back to 1958. Weight, Minimum release length and eligible have changed through the period. Detailed records back to 1958. Data does show trends - though minimum sizes have changed and effort for tac time series is virtually unknown.

BEGINNING: 3/1/ **ENDING:** 12/31/ **FOR** 1996 YEAR ROUND

Cost: State: \$145,000 The tournament was funded w/ state general funds until 1995. In 1995 (and continuing in 1996)

3. Trophy Striped Bass Season May1-May16

Monitor 2 week season-only fish 32", 1 per angler. Angler must report any greater than 32" S. Bass creeled forms are provided by VMRC, available at all weigh stations and many tackle shops and marines. Dockside interviews were used to estimate % anglers aware of reporting requirements (i.e. potential non-reporters). Sample was too small to provide another estimate of catch rate. NMFS MRFSS data is examined. For 1995, date, # people, water area fished, rod hrs., # S.Bass caught, # kept and length of fish. "In House" such that no person or group was appointed. An estimate of the # of S.Bass greater 32" killed (creeled) during the May 1-May 16, 1995 season. To meet ASMFC monitoring requirement.

BEGINNING: MAY 1, 1995 **ENDING:** MAY 16, 1995 **ONGOING**

Cost: State- \$300.00 Only cost for printing 20,000 Forms can be calculated.

4. NMFS MRFSS

MRFSS. Estimates of Rec. caught finfish, # trips, etc. Began obtaining economic info 1994. Used solely to meet ASMFC monitoring criteria for S. Bass since 1993.

BEGINNING: Jan 1,1996 **ENDING:** Dec. 31, 1996 **ONGOING**

Cost: State: \$150,000 1996 In recent years VA has "added on" as funding is available, to improve estimates.

NORTH CAROLINA

Projects in North Carolina are conducted under the auspices of the North Carolina Division of Marine Fisheries. The following are responses to the questionnaire from state employees.

1. Marine Recreational Fishery Statistics Survey

To obtain angler interviews needed to produce reliable estimates of marine recreational catch at the State level and obtain needed biological data. Augmentation of MRFSS, database format: Obtained: 20,123 angler interviews, 27, 142 individual lengths and weights, 500 biological samples in 1995. PSE's of less than 20 for major species 1994. Add-on questions to address state needs. NC water body specific data collection, independent sampling and estimate for shore catches, high agency visibility, in-house ability to produce summaries of recreational catch and user participation, site register maintenance capabilities, provide recreational data.

Beginning 1987, ONGOING

Cost: State: \$54 K; Federal: \$166 K; Total: \$220 K (1996)

SOUTH CAROLINA

Projects in South Carolina are conducted under the auspices of the South Carolina Department of Natural Resources. The following are responses to the questionnaire from state employees.

1. BILLFISH MONITORING

Document total recreational catch of blue marlin, white marlin, sailfish, spearfish, and swordfish and establish seasonal CPUE by Species. CPUE by species during May and June of each year. During 3-7 tournaments held annually in May and June. length, weight, sex data by species for each year; total annual catch by species for each year; total annual catch by species; annual vessel harvest; catch per trip and per angler. Direct vessel intercept during tournaments. Weekly telephone survey of key locations statewide. Hand-tabulated original data forms; annual summary tables.

Beginning: 4/72; ongoing

Cost: Federal:

2. OCEAN PELAGIC GAME FISH SURVEY

Collect CPUE data by species, total harvest, and creel composition for oceanic pelagic game fish taken by boats participating in sport fishing tournaments. Creel composition per trip by tournament, total harvest by species per tournament, total effort, length frequency by species, CPUE by species. During tournaments held annually in May and June. Direct vessel intercept during tournaments. Hand-tabulated original data forms.

Beginning: 4/85; ongoing

3. SOUTH CAROLINA MARINE RECREATIONAL FISHERY SURVEYS, 1985 AND 1986.

The objective of this project is to test the feasibility of passive collection (on site drop box) method for surveying versus creel census methodology and gather baseline data on recreational fisheries. Length of boat, type of activity (rod and reel, gill net, crabbing, etc.), site usage frequency, time of day usage, preferred months, target species, catch (numbers), problems perceived in the local fishery. On site collection boxes with survey cards and roving creel census. Data not computerized, raw data discarded, summary data in project report.

Beginning: 11/15/85; Ending 6/30/86

4. South Carolina Marine Recreational Fishery Statistics Survey 1987.

Objective: Est. total catch by species, time frame, and fishing zone, disposition of catch, target species, estimate participation by residential category, estimate effort by residential category and time frame, length distribution of selected species, CPUE for select species. NMFS MRFSS data elements. NMFS MRFSS procedures. NMFS maintains MRFSS files. Summary data available in project report.

Beginning: 1/01/88; Ending: Fishing survey - 12/31/88; Shellfish Survey - 4/30/88

5. South Carolina Marine Recreational Fish and Shellfish Fishery surveys, 1988

Objective: Estimated total catch by species, time frame, and fishing zone, disposition of catch, target species, estimate participation by residential category, estimate effort by residential category and time frame, length distribution of selected species, CPUE. Shellfish survey stored as dBase III file. Weekly. NMFS maintains MRFSS files. Supplemental state survey forms stored at SC Marine Resources as SAS data set. Shellfish survey stored at SCMR as dBase file. Shellfish survey documents types of shellfish taken (i.e. oysters or clams), quantity, trip duration, numbers in party, previous effort, residency, perceived quality and limited socio-economic data. Contains NMFS MRFSS data elements. Fishing survey used NMFS MRFSS procedures. Supplemental state survey similar procedures to MRFSS, but different site scheduling.

Beginning: 1/01/88; Ending: Fishing - 12/31/88; Shellfish - 4/30/89

6. South Carolina Marine Recreational Fishery Survey, 1989

Objective: Est. total catch by species, time frame, and fishing zone, disposition of catch, target species, estimate participation by residential category, estimate effort by residential category and time frame, length distribution of selected species. NMFS MRFSS data elements. Weekly. NMFS MRFSS procedures. State survey similar interview form and sites, different site scheduling. NMFS maintains MRFSS file. State survey information in SAS data sets.

Beginning: 3/01/89; Ending: 12/31/89

7. South Carolina Marine Recreational Fishery Survey, 1990

Est. total catch by species, time frame, and fishing zone, disposition of catch, target species, estimate participation by residential category, estimate effort by residential category and time frame, length distribution of selected species. NMFS MRFSS data elements. Weekly. NMFS MRFSS procedures. State survey similar interview form and sites, different scheduling. NMFS maintains MRFSS file. State survey information in SAS data sets.

Beginning: 3/01/90; Ending: 12/31/90

8. South Carolina Marine Recreational Fishery Survey, 1991

Estimate total catch by species, time frame, and fishing zone, disposition of catch, target species, estimate participation by residential category, estimate effort by residential category and time frame, length distribution, CPUE for selected species. NMFS MRFSS data elements, trip expenditures, tag recapture information. Weekly. NMFS MRFSS procedures. State survey similar interview form and procedures, different site scheduling. NMFS maintains MRFSS file State survey information in SAS data sets

Beginning: ___3/01/91___Ending___12/31/91

9. South Carolina Marine Recreational Fishery Survey, 1992.

Est. total catch by species, time frame, and fishing zone, disposition of catch, target species, estimate participation by residential category, estimate effort by residential category and time frame, length distribution, CPUE for selected species. NMFS MRFSS data elements, trip expenditures, tag recapture information. Weekly. NMFS MRFSS procedures. State survey uses similar interview form and procedures, different site scheduling.

Beginning: 1/01/92 ongoing

10. Recreational Pier, Charterboat and Head Boat Reporting

To obtain catch and effort data from commercial piers, charterboats and head boats. Effort, catch and participation information, location, duration, artificial reef usage, numbers of anglers, number and weight by species. Daily trip logs reported on a monthly basis. Mandatory daily trip log submitted on a monthly basis. Data storage and access methods are in the process of being developed.

Beginning: 7/01/92; ongoing

11. Survey of Recreational Saltwater Private-boat Anglers and Shellfish Gatherers

To obtain catch, effort and participating data from private-boat anglers and recreational shellfish gatherers. Effort, catch and participation information, general location information, average trip duration, artificial reef usage, numbers of anglers per boat, etc. Being developed. Data will be collected through a periodic mail survey that is being developed. A data base will be built from records obtained from mandatory saltwater fishing stamp purchases.

Beginning: 7/01/92; ongoing

12. South Carolina Department of Natural Resources

Estimate participation of individuals and boats and the number of bait-marking poles utilized. Document period of activity. Estimate total take of the fishery, size and species composition. Assessment of Participation and Resource Impact of Shrimp Baiting in Coastal South Carolina during 1987. Summary data available in project report. One-time questionnaire mail-out with follow-up to non-respondents. Boat landing used, type of bait used, boat length, number throwing cast net, net size, county of residence, daily catch, species composition and subsample of size. One time post-season mail-out of postage paid self-addressed postcard sent to randomly selected subsample of registered boat owners. On-site creel census of heavily used boat landings.

Beginning: 11/01/87; Ending: 12/31/87

13. Survey of the South Carolina Shrimp Baiting Fishery, 1988

Estimate total effort (number of trips), estimate total participation by permit holders and assistants, estimate total retained catch of shrimp, identify areas most heavily used solicit comments on management. Number of trips by area, number of assistants, average catch/trip, comments. One-time questionnaire mail-out with follow-up to non-respondents. Post-season questionnaire mail-out to all licensed participants. Follow-up mail-out to non-respondents. All data stored at S. C. Department of Natural Resources as SAS data sets.

Beginning: 11/18/88; Ending: 2/26/89

14. Survey of the South Carolina Shrimp Baiting Fishery, 1989

Estimates total effort (# of trips), total participation by permit holders and assistants, total retained catch of shrimp and fish bycatch, total direct economic expenditures, total ex-vessel value of shrimp catch, develop socio-economic profile of permit holders, identify areas most heavily utilized, solicit comments on management. On-site intercept included date, county of residence, zip code, trips this season, # of assistants, gear characteristics location shrimped, hrs shrimped, distance traveled one way, direct trip expenditures, fish kept, estimates shrimp catch, condition. Mail-out questionnaire included county of residence, zip code, trips by month, area shrimped, access point used, # of assist, average catch/trip, # of times a limit caught, other types of fishing this year, # of household, gross household income. On-site intercept: Creel clerk stationed at main access points, interviewed and measured (volume) catch. Mail-out survey: Randomly selected subsample of licensed participants, stratified by residential category.

Beginning: 9/15/89; Ending: 12/31/89

15. Survey of the South Carolina Shrimp Baiting Fishery, 1990

Estimate total participation by permit holders and assistants, estimate total effort (number of trips), estimate total catch, estimate effort and catch by area, poll constituency opinion on management options. Data not computerized, raw data discarded, raw data summaries (hand computation) filed, summary data available in project report. Number of trips by month and area, number of assistants, average catch/trip, management options supported. One-time mail-out. One-time post-season mail-out of postage paid self-addressed postcard questionnaire sent to randomly selected subsample of licensed participants, stratified by area of residence.

Beginning: 11/09/90; Ending: 12/31/90

16. Survey of the South Carolina Shrimp Baiting Fishery, 1991

Estimate total participation by permit holders and assistants, estimate total effort (# of trips), estimate total catch, estimate effort and catch by areas, update demographic and socioeconomic profiles of participants, solicit constituency opinions on management. County of residence, zip code, trips/month, trips/area, # of assistants, average catch/trip, total season catch, gear characteristics, travel distance 1 way, direct trip expenditures, people sharing trip costs, willingness-to-pay, # in household, gross household income, age, experience, problems/conflicts in fishery, satisfaction rating, comments on management. One-time mail-out. Most data not computerized, raw data discarded, raw data summaries filed. One-time post-season mail-out of postage paid self-addressed letter questionnaire sent to randomly selected subsample of license holders, stratified by area of residence.

Beginning: 12/03/91; Ending: 12/31/91

17. An Economic and Biological Evaluation of the South Carolina Pier Fishery

Document total participation using pier tax records. Obtain species and quantity harvested and general characteristics of pier anglers. Socioeconomic profile of anglers, length distributions of finfish, creel composition, CPUE by species, seasonal effort. Direct intercept. Hand-tabulated original data forms. Summary tables available in project report.

Beginning: 3/74; Ending: 12/74

18. Socio-economic Profile of South Carolina's Offshore Sport Fishermen

To obtain baseline information on recreational shellfish harvesters in South Carolina. Income, occupation, residence, fishing experience, preferences, target species, reasons for visiting coastal area and going fishing. Monthly mail survey, telephone survey and on-site interview. Summary data available in project report. Monthly mail survey to random sample of private boat owners, telephone interview of charterboat anglers and personal interview of head boat fishermen. Data worked up by hand calculations, not computerized. Raw data discarded.

Beginning: 1/01/77; Ending: 12/31/77

19. Recreational Shellfish Gathering in South Carolina, 1980-81

To obtain baseline information on recreational shellfish harvesters in South Carolina. Effort and catch information, location, period, previous experience, willingness to pay and condition of shellfish beds data from recreational shellfish gatherers. One-time postal card questionnaire. One-time postal card questionnaire to subsample registered boat owners. Data worked up by hand calculations, not computerized. Raw data discarded. Summary data available in project report.

Beginning: 7/01/81; Ending: 12/31/81

20. Survey of Recreational Shellfish Harvesters in the Folly/Stono Rivers and Sullivans Island/Isle of Palms public shellfish areas, 1991

Provide data on effort, harvest, boat length, county of boat registration, socioeconomic characteristics in several of the most heavily utilized public shellfish grounds. Location of harvest, type of shellfish targeted, amount gathered, effort, # of previous trips that season, boat length, county of boat registration, county of residence, direct trip expenditures, opinion on size and quantity of shellfish availability. On-site intercept at closes public access points, tide-dependent. Data not computerized, raw data discarded, summary data available in report.

Beginning: 1/12/91; Ending: 3/18/91

21. Survey of the Tailrace Canal Recreational Shad Fishery, 1985-1987

Assess impact of Santee/Cooper re-diversion project. Document catch and effort in seasonal (March-April) recreational fishery for American shad (Cooper River stock). Creel census at major access points, drop box card survey at major access points. Trailer counts, angler counts, boat counts, species preference, catch (number) by species, fish per angler-trip. 2-3 days/wk. Boat/angler counts at major access points, stationary creel census at principal access point, drop box survey card collection at principal access point. Data not computerized, raw data discarded, summary data available in report.

Beginning: 3/08/85; Ending: 4/12/87

22. Survey of South Carolina Gigging Fishery, 1991

Document participation, catch, effort, characteristics of the gigging fishery. Area of residence, monthly effort (# of trips) age group, years of experience, boat length, target species, monthly catch (#) estimate by species, average direct trip expense, disposition of catch, comments on management. Monthly collection. Monthly mail-out to subsample (randomly selected) of license holders, stratified by residential category, postage paid self-addressed. Data not computerized, raw data discarded, summary data available in report.

Beginning: 4/91; Ending: 11/91

23. South Carolina Master Angler Program

Provide recognition to anglers catching above average quality fish and to fishermen who practice fisheries conservation through tag and release fishing. Anglers are offered two types of certificate: 1. For fish meeting set weight requirements. (citation fish); 2. For the tag and release of a minimum of 30 game fish in a calendar year, (conservation citation). Data of length, girth, weight, date and location of catch is collected on citation fish. Data on species, length, estimated weight, date and location of release is collected on tagged fish. To provide an index to quality and abundance fluctuations on primary game fish. To encourage participation in the S.C. Marine Game Fish Tagging Program.

Beginning: 1987; ongoing

Cost: State: \$1,600

24. State Record Marine Game fish

To recognize the largest individual of each species of recognized game fish caught in a sporting manner as set forth by program angling rules. Total length, fork length, half girth, and weight. Where and when caught, kind and type of tackle and method of fishing. An index to the quality and diversity of sport fishing

opportunity in S. C. - State record Marine Game Fish Certificate to angler. - State wide news release. - Promotion of the fishery with attendant economic effect.

Beginning: 1968; ongoing

Cost: State: \$1,200

25. South Carolina Marine Game Fish Tagging Program

To encourage anglers to practice tag and release fishing. Through tag and release fishing, anglers are conserving the resource while assisting in the advancement of knowledge of marine game fish species. Anglers are provided with free tagging kits so they may tag the fish they catch. Tagging has provided input on growth, migration, fishing pressures and mortality. Over 60,000 fish have been tagged and 5,000 have been recaptured. Recapture information has been obtained on 31 species of game fish. Legislation to protect several game fish species has been influenced by results from this tagging program.

Beginning: 1974; ongoing

State: \$47,000

26. Estimate of Scuba Spearfishing Harvest, Effort and Economic Impact associated with South Carolina's Artificial Reefs

1) Estimate recreational spearfishing harvest and effort on S.C. Artificial Reefs. 2) Estimate Economic Impact of Recreational Scuba Divers on S.C. Artificial Reefs; 3) Est. Economic benefits derived by recreational spearfishing diver using S.C. artificial reefs. Data on Diver activities were obtained through four sources: 1) In-person interviews of private boat/charter boat divers returning from dive trips. 2) Weekly telephone interviews of S.C. dive shop operators. 3) Postcard questionnaire filled out by divers concerning their most recent dive. 4) Postcard questionnaire sent to subscribers of a dive magazine and members of dive clubs. RESULTS: In 1990, the estimated economic impact of divers utilizing artificial reefs was \$339,300. This figure was based on respondents only. The total population of S.C. divers is unknown. Of the respondents,

33% of the divers visiting art. reefs utilized spearguns. 58% engaged in sightseeing only. A detailed break-down of diver activities was obtained.

Beginning: 07/01/90; Ending: 9/30/91

Cost: State: \$5,576; Federal: \$14,079

27. Survey of Recreational Fishing use of South Carolina's Marine Artificial Reefs By Private Boat Anglers

1) Determine the extent to which private boat anglers utilize artificial reefs off S.C. 2) Examine reef usage patterns as they apply to various reefs locations.

3) Estimate economic impact associated with private boat reef utilization. The project was designed to provide art. reef managers with info. concerning reef utilization by recreational fishermen in private boats. A great deal of data was obtained concerning fishermen activities on a regional and reef-by-reef basis. Socio-economic data was also considered pertaining to reef fishing. An annual mail-out survey was used based on a random sample of the registered boaters (16'x greater) for S.C. based on 1991 activities. DATA CONT...for more specific question regarding reef usage and economics, a quarterly survey was sent out to obtain better recall questions about the last fishing trip were listed. (3 quarters in 1992). A response rate of 49% was achieved in the annual survey for 1991. Response rates of 19%, 31% and 20% were achieved in the quarterly 1992 effort. The total economic impact of art. reef fishing from private boats in 1992 was \$17 million annually.

Beginning: Dec 1, 1991; Ending: July 31, 1993

Cost: State: \$13,393; Federal: \$39,788

GEORGIA

Projects in Georgia are conducted under the auspices of the Georgia Department of Natural Resources, Coastal Resources Division. The following are responses to the questionnaire from state employees.

1. Georgia Saltwater Gamefish Records Program

The objectives of this project are to: 1) recognize outstanding angling achievements/catches; 2) promote ethical, sporting angling practices and a greater appreciation of coastal resources; and 3) gather scientific data regarding the occurrence, size, and seasonality of GA gamefish. Based on IGFA rules and regulations, somewhat modified. Records are maintained/awarded for 52 species of gamefish in a men's and woman's categories. "Outstanding Catch" certificates awarded for unusual or exceptional catches that are not reported. Data consists of program files and current listings of records on a word processor. Includes certified weight, lengths, date, location of catch, etc. All decisions are made by a Review Committee. 1) Records for species back into the 1970's. 2) Satisfies angler demands for a State records program. 3) Promotes sporting angling practices. 4) Enhances angler and charter vessel angling experiences.

Beginning: 1974 - Present (Ongoing)

Cost: State: \$700.00/yr Federal: \$0.0 Other: \$0.0 Total: \$700.00/yr

2. Cooperative Marine Sportfish Tagging Program

Gather scientific data and promote conservation by involving the angling public in tagging of marine sportfish. The existing program is relatively small in scale involving approximately 20 anglers who primarily target adult red drum and tarpon. Tagging data is integrated into a database which includes all fishery-independent data. The Georgia Coastal Conservation Association is involved as a cooperator in this project. Annually, several hundred adult red drum and numerous tarpon are tagged by cooperating anglers. This greatly increases the sample size in our tagging experiments while promoting the catch and release ethic in Georgia's marine recreational fisheries.

Beginning: 1988 - Present (Ongoing)

Cost: State: \$0.00 Federal: \$3000.00 Other: \$0.0 Total: \$3000.00

3. Survey of Georgia's Marine Recreational Fishery

To determine the extent of the marine recreational fishery in Georgia's inshore and offshore waters. The first 18 months of the project consisted of developing an accurate site pressure index for site selection in the MRFSS. Georgia conducted site intercept interviews for MRFSS between 1985-1990. In an effort to reduce PSE's, various methods were tried with some success. Data set format is on the MRFSS system. Project personnel consisted of two biologist, two full time creel clerks and several part time creel clerks. RESULTS: Increased intercept sampling provided vital catch info on several species which was utilized in the development of FMPs. Multi-year harvest info results in a baseline from which to determine impacts of an expanding coastal population on limited finfish resources. Data enabled a comprehensive evaluation of survey design as well as trends in harvest.

Beginning: 1984 - 1990

Cost: State: \$75,077.00 Federal: \$225,230.00 Other: \$0.00 Total: \$300,307.00

FLORIDA

Projects in Florida are conducted under the auspices of the Florida Department of Environmental Protection. The following are responses to the questionnaire from state employees.

1. Recreational Lobster Mail Survey

Estimate the recreational harvest of spiny lobster in the state of Florida. Determine other harvest parameters such as the harvest across 7 sub regions in the state and to determine how recreational fishers moved across the state in order to fish. Four mail surveys. 1st covers FL 2 day Rec. Season, 2nd covers 1st month of reg. season, 3rd conducted @ end of season to determine fishing levels, 4th

constituted of quarterly reports of special recreational license. Data kept on dBase, ASCII, SPSS, and Qt. Ask the fishers if they fished during the time period of each survey, what their experience level is, size of group they fished in, how many they caught as individuals and as group, where and how often they fished, type of gear, how much \$ sp. The estimated harvest during the 2-day special sport season in 1994 was 370,000 lobster taken by 46,000 fishers; the first month of the reg. season estimate harvest was 1.3 million lobsters taken by 65,000 fishers.

BEGINNING: June 1991 / ONGOING

Cost: \$45,000 per year / salaries \$35,000; expense \$10,000

2. Marine Recreational Fishing Access Site Survey

To maintain an inventory of marine recreational fishing sites and access points in each of the major bay systems of Florida and to develop weighting factors for each surveyed site. FL intention is to conduct recreational catch and estimate effort creel surveys @ estuarine bay system level. MRFSS is capable of producing catch estimates by coast. Most recreational fisheries management is done @ regional bay level. Conducted by FL DEP. we maintain site inventory for the counties surrounding major bay system in FL. This data will be used as the universe of fishing sites from which to conduct creel surveys when full program is funded. We are prepared to conduct creel surveys when the State is able to fund such a survey. The data are currently being used for production of fishing access maps for the public.

BEGINNING: 1986 / ONGOING

Cost: Difficult to estimate real cost: approx.: State: \$75,000 Federal: \$25,000 W/B

Total: \$100,000.

**Appendix A:
Survey Questionnaire**

**ASMFC COOPERATIVE STATE/ANGLER REPORTING SURVEY
QUESTIONNAIRE FORM**

1) State or region/agency: _____

2) Project/Title Name: _____

3) Project Goals/Objectives: _____

4) Brief description of project including type of data being collected, data set format, number of project personnel, and the name of the principal project leader(s), work address and phone number: _____

5) Contact Person or Person in Charge of Project:

Name: _____

Address: _____

Phone: _____ **Fax:** _____

6) Results and Benefits: _____

7) Project duration: Beginning: _____ Ending: _____ Ongoing: _____

8) Project Cost/Funding Breakdown: _____

Thank You for Your Assistance

