NOAA Technical Memorandum NMFS-SEFC-53

A FISHERY STATISTICS PLAN FOR THE SOUTHEASTERN UNITED STATES

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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Center
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U.S. DEPARTMENT OF COMMERCE
Philip M. Klutznick, Secretary
National Oceanic and Atmospheric Administration
Richard A. Frank, Administrator
National Marine Fisheries Service
Terry L. Leitzell, Assistant Administrator for Fisheries

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TABLE OF CONTENTS

I. INTRODUCTION

The Fishery Conservation and Management Act of 1976 mandates the National Marine Fisheries Service to undertake a program of fishery research, including the collection of fishery statistics, which will provide the data and information required to manage the fishery resources of the nation.

In the Southeast Region, an information system is being developed to convert fishery data into information for fishery managers that will meet the requirements of the Act (as well as the other statutory requirements listed on page six). The overall system,, termed the Southeast Fisheries Information Network (SEFIN), is composed of separate components, each designed to perform specific functions. These components are:

- o data collection system
- o detailed data base
- o summary data base
- o analysis and modeling
- o management information bank

When completed, SEFIN will provide for the collection and maintenance of fishery data, statistics, and information, and will support research and management activities in the Region.

The objectives of SEFIN are:

- o to provide data, statistics, and information to determine the needs of management and to evaluate the effects of management measures on fish stocks and fisheries

- o to specify statistical data and analyses required to answer management questions

- o to promote coordination between data collection, data processing, analysis, and fishery management activities

- o to minimize the reporting burden on the public

Currently, NMFS personnel are developing descriptions of the functional characteristics of each component of SEFIN. These descriptions will be used to implement effective programs to collect data and produce information necessary for managing renewable marine resources in the Southeast Region.

This report describes the data collection component of SEFIN and recommends a strategy for the collection of fishery data. This report constitutes a plan

for implementation by the Southeast Fisheries Center (SEFC) to collect fishery data pursuant to the responsibilities of NMFS under the Fishery Conservation and Management Act. Discussed in this report are requirements for data that have been established by the Act, by the Regional Fishery Management Councils, and by the Fishery Management Plans, and the desired characteristics of a data collection system. Also, this report describes the present fishery data collection system in the Southeast and proposes changes leading to a generalized system which will meet the information needs for fishery management. The report sets out policy choices and technical decisions that need to be made by state and federal authorities to effect necessary changes in the current system.

The recommended data collection consists of selected data collection modules which best meet the data needs of a particular fishery management unit. These data collection modules are the means for collecting individual data elements which are then transformed and organized into useful detail and summary data bases. In this report recommendations are made, based on cost and performance characteristics, for selecting specific data collection modules which will comprise the proposed data collection system.

II. OBJECTIVES OF A FISHERY DATA COLLECTION SYSTEM

The objectives of a data collection system are to:

1. Provide statistical data necessary for scientific management of the fishery resources of the Southeastern United States. These data are required by fishery administrators to monitor the progress and condition of the fisheries. They are also required by scientists to conduct biological and economic analyses on the status of stocks and the effects of regulations on the fishery.

2. Protect the confidentiality of individual business or personal statistics submitted to NMFS by the public as authorized or required by law (FCMA).

3. Establish a data base applicable to the fishery resources throughout the range that can be used by Federal and State agencies in managing the resources in their respective areas of jurisdiction and in a cooperative manner where desirable.

4. Promote cooperation among agencies to achieve the most cost efficient production and utilization of statistical data.

III. REQUIREMENTS AND DESIRED CHARACTERISTICS OF A FISHERY DATA COLLECTION SYSTEM

The requirements for statistical data established by the Act, the Councils, and the fishery management plans were examined. General requirements are for data to estimate maximum sustainable yield, fleet capacity, processing capacity, and catch in relation to optimum yield. Specific requirements are for data to estimate the impacts of the management measures that are specific for each plan and to provide stock assessments and fishery monitoring appropriate to each plan.

The plans differ considerably in their objectives and therefore in their monitoring and statistical data needs. These data needs have been considered in documents previously prepared by NMFS, such as the "Southeast Regional Data Collection Plan for Economic and Sociological Data" and in documents prepared by the Councils, such as "Research Priorities". These documents and the fishery management plans were reviewed and it was determined that a data collection system must be flexible and adaptable. The same system will not meet the data ne ds of all fisheries, and the data needs of each fishery will probably change with time.

With these requirements in mind, the desired characteristics of a data collection are therefore determined to be:

1. Timely collection and maintenance of data on pertinent attributes of fish populations, harvesting units, fishermen, dealers, handlers, processors, markets, and consumers.

2. Collection and maintenance of data in sufficient detail to accurately describe spatiotemporal segments of the fishery.

3. Collection of the quantity and quality of data necessary to allow scientific and management use at required levels of precision for biological assessments, economic analyses, and management decisions.

IV. PRESENT FISHERY DATA COLLECTION SYSTEM

Fishery statistics are presently collected by the Statistics Division of the Technical and Information Management Services (TIMS) of the Southeast Fisheries Center, NMFS, and by state conservation agencies in the southeast. These agencies have provided data in the past for developing the first fishery management plans, and represent a resource that can provide much of the data required in the future to monitor these plans. Present federal and state systems are described herin to provide background information on which to base recommendaions for meeting additional and needs.

A. Federal Fishery Survey System in the Southeast Region

1. Mission: The Statistics Division of TIMS is responsible for survey activities involving the collection of catch, effort, economic and social data from the public for commercial and recreational fisheries in the Southeast Region, and is responsible for the design, implementation, and management of such surveys.

2. Current Organization and Operation of the TIMS Statistics Division: The Statistics Division is currently staffed by port agents located at 26 locations in eight states. The Division has an authorized strength of 42 full-time positions and uses approximately 26 additional people to collect data on a part-time basis.

The 1979 Fishery Survey budget was 1208.3K, including an Atlantic Bluefin Tuna contract for $32.9K. Approximately 83% of the $1208.3K budget is used for regular data collection efforts by full time personnel, and 10% is used for special surveys, primarily related to recreational fishery data collection. The 1979 Data Management budget was 732.9K, including personnel costs and computer services.

3. Authorizations:

a. NMFS is authorized to collect biological, economic, and other data under the following statutes:

Fish and Wildlife Coordination Act of 1934; 16 USC 661

Fishery Market News Service Act of 1937; 50 Stat. 296

Agricultural Marketing Act of 1946; 7 USC 1621

Farrington Act, 1947; 16 USC 758

Atlantic Coast Fish Study for Development and Protection of Fish Resources, 1950; 16 USC 760

Tuna Convention Act of 1950; 16 USC 951

Agricultural Trade Development & Assistance Act of 1954; 7 USC 1704

Fish and Wildlife Act of 1956; 16 USC 742(a)

Marine Migratory Sportfish Act of 1959; 16 USC 760

Commercial Fisheries Research and Development of 1965; 16 USC 779

Atlantic Tunas Convention Act of 1975; 16 USC 971

Fishery Conservation and Management Act of 1976; 16 USC 1801

b. Confidential data collected under these and other authorities may be subject to procedural safeguards and limitations set forth in the following statutes:

Trade Secrets Act, 1948; 18 USC 1905

Federal Reports Act, 1968; 44 USC 3501

Privacy Act, 1974; 5 USC 552a

Freedom of Information Act; 5 USC 552a

c. Primary substantive authorities

The most often used authority for collecting fisheries statistics is the Fish and Wildlife Act (P.L. 84-1024) which states:

...the Secretary of Commerce shall conduct continuing investigations, prepare and disseminate information and make periodic reports to the public, to the President, and to Congress with respect to production and flow to market of fish and fishery products domestically produced, and also those produced by foreign producers which affect the domestic fisheries...and the collection and dissemination of statistics...on commercial and sport fishing...

The Fishery Conservation and Management Act created a mandatory reporting requirement, to be specified in all FMP's on:

...information regarding the type and quantity of fishing gear used, catch by species in number of fish or weight thereof, areas in which fishing was engaged in, time of fishing, number of hauls and the estimated processing capacity of, and the actual processing capacity utilized by, United States fish processors. (Section 303(a)(5))

4. User Needs: Many and varied uses are made of commercial and recreational fishery statistics. In addition to their use by fishery managers in NMFS, the Councils, and state conservation agencies; statistics are provided to commercial and recreational fishermen, handlers, processors, retailers, scientists, and the general public.

5. Activities: To meet the data needs of the various users, the Statistics Division of TIMS performs the following tasks:

a. Designs and implements surveys involving the collection of fishery data from the public.

b. Collects biological samples in support of scientific investigations.

c. Collects monthly data on landings and prices of fish and shellfish.

d. Collects detailed catch and effort data from a sample of the total number of trips made in the Gulf of Mexico shrimp fishery.

e. Collects quarterly and annual data on processed food and industrial fish products.

f. Makes special economic surveys of the fishing industry.

g. Collects detailed data on the bait shrimp fishery in Florida.

h. Carries out special surveys of recreational fisheries.

i. Compiles annual data on operating units -- vessels, boats, number and quantity of gear, and persons engaged in full- and part-time fishing.

j. Disseminates statistical data on fishery resources.

6. Data Collection Methodology: The present NMFS system of data collection consists of voluntary reports provided by cooperating fishermen, seafood dealers, and processors. Reports are submitted to NMFS either by mail or given directly to NMFS port agents. Port agents interview fishermen, handlers, and processors to collect additional data.

In certain areas it is necessary to assign more than one agent as determined by workload volume, diversity and seasonality of the fisheries, and by the types and volume of data to be collected. Other factors considered are mileage travelled, dealer case load, and number of species being reported.

Some data collection efforts are being conducted by contracts. The recreational data now being collected annually in the Southeast Region by the National Recreational Survey is by contract.

7. Data Collection: Fishery data are collected over the entire Southeast Region for all species and for both the commercial and recreational harvesting sectors. Categories of data elements include catch, effort, bioprofile, economic, and social.

The detail with which these data are collected and the extent of coverage vary considerably with respect to region, species, and fishery. For example, relatively large amounts of manpower and money resources have been used for collecting detailed data on the menhaden and the Gulf shrimp fisheries. However, the level of detail and coverage has been lower for most other commercial fisheries and for recreational fisheries.

a. Commercial Landings Data

Data on the quantity and value of landings by species for shrimp and fish is obtained from records furnished by primary seafood dealers. For shrimp, the count size composition is also obtained. This activity is conducted at most field stations, and is done in some areas by state as well as federal personnel. Where the state participates, the division of coverage may be geographical

(as in North Carolina) or by fishery (as in Florida where the State collects bait shrimp data.) This information is obtained both by mail and through personal visits.

b. Shrimp Interview Data

Data on shrimp catches by grounds, trawling depth, and days fished are obtained from a sample of trips landed. Interviews are made with the captain or crew member of the vessel. Interviews are conducted at virtually every field station by NMFS employees and also by state personnel in North Carolina, South Carolina, and Georgia. (Data collected and procedures followed differ somewhat between the Gulf of Mexico and South Atlantic.)

c. Annual Dealer Survey

Yearly, a survey is made of all fishery processors and wholesalers by NMFS personnel. Employment by month is obtained from all firms and the major items handled but not processed are listed for all wholesalers. For processors, the quantity, type, and value of items produced are obtained.

d. General Canvass Data

An annual survey is made of the number and types of fishing gear, boats, vessels, and full- and part-time commercial fishermen. These data are then correlated with the previously obtained commercial landings. This is done by NMFS personnel, with varying levels and forms of state cooperation.

e. Biostatistical Sampling

Length and sex frequency samples; as well as bioprofile samples including the extraction and preservation of otoliths or scales, gonads, and stomach contents; have been obtained for king mackerel, Spanish mackerel, cero, and bluefish. Sampling for other species will be initiated as required.

Ocean gamefish tournaments are monitored by NMFS personnel to obtain catch and effort data and biological samples from billfishes. Bioprofile samples from bluefin tuna are also collected.

f. Special Surveys

Headboat Survey: Catch, effort and other fishing data are obtained by personnel along the Atlantic Coast from North Carolina to Key West, Florida. Scales, otoliths, gonads, and stomach contents are also obtained for bioprofile analysis.

Billfish and Shark Survey: Catch and effort statistics were collected in a one-time survey of the recreational billfish and

shark fishery for a one-year period. Special data processing quality control, data analysis, computer programming, and report generation were required for the task. Recreational fishermen (boat owners) were contacted by mail and telephone.

Shrimp Tag Recovery Survey: Six agents in Louisiana and Texas are involved in the Shrimp Tag Recovery Program for recovering shrimp previously tagged and released. These persons also take weekly samples of 200 shrimp to assemble data on tail weight, size and sex.

g. Observer Program Data

Domestic Observer Program: The objective of this program is to provide assessments of the extent of incidental trawl catch and the associated mortality of sea turtles off the southeast coast of the United States.

Foreign Observer Program: The primary responsibility of this program is to gather biological information on the Japanese longline fishery through the use of on-board observers. This fishery operates primarily in the Gulf but also extends northward along the Atlantic coast, and southward into the Caribbean.

h. Industry Economic Data

Quarterly Fish Sticks, Fish Portions, and Breaded Shrimp Products Survey: Production data for quarterly reports on these items are gathered by field agents from processing firms within their area of responsibility. Blank reporting forms are mailed out at the end of each quarter, with personal follow-up of any firms not responding as of the 15th day of the following month. Annual production by firm and product type are summarized annually. Figures submitted are correlated with those submitted in the Annual Processed Fishery Products Survey to ascertain that pounds and values by product type and firm do not conflict.

Market News Data: In 1937, the 75th Congress of the United States provided for the establishment of a market news service at the request of the commercial fishing industry. Industry felt that such a service was vital to successful marketing of fishery products. At present, Fishery Market News reports are published three times per week in five offices around the country. The information in the reports includes current data on: landings of fish and shellfish at selected ports; ex-vessel prices for the major species, wholesale prices and market receipts, cold storage holdings, imports of fishery products, and news items of current interest. NMFS agents in the South Atlantic and Gulf States summarize current landings from major fishing ports three times weekly for submittal to the New Orleans Market News Office. The New Orleans report is concerned primarily with landings and ex-vessel prices of shrimp in the Gulf of Mexico.

Import Data: Imports for certain ports of entry are prepared on a weekly to tri-weekly basis depending upon port traffic volume. This information is then forwarded to the New Orleans Market News Office along with the fishery landings data described in Part 2.

Other data are collected on an "as required" basis; e.g., the recent Fuel Survey of the availability of diesel fuel for vessels.

B. State Fishery Surveys in the Southeast Region

Southeastern States generally carry out their own fishery statistics programs. In some cases, the states rely solely upon data collected by federal agencies. Working agreements between some federal and state offices avoid duplication of effort.

1. North Carolina: The North Carolina Statistics Program employs the following seven people: a program coordinator, a data entry person and five port agents. The state is divided into six areas with approximately equal workloads (number of dealers, travel distances, number of fisheries, etc.). A port sampler (5 State, 1 Federal) is assigned to each area and is responsible for all commercial fisheries data within the area. The data collected include detailed shrimp landings collected twice a month, commercial landings for the North Carolina monthly landings bulletin, data for the NMFS annual surveys, and other special surveys as needed. Data collected by the state agents is forwarded to the NMFS agent who prepares it for submission to the NMFS Resource Statistic Division. Market News data is collected by all agents and submitted to the state data entry person who furnishes reports to the New Orleans and New York Market News offices. Current annual operating expenditures for the program amount to $159K.

2. South Carolina: The South Carolina Marine Resources Division collects catch, value and effort data on all commercial fisheries monthly. Those data are forwarded to a NMFS agent to fulfill the agreements of the State's 88-309 project "S. C. Fisheries Statistics Program." The voluntary shrimp landings ticket system collects details of 80-85 percent of the State's shrimp catch. These data help meet the responsibilities of the four-state South Atlantic project "Implementation of a Cooperative State-Federal Regional Statistical Program"

3. Georgia: Georgia's Department of Natural Resources employs one agent who contacts 25 dealers in the three southern counties on a weekly basis. The NMFS agent contacts approximately 13 dealers in the three northern counties also on a weekly basis. The state agent assists NMFS personnel in picking up the delinquent reports each month. The annual cost of Georgia's data gathering efforts is $48.7K.

4. Florida: All commercial landings within Florida, both marine and freshwater, are collected by NMFS. Only the bait shrimp landings are collected by the Florida Department of Natural Resources. Data are

collected by forms that are mailed to approximately one-half of the 375 dealers within the state, the remaining dealers are visited monthly.

5. Alabama: Alabama does not collect fishery statistics. Data are gathered by personal contact by NMFS personnel.

6. Mississippi: Mississippi does not collect fishery statistics, with the exception of shrimp and shellfish tax records. These records are utilized by NMFS personnel as a supplement to the information which they collect in their daily personal contacts with industry. Menhaden processing plants in Mississippi submit a monthly production report.

7. Louisiana: Most fishery statistics in Louisiana are gathered through the daily contact of NMFS personnel with industry sources. Monthly mailouts are sent to menhaden plants in a manner similar to that previously mentioned in Mississippi. A sample mail survey conducted in Louisiana in 1979 will be used to assess the catches made by recreational shrimp fishermen in the state.

8. Texas: An informal cooperative agreement is in effect with the Texas Parks and Wildlife Department for the exchange of data. They use an individual sales ticket to collect information landings of all marine fish and shellfish with the exception of shrimp. NMFS collects daily landings of shrimp at the office of each packing house. The annual cost of the Texas data gathering efforts amounts to $252.6K.

C. State-Federal Cooperative Programs

The following outline illustrates the basic State-Federal Cooperative Programs that exist within the Southeast Region.

1. North Carolina: The North Carolina Statistics Program employs seven people. The program's annual cost is $139K. Funds are provided by a grant from the Office of Coastal Zone Management (80% Federal) which contributes 75% of the total with the remaining 25% being derived from a contract with South Carolina as part of the State-Federal Shrimp Management Program (100% Federal). The Market news Program in North Carolina is a cooperative program. The NMFS Southeast Region supplied $6K for the program and North Carolina agreed to continue the program if feasible when the funds ran out (September, 1979). North Carolina has continued to operate the program.

2. South Carolina: South Carolina's Fishery Statistics program is funded in part by PL 88-309 which provided $51.6K (FY 80; Project 2-357-R-1) with 75% Federal and 25% State funding. The South Atlantic State/Federal Regional Statistics project provided 46.3K over three years (FY 78-80) for the collection of detailed shrimp data. The state also gathers data through project 89-304 (AFC-8), "Monitoring and Assessment of South Carolina's Commercial Fishery for American Shad." Annual Costs are $75.8 with 50% State, 50% Federal contribution.

3. Georgia: Georgia averaged $21.6K annually from the Shrimp Technical Committee for collecting detailed shrimp statistics. In addition, project 89-304A (AFC-8) "Shad Catch/Effort Study", provides data gathering within this fishery. Annual costs are $27.7K and are shared 50/50% by Federal-State contributions.

4. Texas: Project 88-309 (2-311R), "Texas Commercial Fisheries Catch," provides data on the commercial fisheries sector. In addition, Project 88-309 (2-310-R), "Finfish Harvesting Studies in Texas Estuaries and Gulf Water," is funded annually by $214.1K by 75/25% Federal-State contributions.

5. Puerto Rico: An 88-309 project (2-331R), "Commercial Fisheries Statistics Program," operates under an annual budget of $132.6K by 75/25% Federal-State contributions.

6. Virgin Islands: An 88-309 project (2-308R), "Commercial Fisheries Research and Development in the Virgin Islands," is funded at $33.0K annually by 75/25% Federal-State contributions.

V. DESCRIPTION OF DATA COLLECTION MODULES AND SUMMARY OF COSTS FOR THE MODULES AND FOR SIX ANTERNATIVE COMPOSITE SYSTEMS

A number of alternatives are available for collecting fishery data. Eleven alternatives, hereafter called modules, are considered and briefly described below:

1. Port Agent

In this module, port agents would contact dealers on a monthly basis to collect data on landings of fish and invertebrates by market categories. When possible, a complete census of dealers would be made for all fisheries. Data reporting would be voluntary on the part of the dealer and the data would be aggregated for the month. Market News reporting of landings and price data for selected species at selected ports would be conducted three times per week.

Data collected would be:

- identification of dealer
- time period
- dealer location (port)
- weight landed (by commercial category, by gear, by water caught)
- price (by commercial category, by gear, by water caught)

Requirements for implementing:

- printing and distribution of dealer report forms
- dealer cooperation
- port agent personnel, supervisors, offices, equipment, etc.

(A port agent module is currently functioning in the Southeast Region)

2. Mandatory Dealer Report

This module is a modification of the Port Agent Module. The modification is based on a legal requirement under FCMA that dealers report monthly data to NMFS, either by mail or by submitting reports directly to port agents. The proposed methodology would rely mostly on mail using port agents only to a minimal degree as required.

3. Interview

In this module, port agents would interview fishermen at the dock on a random basis. A 25% interview coverage is the proposed objective for all fisheries; however, coverage will vary with circumstances. voluntary reporting by fishermen is assumed.

Data collected would be:

- o vessel identification and characteristics
- o number of crew
- o time period
- o gear used
- o location and depth of catch
- o fishing time
- o catch weight and composition
- o additional data as necessary

Requirements for implementing:

- o printing and distribution of interview forms
- o fishermen cooperation
- o port agent personnel, supervisors, office, equipment, etc.

4. Sales Receipt

This module is a modification of the mandatory dealer report. Data are collected on a trip by trip basis. Fishermen and dealers would be required to report information as the catch is sold to the dealer. A "credit card" could be issued to fishermen and dealers to partially automate the reporting process. Sales receipts provide data on pounds and value of catch by species, date of landing and identification of fishermen and dealer. In addition, data on gear, location of capture, and fishing time can be recorded.

5. Logbook

In this module, all fishermen would be required to carry logbooks to sea and record detailed catch data by area and depth.

Data collected would be:

- o date of operation
- o name and identification of fishermen
- o name and identification of vessel
- o fishing area (depth/loran readings)
- o time fished
- o gear type
- o additional data as necessary

Requirements for implementation:

- o printing and distribution of logbooks
- o cooperation of fishermen
- o major data management (data entry, edit, update, and processing) costs

6. Bioprofile

In this module, port agents would sample or otherwise obtain biological data from the catch.

Data collected would be (on an as needed basis):

- o species
- o location and time of catch
- o method of catch
- o length
- o weight
- o gonads
- o scales
- o otoliths

Requirements for implementing:

- o port agents, personnel, supervisors, equipment, etc.
- o knowledge of species and methods of extracting necessary parts of specimen
- o method for purchasing specimens if necessary

7. Socio-Economic

This module, designed to collect social and economic data, would rely to a great extent on special surveys and modifications to existing or proposed new surveys. The data needs of the Southeast Region have been defined in the Southeast Regional Data Collection Plan for Economic and Sociological Data.

Data collected would be:

- o cost and earnings data - annual
- o vessel employment - quarterly

- o processing production and prices - monthly
- o number of processors, wholesalers, brokers, etc. - annual
- o retail consumption and prices - quarterly
- o imports and exports - monthly
- o processing and marketing costs - once every 3 years
- o processing employment - quarterly
- o production flow - annual
- o sociological characteristics - once every 5 years.

Requirements for implementation:

- o design and implementation of special surveys or design of and implementation of modification to on-going surveys.

8. Systems Development and Survey Design:

Although not directly involved with data collection, this module will support the development of new modules by providing appropriate and necessary statistical and mathematical survey designs and data management system designs. Such designs are required before, during, and after implementation of systems.

9. Credit Card System Development

This module will support the implementation of credit cards. The design, manufacture, and distribution of cards and machines as well as appropriate data management systems will be included.

10. Recreational

This module concerns the use of the National Recreational Fishing Survey to collect recreational catch and effort data in more detail than is currently being conducted on a national level.

Data collected would be:

- o number of fishermen
- o catch by species, size, and area
- o level of effort expanded

Requirements for implementation:

- o vessel enumeration -- in cooperation with States maintain current vessel registration lists to provide information on number of vessels, their types, and whether they fish in salt water and if so whether in the fishery conservation zone or state waters.

- o special surveys -- collect catch data based on sample frames identified by the vessel enumeration system. Also collect additional socio-economic data for recreational fisheries not included under option 7.

11. Observer

In this module, observers would be placed on foreign vessels to collect data and information required by foreign fishing regulations in U.S. waters. Observations of compliance with the regulations would be made by the observers as well as the collection of data to supplement or verify the accuracy of reports submitted to NMFS by foreign vessels. Also, observers would board selected and cooperating domestic vessels to conduct special surveys, such as estimating the amount and species composition of the discarded catch.

Data collected would be:

- o catch weight, number, and species composition
- o location of catch
- o fishing time
- o gear type
- o biological and environmental data

Requirements for implementation:

- o observer personnel, supervisors, etc.
- o foreign vessel monitoring system
- o legal requirements or cooperation of vessel captains.

(An observer module is currently functioning in the Southeast Region.)

This section concludes with a summary of the estimated costs for data collection and data management for various data collection modules, and then synthesizes five composite systems as an example of how the modules might be combined to form a complete fishery statistics system for the Southeast.

Algorithms were developed for estimating the costs of both data collection and data management for each module. The algorithms for estimating data collection costs were based on simplifying assumptions as to how the module would be implemented, and were generally constructed on a per unit basis. For example, the logbook module assumed that logbooks would be mandatory for all vessels/boats in each fishery under an FMP and would be submitted on a trip basis. The costs for printing and mailing of each logbook, and the estimated number of logbooks required were combined to arrive at the total cost of a logbook module for all fisheries under FMP management.

The data management algorithm was constructed similarly. It was based on overhead expenses (fixed), number of records per module, and labor costs. The cost to process one record was estimated to be $.15, based on a $.12 data entry charge and a $.03 processing charge per record.

Following is a summary description of the various modules and their estimated costs:

Module	$(K) Data Collection	$(K) Data Mgt.
1. Port Agent	652.1	602.6
Description: Represents current NMFS Port Agent system which provides a network of field personnel to collect dealer reports on a monthly basis and obtain general canvass and market news data. Dealer reports are voluntary. This module does not include the cost of commercial trip interviews conducted by port agents.		
2. Mandatory Dealer Report	30.0	51.4
Description: Wholesale seafood dealers will be required to submit monthly reports. Costs represent printing and postage only and are above and in addition to Port Agent module costs listed in Module 1.		
3. Interview		
Description: Interviews for 25% of commercial fishing trips for southeast fisheries. Data to be collected on fishing time, fishing grounds, and gear type (similar to present shrimp interviews).		
A. All southeast fisheries	921.2	128.3
B. (Gulf shrimp fisheries only)	(517.1)	(74.2)
4. Sales Receipt	143.5	540.1
Description: Mandatory sales receipt to be completed by wholesale seafood dealers at time of purchase for all commercial landings. "Credit cards" issued to fishermen and dealers will partially automate the system. Form to include space for recording gear, grounds and fishing time (information from fishermen) and space for landings and price (this information to be provided by fishermen and recorded by dealers) and space for landings and price (this information to be provided by dealers).		

Module	$(K) Data Collection	$(K) Data Mgt.
5. Logbook	130.0	2,578.8

Description: Commercial fishermen will be required to submit logbooks on a trip basis. This module will supply detailed catch and effort data.

6.	Bioprofile	600.0	15.9

Description: Biological data (length, weight, sex, etc.) will be collected from 100 fish of selected market categories for each month and each significant port. Cost estimate of 600.0K is current expenditure and will limit the total number of samples that can be obtained to 36,000.

7.	Socio-Economic	132.0	36.0

Description: Minimum data identified in the Five-year Data Collection Plan for Economic and Sociological Data, to be collected by interview at a sampling rate of 10% of appropriate sampling frame.

8.	Systems Development and Survey Design	145.2	300.0

Design data collection and processing procedures and computer software to make data and statistics available to users. The costs shown are for initial development and would be reduced to about 50% after a two-year period.

9.	Credit Card Systems Development	99.0	-----

Provide credit cards and credit card machines to fishermen and dealers in 3 Council areas. The costs shown are for initial development and would be reduced to 10.0K annually after one year.

10. Recreational

Description: Regionalization of the National Recreational Fishing Survey to collect data on number of fishermen, catch by species, size, and area, and level of effort.

A.	Vessel enumeration. In cooperation with States maintain current vessel registration lists to provide information on number of vessels, their types, and whether they fish in salt water or in the fishery conservation zone.	800.0	200.0

B. Special surveys. Collect catch data based on sample frames identified by the vessel enumeration

system. Also collect additional socio-economic data for recreational fisheries not included under option 7.

11. Observer 436.4 23.3

Description: Data collected at sea by onboard observers to provide information either not obtained from fishermen or to confirm data obtained by other means.

A. Foreign. 20% coverage of foreign vessel operations (235.8) (12.5)

B. Domestic. Sixty man-months of effort for estimating discards of trawl fisheries (shrimp, groundfish) (205.0) (10.8)

B. Summary of Costs for Five Alternative Data Collection Systems

A description of five basic alternative systems using various combinations of the previously developed data collection modules and their associated costs are contained in Tables 1 and 2.

Table 1. Alternative Data Collection Systems for Fishery Statistics Program

Option[1/]	Modules	Cost ($K)
1.	Port Agent, Interview (Gulf shrimp)	1,846
2.	Port Agent, Interview (all fisheries), Bioprofile, Socio-Economic, Systems development, Recreational, Observer.	4,997
3.	Port Agent, Mandatory dealer report, Interview (all fisheries) Bioprofile, Socio-Economic, Systems development, Recreational, Observer.	4,932
4.	Port Agent, Sales receipt, Bioprofile, Socio-Economic, Systems development, Credit card, Recreational, Observer	4,584
5.	Port Agent, Logbook, Bioprofile, Socio-Economic, Systems development, Recreational, Observer	6,483

1/ For all options, the field network of Port agents (Port agent module) would be required to collect Market News data and to contact dealers or fishermen about report errors and data quality.

Table 2. Detailed summary of costs for 5 alternative systems.

Option	Data Collection	Data Mgt.	Total (FY79 $ (K))	Man-Years DC	DM	TOTAL
1.						
Port Agent	652.1	602.6	1,254.7	30.2	10.0	40.2
Interview (Gulf Shrimp)	517.1	74.2	591.3	21.6	2.0	23.6
Total	1,169.2	676.8	1,846.0	51.8	12.0	63.8
2.						
Port Agent	652.1	602.6	1,254.7	30.2	10.0	40.2
Interview (All fisheries)	921.2	128.3	1,049.5	38.5	4.0	42.5
Bioprofile	600.0	15.9	615.9	30.7	.7	31.4
Socio-Economic	132.0	36.0	168.0	5.6	1.4	7.0
Systems Development	145.2	300.0	445.2	4.8	8.5	13.3
Recreational	800.0	200.0	1,000.0	---	---	---
Observer	440.8	23.3	464.1	3.7	1.1	4.8
Total	3,691.3	1,306.1	4,997.4	113.5	25.7	139.2
3.						
Port Agent[1/]	652.1	460.0	1,112.1	30.2	4.0	34.2
Mandatory Dealer Report	30.0	51.4	81.4	---	2.0	2.0
Interview (All fisheries)	921.2	128.3	1,049.5	38.5	4.0	42.5
Bioprofile	600.0	15.9	615.9	30.7	.7	31.4
Socio-Economic	132.0	36.0	168.0	5.6	1.4	7.0
Systems Development	145.2	300.0	445.2	4.8	8.5	13.3
Recreational	800.0	200.0	1,000.0	---	---	---
Observer	436.4	23.3	459.7	3.7	1.1	4.8
Total	3,716.9	1,214.9	4,931.8	113.5	21.7	135.2

Table 2. Detailed summary of costs for 5 alternative systems (continued).

Option	Data Collection	Data Mgt.	Total (FY79 $ (K))	Man-Years DC	DM	TOTAL
4.						
Port Agent[1/]	652.1	460.0	1,112.1	30.2	4.0	34.2
Sales Receipt	143.5	540.1	683.6	---	18.5	18.5
Bioprofile	600.0	15.9	615.9	30.7	.7	31.4
Socio-Economic	132.0	36.0	168.0	5.6	1.4	7.0
Systems Development	145.2	300.0	445.2	4.8	8.5	13.3
Credit Card	99.0	---	99.0	---	---	---
Recreational Program	800.0	200.0	1,000.0	---	---	---
Observer	436.4	23.3	459.7	3.7	1.1	4.8
Total	3,008.2	1,575.3	4,583.5	75.0	34.2	109.2
5.						
Port Agent[1/]	652.1	460.0	1,112.1	30.2	4.0	34.2
Logbook	103.0	2,578.8	2,681.8	---	88.1	88.1
Bioprofile	600.0	15.9	615.9	30.7	.7	31.4
Socio-Economic	132.0	36.0	168.0	5.6	1.4	7.0
Systems Development	145.2	300.0	445.2	4.8	8.5	13.3
Recreational	800.0	200.0	1,000.0	---	---	---
Observer	436.4	23.3	459.7	---	---	---
Total	2,868.7	3,614.0	6,482.7	71.3	102.7	174.0

1/ Cost estimate for data management of Port Agent module is reduced by 142.6K, since this amount is included in Mandatory Dealer Report, Sales Receipt, or Logbook modules.

VI. DISCUSSION AND RECOMMENDATIONS

The presently available fishery statistics for the Southeast are not adequate for fishery management and for the other required uses of fishery statistics. The need for better data and statistics has been identified by both managers and analysts. A detailed data base on the fisheries of the region that is continuous over an extended period of years will be the greatest informational asset that can be made available to managers. However, the development of such a data base will require extensive effort. It will require reporting by the users of the resource and the cooperation of the various management agencies who have need for the data. It will be important to avoid duplication of reporting requirements, where various management agencies require the same data. The data collection system must be flexible and adaptable to meet these varied requirements.

Based on analysis of the statistical data needs and data availability, the following recommendations are made:

A. Develop the Southeast Fishery Information Network (SEFIN) as a partnership between state and federal governments. Partnership implies that the same data are required for effective management by both state and federal agencies and that cooperative efforts will minimize costs and reporting burden to the public. Implement the partnership along the following lines: NMFS and states share, through cooperative State-Federal agreements, the responsibility of data collection and processing. This would allow a flexible approach which could be adapted to best suit the needs of individual states and the federal government. Details of funding and methodology could vary among the states. The present level of effort of NMFS and of states could be combined quickly to the task of developing a uniform reporting and data management system which would make the data fully available on a regional basis.

B. Implement Option 4, which is based on the sales receipt module as the primary reporting instrument. A sales receipt based system will meet virtually all the requirements for fishery statistics in the forseeable future. This is not say, however, that logbooks may not be required in specific instances to provide an even more refined level of data.

C. Expand and refine the level of recreational fisheries data collection by regionalizing the National Recreational Fishing Survey to meet specific needs in the Southeast. This survey technique, a combination of telephone interview and intercept survey, provides basic recreational catch and effort data for most species of this region.

D. Review vessel registration procedures to ensure that the registration forms used by the vessel enumeration systems require the necessary and pertinent

data on the characteristics and uses of vessels, including information on whether the vessels are used for recreation or commercial fishing. The procedure would allow vessel lists to be used efficiently as sample frames.

E. Develop an operational plan for implementing the selected option, including the activities of all partners. Identify a group representing the partners which would:

1. Provide reviews and comments on the data collection operational plan
2. Revise the operational plan as appropriate
3. Monitor the implementation of the plan

F. Review legislation required to make fishery data collection systems mandatory and to ensure confidentiality of individual data submitted under mandatory systems. It is important that State and Federal procedures with regard to confidentiality of data be compatible in order that managers and scientists of both agencies can access the full data base and that the right to privacy of the reporting individuals is protected. Where required legislation is not in place, efforts should be made to provide such legislation.

APPENDIX A

Southeast Regional Data Collection Plan

for Economic and Sociological Data

Southeast Regional Data Collection Plan
for Economic and Sociological Data

I. PURPOSES

The purposes of this regional plan are: (1) to identify the kinds of economic and sociological data that are needed for proper management and future development of the marine fisheries in the Southeast region; (2) to describe proposed methodologies and procedures for collecting these data; (3) to propose areas of responsibility and relationships of different organizations in the Southeast for collecting these data; (4) to discuss required funding and funding sources; and (5) to present a time schedule for obtaining these data.

II. BACKGROUND

A. Regional Fishery Management Council Responsibilities

The Fishery Conservation and Management Act (FCMA) of 1976 gives the Secretary of Commerce the authority to manage fisheries out to 200 miles off the U.S. coastline. The Act established eight Regional Fishery Management Councils, three of which are in the Southeast Region - the Gulf of Mexico Council located in Tampa, FL; the Caribbean Council in Hato Rey, Puerto Rico; and the South Atlantic Council in Charleston, SC. The primary function of the Councils is to prepare fishery management plans (FMP's) which propose management recommendations for those marine fisheries the Council deem important and which are covered by the Act. According to the Act, management of U.S. fisheries is to be based on the concept of optimum yield (OY) which is defined as maximum sustainable yield (MSY) as modified by economic, social and other factors. This concept applies both to commercial and recreational fisheries. Each FMP is to include an estimate of MSY, OY, U.S. capacity in harvesting and processing OY, basic biological economic and sociological information on the fisheries, as well as the economic and social impacts of alternative fishery management strategies. This document identifies economic and sociological data required for FMP's and proposes a time schedule for the collection of these data.

B. Federal Responsibilities

National Marine Fisheries Service (NMFS) has the responsibility for supplying data required by the Regional Fishery Management Councils to prepare FMP's and for reviewing FMP's prior to approval by the Secretary of Commerce. This document lays out a plan for obtaining the economic and sociological data needed for FMP's, as well as proper management of the fishery resources on a continuing basis.

C. State Responsibilities

In addition to Federal responsibilities for fisheries management, each of the States is responsible for managing fisheries within its territorial waters. Each State has varying needs for ec nomic and sociological data as dictated by their respective fishery management plans. These fishery management data needs are being defined in a plan for an overall data collection program for the Southeast. A data collection plan is being proposed which will both incorporate the assistance of the States in the data collection effort and provide needed data for their use.

III. DATA REQUIREMENTS

A. Fisheries Management

There are two primary areas in which economic and sociological data are used in fishery management. The first is the determination of possible management measures and/or the evaluation of economic impacts of these management measures. The second area of utilization is in the subsequent monitoring of the fishery to continually evaluate its well-being. The three Councils in the Southeast are currently involved, to a large extent, with the preparation of fishery management plans (FMP's) and are, therefore, concerned with the first area of data use. Some of the FMP's prepared by the Councils have identified specific economic or sociological data requirements. however, in many plans the Councils are relying on generally available economic or sociological data to analyze the impacts of their recommendations.

In addition to the FMP's, the NMFS has let a contract to Centaur Associated, Inc. (Centaur) to research and synthesize data requirements on a priority basis for each Council. Tables 1, 2, and 3 are the data requirements and the respective priority identified by Centaur for th Gulf, South Atlantic, and Caribbean Councils respectively. The priority numbering has the following interpretation: 1-essential for developing FMP's, 2-important for developing FMP's, and 3-relatively unimportant for developing FMP's. It should be noted that Centaur was not responsible for identifing economic or sociological data needs for purely recreational fisheries.

The economic and sociological data proposed in this regional plan do not strictly follow Centaur's findings. There are two reasons for this. The first is the priority ranking which Centaur used. Part of the purpose of this plan is to propose a time schedule for collecting the identified data. Since the definition of priority that Centaur used was not time oriented, the data elements for the regional plan had to be reordered. The second reason is also definitional. That is, some of the data elements are redefined to better fit the anticipated needs within the Southeast.

Th following is a generic list of the economic and sociological data which are considered essential for proper fishery's management and the evaluation of resulting recommendations and alternatives:

Table 1

Data Priorities for Gulf of Mexico Region

Data Topic Area	Ground-fish	Reef-fish	Shrimp	Spiny Lobster	Stone Crab	Calic Scallop	Shark	Coral	Billfish	Swordfish	Coastal Migratory Pelagic
1.1 Number of Vessel & Gear	1	1	1	1	1	1	1	NA	NA	1	1
1.2 Detailed Vessel Inventory	1	1	1	1	1	1	1	NA	NA	1	1
1.3 Costs & Earnings	1	1	1	1	1	1	1	NA	NA	1	1
1.4 Employment	1	1	1	1	1	1	1	NA	NA	1	1
1.5 Income Level & Distribution	2	2	2	2	2	2	2	NA	NA	2	2
1.6 Age, Education & Experience	2	1	2	1	2	2	2	NA	NA	2	2
1.7 Cultural Characteristics	2	2	2	2	2	2	2	NA	NA	2	2
1.8 Capacity Considerations	1	1	1	1	1	1	1	NA	NA	1	1
1.9 Landings & Effort	1	1	1	1	1	1	1	NA	NA	1	1
2.1 Production & Prices	1	1	1	1	1	1	1	NA	1	1	1
2.2 Number Processors, Etc.	2	2	2	2	2	2	2	NA	2	2	2
2.3 Processing & Mktng Costs	3	3	3	3	3	3	3	NA	3	3	3
2.4 Product Flows	3	3	1	3	2	2	2	NA	3	3	3
2.5 Processing Employment	1	1	1	1	1	1	1	NA	1	3	1
2.6 Processing Employee Char.	3	3	1	3	3	3	3	NA	3	1	3
2.7 Processing Capacity	1	1	1	1	1	1	1	NA	1	3	1
3.1 Fleet Size & Composition	1	1	NA	1	NA	NA	1	NA	1	1	1
3.2 Costs & Earnings	1	1	NA	1	NA	NA	1	NA	1	1	1
3.3 Expenditures in Support Ind.	1	1	NA	1	NA	NA	1	NA	1	1	1
3.4 Detailed Economics of Supp. Ind.	3	3	NA	3	NA	NA	3	NA	1	3	3
3.5 Employment	1	1	NA	1	NA	NA	1	NA	1	1	1
3.6 Employee Characteristics	2	2	NA	3	NA	NA	3	NA	2	2	2
3.7 Sal s of Rec. Caught Fish	1	1	1	1	1	1	3	NA	1	1	1
4.1 Home Consumption	2	2	2	2	2	2	2	NA	2	2	2
4.2 Rest./Inst. Consumption	2	2	2	2	2	2	2	NA	2	2	2
4.3 Industrial Usage	2	3	3	3	3	3	3	NA	2	2	3
5.1 Imports	1	3	1	1	3	3	3	NA	3	1	3
5.2 Exports	1	3	1	3	3	3	3	NA	3	1	3
5.3 Transfers to Foreign Ships	3	3	3	3	3	3	3	NA	3	3	3
5.4 Foreign Production	3	3	3	3	3	3	3	NA	3	3	3
5.5 Foreign Market Data	3	3	3	3	3	3	3	NA	3	3	3
6.1 Local Economic Data	1	1	1	1	1	1	1	NA	1	1	1
6.2 Cultural Values	2	2	2	2	2	2	2	NA	2	2	2
Commercial Support Industries	3	3	3	3	3	3	3	NA	3	3	3

* Detailed descriptions of each data topic area will be found in Section 5.3.1.

NA = Not Applicable

Table 2

Data Priorities for South Atlantic Region

Data Topic Area[a]	Mackerel	Snapper/ Grouper	Swordfish	Billfish	Spiny Lobster	Calico Scallops	Corals
1.1 Number of Vessels & Gear	1	1	1	NA	1	1	NA
1.2 Detailed Vessel Inventory	2	2	2	NA	2	2	NA
1.3 Costs & Earnings	1	1	1	NA	1	2	NA
1.4 Employment	1	1	1	NA	1	1	NA
1.5 Income Level & Distribution	2	2	2	NA	2	2	NA
1.6 Age, Education & Experience	2	2	2	NA	1	3	NA
1.7 Cultural Characteristics	2	2	2	NA	1	3	NA
1.8 Capacity Considerations	3	3	3	NA	3	3	NA
1.9 Landings & Effort	1	1	1	NA	1	1	NA
2.1 Production & Prices	2	2	2	2	2	1	NA
2.2 Number Processors, Etc.	2	2	2	2	2	1	NA
2.3 Processing & Mktng Costs	3	3	3	3	3	1	NA
2.4 Product Flows	1	1	1	1	1	1	NA
2.5 Processing Employment	2	2	2	2	2	1	NA
2.6 Processing Employee Char.	3	3	3	3	3	1	NA
2.7 Processing Capacity	3	3	3	3	3	1	NA
3.1 Fleet Size & Composition	1	1	1	1	1	NA	NA
3.2 Costs & Earnings	1	1	1	1	1	NA	NA
3.3 Expenditures in Support Ind.	2	2	2	2	2	NA	NA
3.4 Detailed Economics of Supp. Ind.	3	3	3	3	3	NA	NA
3.5 Employment	1	1	1	1	1	NA	NA
3.6 Employee Characteristics	2	2	2	2	1	NA	NA
3.7 Sales of Rec. Caught Fish	1	1	1	1	1	NA	NA
4.1 Home Consumption	1	1	1	1	1	1	NA
4.2 Rest./Inst. Consumption	1	1	1	1	1	1	NA
4.3 Industrial Usage	3	3	3	3	3	3	NA
5.1 Imports	3	2	2	3	2	2	NA
5.2 Exports	3	3	2	3	3	3	NA
5.3 Transfers to Foreign Ships	3	3	3	3	3	3	NA
5.4 Foreign Production	3	3	3	3	3	3	NA
5.5 Foreign Market Data	3	3	3	3	3	3	NA
6.1 Local Economic Data	3	3	3	3	3	3	NA
6.2 Cultural Values	2	2	2	2	2	3	NA
Commercial Support Industries	2	2	2	2	2	1	NA

[a] Detailed descriptions of each data topic area will be found in Section 5.3.1.

NA = Not Applicable

Table 3

Data Priorities for the Caribbean Region

Data Topic Area*	Shallow Water Reef Fish	Deep Water Reef Fish	Migratory Pelagics	Spiny Lobster	Molluscs	Corals
1.1 Number of Vessels & Gear	1	1	1	1	1	NA
1.2 Detailed Vessel Inventory	1	1	1	1	1	NA
1.3 Costs & Earnings	2	2	2	2	2	NA
1.4 Employment	2	2	2	2	2	NA
1.5 Income Level & Distribution	2	2	2	2	2	NA
1.6 Age, Education & Experience	2	2	2	2	2	NA
1.7 Cultural Characteristics	2	2	2	2	2	NA
1.8 Capacity Considerations	1	1	1	1	1	NA
1.9 Landings & Effort	1	1	1	1	1	NA
2.1 Production & Prices	NA	NA	NA	NA	3	NA
2.2 Number Processors, Etc.	NA	NA	NA	NA	3	NA
2.3 Processing & Mktng Costs	NA	NA	NA	NA	3	NA
2.4 Product Flows	NA	NA	NA	NA	3	NA
2.5 Processing Employment	NA	NA	NA	NA	3	NA
2.6 Processing Employee Char.	NA	NA	NA	3	3	NA
2.7 Processing Capacity	NA	NA	NA	3	3	NA
3.1 Fleet Size & Composition	1	1	1	NA	NA	NA
3.2 Costs & Earnings	2	2	1	NA	NA	NA
3.3 Expenditures in Support Ind.	2	2	1	NA	NA	NA
3.4 Detailed Economics of Supp. Ind.	2	2	1	NA	NA	NA
3.5 Employment	2	2	1	NA	NA	NA
3.6 Employee Characteristics	2	2	1	NA	NA	NA
3.7 Sales of Rec. Caught Fish	1	1	1	NA	NA	NA
4.1 Home Consumption	3	3	2	2	2	NA
4.2 Rest./Inst. Consumption	3	3	2	2	2	NA
4.3 Industrial Usage	NA	NA	3	3	3	NA
5.1 Imports	3	3	1	2	2	NA
5.2 Exports	NA	NA	3	3	3	NA
5.3 Transfers to Foreign Ships	NA	NA	3	3	3	NA
5.4 Foreign Production	3	3	2	2	2	NA
5.5 Foreign Market Data	NA	NA	3	3	3	NA
6.1 Local Economic Data	2	2	2	2	2	NA
6.2 Cultural Values	2	2	2	2	2	NA

* Detailed descriptions of each data topic area will be found in Section 5.3.1.

NA = Not Applicable

1. Cost and earnings data - annual
2. Vessel employment - quarterly
3. Processing producti n and prices - monthly
4. Number of processors, wholesalers, brokers, etc. - annual
5. Retail consumption and prices - quarterly
6. Imports and exports - monthly
7. Processing and marketing costs - once every 3 years
8. Processing employment - quarterly
9. Product flow - annual
10. Sociological characteristics - once every 5 years.

This list is obviously a generalized one and needs some quantification and qualifications (a description of these ten data categories is presented in the Appendix). An assumption that landings and effort data are available underlies this list. Furthermore, it is anticipated that adequate cross-referencing can be made between landing/effort (catch per unit of effort) and the appropriate economic parameters (e.g., cost, earning, employment, etc.). Another qualification of this list is that it does not assume any economic and sociological data on respective fisheries are currently available. A discussion of the presently available data is presented in Section IV. AVAILABLE DATA. The resulting data and its collection are discussed in Section V, RECOMMENDED PROGRAM, as well as the collection responsibilities, funding and a time schedule for the collection plan.

A final qualification for the above list is the user groups. The fishery resources not only support commercial fisheries; they also support charter (or for-hire) vessels which are recreationally oriented. An additional important utilization of these resources is the purely recreational fishermen who may not receive any financial support via fishing. Therefore, it is important to take all of these user groups into account when establishing a usable data base. Although the above list does not specifically indicate separate user groups, the list is intended to collect the appropriate data for the respective groups.

B. Fisheries Development

Fishery resources contribute to the gross national product, domestic employment, capital formation, the U.S. balance of trade, and the provision of food for U.S. citizens. Economic and sociological data are necessary to fully develop these resources in a manner which provides greatest economic and social benefit to the United States while ensuring the future availability of these resources. The types of economic and sociological data necessary to measure these contributions are similar to those outlined in the previous section (and detailed in Appendix A). They would include such things as; cost and revenue for harvesting operations, cost and revenue for processing operations, cost and revenue for distribution/marketing/transportation operations, basic consumption patterns, tariff and non-tariff barrier information, and certain demographic information relating to employment alternatives.

IV. AVAILABLE DATA

The Southeast region is in the process of developing and implementing an integrated system of fishery data collection which could provide many of the identified data requirements. However, since this system is not completely defined and approved, this regional plan uses the current system in describing the data available. The following is a list of data which are (1) routinely collected or (2) have been collected via special surveys or studies:

1. Routine data collection

    a. commercial landings and value
    b. shrimp interview data which provides more specific data on gear, vessel size, catch per unit of effort, area fished, etc.
    c. annual dealer survey which provides the amount processed, employment, etc.
    d. general canvas, data provides the number of fishermen, gear, number of vessels, etc. (non-specific with respect to the fishery)
    e. quantity of cold storage and the amount of freezings reported monthly
    f. some wholesale prices are reported in Market News
    g. import and export data by U.S. Bureau of Census.

2. Special surveys or studies

    a. headboat survey
    b. billfish and shark survey
    c. economic characteristics of Louisiana shrimpers
    d. characteristics of recreational fishermen in Puerto Rico, U.S. Virgin Islands, and West Coast of Florida
    e. several reports on cost and earnings of the shrimp fleet in the Gulf of Mexico.

These two lists do not present exhaustive documentation of all the data being collected or that has been collected in the Southeast region. Time or space do not permit the inclusion of an extended bibliography of all the Sea Grant and academic related studies which have been done on specific topics.

As mentioned in the previous paragraph the Southeast Region is in the process of developing and implementing an integrated data collection system. It is proposed that the framework for this system would include the collection of all the needed economic and sociological data. If this would be the situation, then this regional five-year plan would become an integrated part of a complete data collection system for the Southeast Region. However, the discussion in Section V, RECOMMENDED PROGRAM does not assume the new system and the estimates of funding, the suggested responsibilities and a recommended time schedule are presented independent of it. (It should be noted that the collection and associated funding estimates for these data will also be a part of the documentation supporting the Southeast Region's integrated statistical collection system.)

V. RECOMMENDED PROGRAM

This s ction discusses the remaining four purposes of the regional data collection plan. Th y are: (1) recommended meth dologies of collection,

(2) proposed responsibilities for data collection, (3) an estimate of the funding required to meet the identified needs, and (4) a proposed time schedule. Prior to discussing these four areas, it is important to point out that this planning d cument is not a permanent or static exercise. The data elements discussed in Section III are intentionally presented in a general framework because some of the data needs are not completely and totally kn wn. Therefore, the plan must remain flexible enough to accommodate future data needs either because of increased knowledge or a change in management objectives.

The identified data needs are presented in Table 4 and in Figure 1. Table 1 also presents the time period or observation of each data element, the frequency of data collection, areas of responsibility, collection methodlogy and estimated cost (or required funding). The areas of responsibilities are: (1) the National Marine Fisheries Service (Southeast Region) which consists of in-house work or contracting, (2) states, and (3) Sea Grant funding. A number for 1 to 3 is associated with each data element and the area of responsibility. Their meanings are: 1-the organization should have responsibility, 2-the organization could have responsibility and 3-responsibility and/or funding is appropriate (#3 is only used for Sea Grant designations). A flow diagram indicating the proposed collection period and an idea of the analytical use of the data is presented in Figure 1.

In order to provide a complete understanding of the proposed five-year plan, the data elements for each fiscal year are discussed individually.

1980

- catch/effort...this is a calculated (or derived) data element comprised of the amount of catch by the appropriate biological measure of effort. These data are not listed in the Appendix because it is assumed they will be (or in the case of shrimp, are) being collected. This can be accomplished by port agent interviews as is done for the shrimp fishery in the Gulf of Mexico.

- Fishing area...this is the catch per geographical area and time (seasonality). The same assumption is made for these data as for catch/effort. That is, port agents can collect them via interviews similar to that done for the shrimp fishery.

- costs...this information would be collected by vessel or vessel category so that a relationship between cost and effort could be established. It is anticipated that these would be collected by increased port agent staffing. The estimated direct labor costs are $52K.

  earnings...this would be collected in conjunction with costs. Thus, no additional cost.

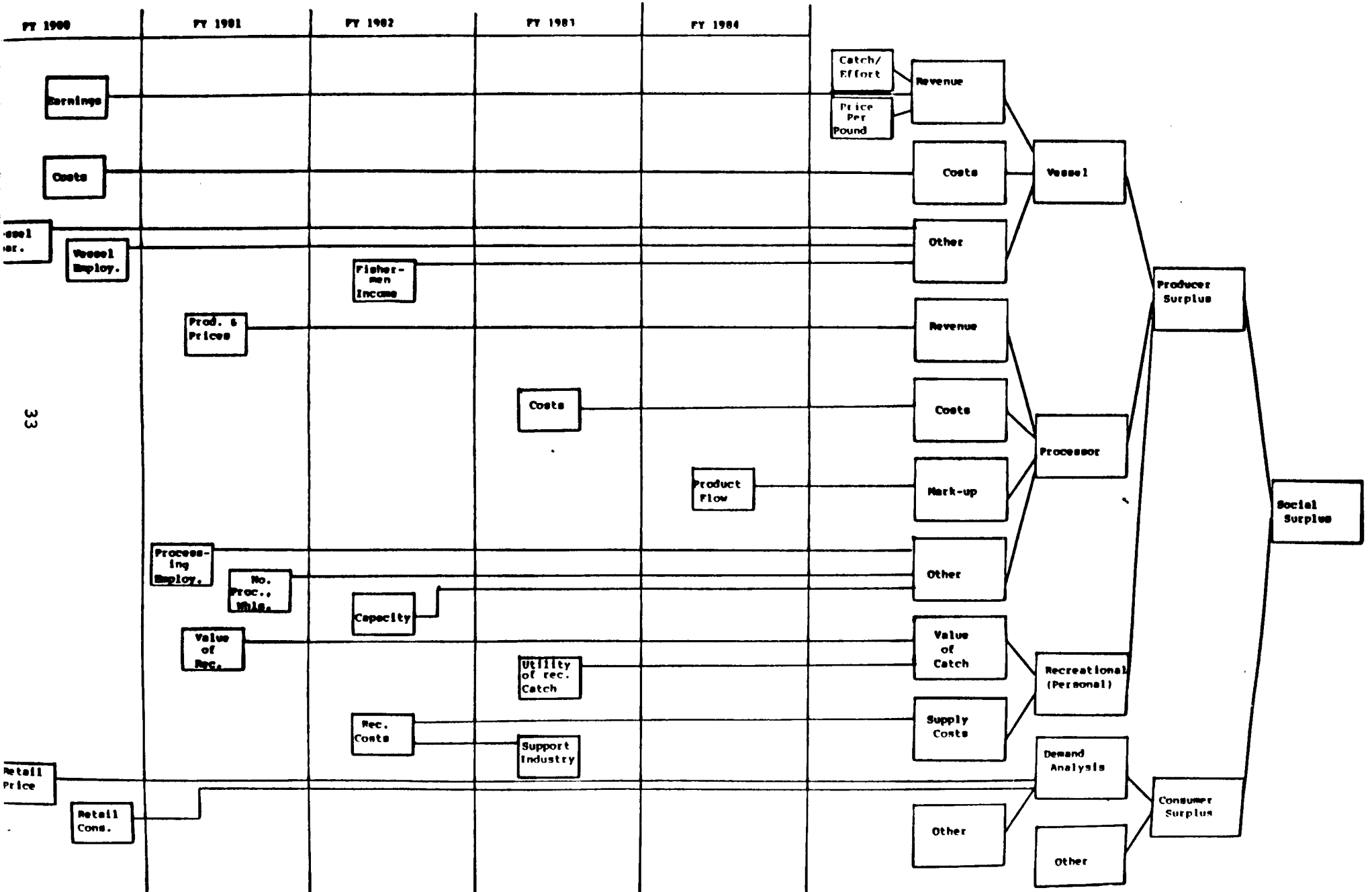
  vessel characteristics...these are measurements such as; length of hull, engine horsepower, hold capacity; gear type and number; etc. These are the measurements of effort and therefore, are assumed to be available at no extra cost (see catch/effort above).

Table 4

Data Element	Reporting Period	Collection Frequency	Responsibility* NMFS In-House	NMFS Contract	State	Sea Grant	Other	Collection Method	Estimated Cost (000)
FY 1980									
Catch/effort	trip	trip	1		2			Interview	N/A
Fishing area	trip	trip	1		2			Interview	N/A
Costs	annual	3 years	2	1		3		Interview	52
Earnings	annual	3 years	2	1		3		Interview	
Vessel Char.	annual	annual	1		2			Interview	N/A
Retail cons.	quarter	annual		1		2		Survey	2.8
Retail price	quarter	annual		1		2		Survey	
Vessel employ.	quarter	quarter	1		2			Interview	N/A
FY 1981									
Processing empl.	quarter	quarter	1	2		3		Survey	N/A
Value of rec.	annual	annual	1	2	2	3		Survey	NRS
Socio. char.	------	5 years		1		2		Survey	125
Prod. & price	monthly	monthly	1		2			Interview	2.9
No. proc., whls.	annual	annual	1		2			Survey	N/A
FY 1982									
Fishermen income	annual	------	2	1		3		Calculated	N/A
Processor capacity	annual	------	2	1		3		Calculated	N/A
Rec. costs	annual	annual		1		2		Survey	NRS
Reg'l. econ. data	annual	------			1			N/A	N/A
FY 1983									
Processing costs	annual	3 years	1	1		2		Interview	15
Utility of rec. catch	annual	5 years	1	1		2		Interview	?
Support industry	annual	------						Calculated	N/A
FY 1984									
Product Flow	quarter	5 years	1	1		2		Survey	7.7

N/A - not applicable. That is, these data are or will be available via existing sources.
NRS - National Recreational Survey.
*The numbers have the following meaning: 1 - should collect these data; 2 - could collect the data, and 3 - needed funds may be appropriately made available.

Figure 1. Flow diagram indicating data needs and their analytical use.



- retail consumption...initially this is defined as the amount of fish purchased by restaurants, institutions and the general public (e.g., at fish markets, super markets, etc.; but not at restaurants). It is anticipated that an annual survey requesting quarterly estimates of consumption is appropriate. The estimated cost is $2.8K.

- retail price...a quarterly estimate of the average price per pound associated with retail consumption. Since these data would be collected at the same time as consumption, no additional costs are anticipated.

- vessel employment...the estimated numbers of full- or part-time fishermen are needed quarterly to measure any seasonality of employment. It is anticipated that these estimates could be made from the catch/effort interviews and therefore, would not require additional funding.

1981

- processing employment...it is anticipated that the amount of full- and part-time employment by the processing sector could be collected in-house (i.e., port agents). Since most of the employment data is presently being collected, only minimal cost increases are anticipated.

- value of recreational catch...this is a difficult data element to estimate because of the lack of a clear identifiable market value for these fish. For purposes of this plan, however, it is assumed that an estimate of catch available (via the National Recreational Survey, NMFS, Washington, D.C.) and the value is just the commercial landings value (price per pound). An estimate of the non-dollar utility of recreational fishing is proposed for FY83. Therefore, since no new data are needed for this value estimate, there is no incremental cost.

- sociological characteristics...since these characteristics are not anticipated to change rapidly over time, a study is anticipated every five years to collect these characteristics. This would require a contract which is estimated at $125K. It is anticipated that Sea Grant Universities could assist heavily in this data collection.

- processing production and prices...these data should be collected only at the major point of processing (i.e., where the fishery project changes form, which would exclude brokers, handlers, etc.). It is anticipated that this occurs primarily within the Southeast region for fish landed in this region. Therefore, these data could be collected within the port agent framework (the present dealer report already provides most of this information). The estimates staff increase would be 339 person hours and cost $2.9K (direct labor cost).

- number of processors, wholesalers, brokers, etc....since these data already exist, there is no additional cost.

1982

fishermen's income...this is an estimate of the income distribution within respective fisheries. It is anticipated that this information could be calculat d from the cost data collected for FY80.

- o processor capacity...it is anticipated that this could be estimated from the production data collected for FY81.

- o recreational costs...this is the estimated expenditures (i.e., equipment, travel, lodging, charter boat, etc.) individuals make to pursue fishing strictly on a recreational basis. It is anticipated that a survey similar to (or a part of) the National Recreational Survey (NRS) would be necessary. Assuming the continuation of the NRS, there would be very little additional costs, if these data are collected at the same time.

- o regional economic data...these are baseline data such as employment, income, etc. for the Southeast (or parts of it). Such data are usually available via state or Bureau of Census estimations and therefore, no cost is anticipated.

1983

- o processing costs...this information will be collected via contract at an estimated cost of $15K. As indicated by Table 1, Sea Grant funds could be made available for these studies.

- o non-dollar utility of recreationally caught fish...these attitudinal measurements are best collected and estimated via personal interviews. The sampling framework would be similar to the NRS; however, it is difficult to place a cost on such a survey without a better understanding of what should be asked, the sample size, etc.

- o expenditures in support industries...these data can be estimated from the cost of commercial gear, equipment, groceries, etc. and the estimated dollar expenditures by the recreational fishermen. Therefore, no costs are estimated.

1984

- o product flow...this represents a detailed understanding of the processing sector (dockside to retail consumption) which would require considerable research. Thus, it is anticipated that a contract (costing $7.7K) or Sea Grant would be appropriate to undertake this project.

The estimated funding needs to meet the proposed economic and sociological data requirements are the following for each fiscal year:

1980

$52,000	newly required funds
2,800	
$54,800	total

1981

$125,000	newly required funds
2,900	
127,900	
2,800	reoccurring needs
$130,700	total

1982

No new funding is estimate for this fiscal year. However, this assumes that the National Recreational Survey will provide cost data and that no additional regional economic data will be required.

$2,800	reoccurring needs
$2,800	total

1983

$15,000	newly required funds
2,800	reoccurring needs
$17,800	total

1984

$ 7,700	newly required funds
54,800	reoccurring needs
$62,500	

Appendix

Economic and Sociological Data: a detailed description.

1. Cost and Earnings - annual data collection.

   - o Gross income from fishing

     -Broken down by species and product form

   - o Trip-related expenses

     -Captain's share
     -Crew share
     -Fuel
     -Oil
     -Ice
     -Groceries, crew supplies
     -Bait
     -Other

   - o Other Operating Expenses

     -Depreciation
     -Interest and loan fees
     -Maintenance and repair
     -Insurance
     -Nets and other expendables
     -Other
     -Licensing fees

   - o Capital Expenses

     -Original purchase and date
     -Equipment
     -Other

   - o Non-vessel Costs

     -Overhead
     -Etc.

   - o Size of Vessel; length horsepower; etc.

2. Vessel Employment - quarterly data collection

   number of full-time
   - o number of part-time or seasonal employment

3. Production and Prices - monthly data collection

   - o Pounds shipped, by major species, product type and form
     Value of shipments, by major species, product type and form
   - o End-of-period freezer holdings or inventories

4. Number of Processors, Wholesalers, Brokers, etc. - annual data collected

- o Baseline number of establishments in each sector, and ownership of ach establishment
- o Types of product handled

5. Retail Consumption and Price - quarterly data collection

- o Quantity purchased
- o Price per unit
- o Species
- o Size/quality
- o Product type
- o Region

6. Imports and Exports - monthly

- o Species
- o Product form
- o Weight
- o Value
- o Trading partner

7. Processing and Marketing Costs - every 5 years

- o Gross earnings

  -By species and product form

- o Operating Costs

  -Fish
  -Other materials consumed
  -Labor costs
  -Transportation
  -Energy
  -Depreciation
  -Insurance
  -Other

- o Plant and equipment costs
- o Taxes

  -Federal income tax
  -Other

8. Processing Employment (non-vessel) - quarterly data collection

- o Number of full-time workers
- o Number of part-time workers

9. Product Flow - annual data collection

This data topic area refers to detailed data on product flow through processing and marketing channels from the point at which the fish leave the vessel as far as the wholesaling sector, further classified by geographical region. Information on product flows, which include data on species, product form (e.g., fresh, frozen, canned) volume and/or value, will be obtained through an ad hoc study by a professional researcher.

10. Sociological Characteristics

- o Age structure of the workforce
- o Formal education (e.g., grades completed, training courses taken)
- o Skills acquired outside of "schools" (e.g., welding, engine repairs)
- o Status in workforce (e.g., deckhand, owner-skipper, skipper, deckhand-cook, "summer sternman"
- o Length of time in the fishery

This data topic area refers to additional social and cultural descriptors which are useful in assessing impacts of alternative management policies on fishermen. Specific data requirements include data on the minority status of fishing populations (e.g., female, black, Portuguese or Spanish-speaking), which are needed to ensure that management policies do not discriminate inadvertently against minorities.

Other wise, in view of the wide cultural variations among individual fisheries and fishing communities, it is difficult if not impossible to identify all cultural characteristics on which data must be collected. Rather, a study of fishermen's cultural characteristics should ideally begin with preliminary field work (participant observation and informal interviewing by a trained social scientist) to identify the salient cultural values held by the affected population. These value will normally fall into one of the following categories:

- o Situational values or values having to do with participants' feelings about their work environment (e.g., preference for inshore vs. offshore fishing, lobster fishing vs. finfishing, etc.)

- o Cultural values that are not derived specifically from aspects of the work environment, yet affect the worker's relationship to his employment (e.g., individualism among fishermen).

- o Values which include both situational and cultural elements (e.g., job satification, which may incorporate cultural values of hard work as well as an individual's reactions to actual working conditions in the fishery).

It is assumed that the main sociocultural objective to be served by fishery management plans is the minimization of conflict between management policies and sociocultural values held by participants in the fishery. Therefore, the salient sociocultural values have been identified through preliminary field work (participant observation and informal interviewing, they should be analyzed in the context of the rang of management options open to fisheries managers to determine the potential sources of conflict with the identified situational and cultural valu s.

The next stage in the analysis requires measurement of the potentially affected values within the target population, in order to provide f r the assessment of the magnitude of possible impacts and identifying tradeoffs. Measurement of these values would be two-dimensional, i.e.,

- Development of quantitative scales to measure the relative strength with which these values are held by individuals.

- Correlation of these indices with data obtained through an appropriate sample survey regarding the composition of the affected population (i.e., groups classified by age, sex, education, ethnicity, minority status, status in the work force), to determine the extent to which these values are differentially held by various segments of the population.

APPENDIX B

Assumptions and algorithms used in determining the costs of the various data collection modules.

Systems Analysis of Various Cost Alternatives for Obtaining the Minimum Required Data by the FMP's

1. Introduction. In order to estimate the costs of collecting the minimum data requirements required by the FMP's developed by the three Councils it was first necessary to:

   a) Describe and analyze the current data collection system,
   b) Describe the known characteristics of the current commercial fisheries in the Southeast Region,
   c) Identify and describe minimum data needs, and
   d) Develop cost estimating algorithms.

2. Characteristics of Commercial Fisheries in Southeast Region by Council and FMP

   Table 1 describes the known characteristics of the commercial fisheries in the Southeast Region by Council and FMP. The facts known are the number of vessels/boats, dollar value, species, pounds landed, number of dealers/processors, and number of trips/landings on an annual basis. These facts along with the minimum data needs previously identified in the report will be used to develop algorithms to estimate costs.

3. Algorithms Used to Estimate the Cost of Collecting Data

   In order to develop algorithms to estimate the costs of collecting the minimum data required by the FMP's, it was necessary to sub-classify the data requirements into various types and/or data collection methodologies.

   a) Data Stratum

      Table 2 shows how we broke the basic data needs into four basic types: catch, effort, bioprofiles, and socio-economic.

Table 1.

Characteristics of Commercial Fisheries in SE Region by Council and Fisheries Management Plan (FMP) on an Annual Basis

Council FMP	# of Vessels/ Boats	# of Dealers	# of Trips	# of Market Significant Species	Pounds (1,000's)	Dollars (1,000's)
GULF						
Stone Crabs	500	50	30,000	1	1,800	2,100
Coastal Migratory	450	25	4,000	2	8,800	1,700
Shrimp	10,000	425	300,000	1	170,000	178,000
Sharks	---	---	---	-	---	---
Corals	---	---	---	-	---	---
Spiny Lobster	650	50	32,500	1	5,000	6,800
Groundfish	50	10	1,000	3	(Confidential)	
Reef Fish	450	40	11,250	14	17,700	9,600
Swordfish	30	10	720	1	149	256
Calico Scallops	30	8	300	1	548	350
Coastal Herrings	80	11	2,640	2	1,808,000	78,000
Billfish	---	---	---	-	---	---
SOUTH ATLANTIC						
Billfish	---	---	---	-	---	---
Snapper-Grouper	85	30	2,880	10	2,300	1,600
King & Spanish Mackerel	250	20	2,400	2	9,000	2,700
Corals	---	---	---	-	---	---
Swordfish	65	10	1,560	1		
Spiny Lobster	50	25	900	1	2,300	3,000
Calico Scallops	30	5	300	1	1,400	900
	(30)		(300)			
CARIBBEAN (PUERTO RICO/VIRGIN ISLANDS)						
Billfish	---	---	---	-	---	---
Spiny Lobster	684	180	34,200	1	638	1,213
Reef Fish (Shallow water)	898	240	89,800	14	5,076	2,505
Mackerels	316	200	10,000	2	318	207
Swordfish	---	---	---	-	---	---
Mollusks	185	150	7,500	2	366	275
Corals	---	---	---	-	---	---
Reef Fish (Deep water)	46	50	2,500	11	301	164

1	2
Catch	Effort
o pounds o dollar value o species	o vessel o gear o time fished o area c depth
3	**4**
Bioprofiles	Socio-Economic
o length o weight o otoliths o scales o species o sex	o income o family characteristics

Table 2. Basic Data Stratum

b) Data Collection Methodologies

Some of the FMP's call for specific data collection methodologies: sales receipts (dealers) and logbooks (vessels/fishermen). These were costed out as data collection alternatives.

c) Data Collection Modules, Assumptions, and Cost Estimating Algorithms (Commercial Sector)

In order to describe the total costs of various data collection systems, it was advantageous for us to cost out different components as separate modules. This was done not only for ease of computation but to allow decision makers maximum flexibility. The individual modules can be used as building blocks to create various data collection systems. Thus, each system can be analyzed both in terms of types and amounts of data collected, and associated costs, to permit decision makers to select the optimum system.

A description of each module, the associated assumptions and the cost alg rithm follow:

1) Port Agent/Dealer Module (Voluntary) (base: Market News, General Canvass, etc.)

   a. assumptions

      i) port agents will be used to collect monthly dealer reports, general canvass, etc.

      ii) Market News will still be required

   b. Cost Algorithm. Given:

	$K
Labor (51.8 man-years)	490.6
Benefits	114.5
Other Direct Costs*	47.0
	652.1

* Other Direct Costs = Travel, transportation, rents, printing, supplies, equipment, etc. or 22.8% burden.

2) Mandatory Monthly Dealer Report (Costs above port agent module)

a) Assumptions

i) mandatory reporting by dealers.
ii) dealer would have to complete monthly report.
iii) port agent would not help dealers complete report.
iv) reports would be mailed in.
v) Market News would still require support.
vi) port agent would be sent error listing for corrections after initial audit/edit by data management.

b) Cost algorithm

	$K
Labor	N/A
Benefits	N/A
Other Direct Costs (Printing & Postage)	30
	$30

3) 25% Interview System for All Commercial Fisheries for Effort Data

a) Assumptions

i) average time per interview is 36 minutes, based on current experience, shrimp interview system
ii) costs at GS-9 or $18,044 based on a 2080 man-hours a year or $8.68 per hour
iii) number conducted is 25% interview rate of total trips per year
iv) min data needed = amount of data collected based on that current collected under shrimp interview system.

b) Cost Algorithm

$C = .25\ ABC'$

where: C = cost of an FMP (direct labor)
A = number of trips
B = man-hours per interview (36/60)
C′ = hourly wage rate ($8.68)

Other Direct Costs = .228C
Benefits = .096C

4) Bioprofile Module

a) Assumptions

i) there exists a sampling need for a maximum of 100 bioprofile samples per month for minimum data needed for each market category for each significant area and port
ii) it is estimated that this can be done for $12.50 sample. This would not include distructive sampling.
iii) biological sampler - GS-7 = $14,750 or $7.09 per hour.

b) Cost Algorithm

$C = A \cdot B \cdot C'$

where: C = cost of biological samples/FMP
A = no. of significant market categories
B = no. of seasonal months x 100
C' = number of important ports
D = cost per sample
Man-hours = C/$7.09
Other direct costs and benefits computed the same as for Module 3.

5) Socio-Economic Module

a) Assumptions

i) collect only minimum data needs for FMP's developed by 3 councils.
ii) the time required to interview to collect this data will be 6.4 hours per interview
iii) assume the system will collect this data at 3 basic levels (fishermen, dealers, processors).
iv) this will be on an annual basis
v) this will be at 10% sampling rate
vi) no costs have been included for retail sampling

6) Sales - Receipt Module

a) assumptions

i) Sales receipts will be mandatory at the dealer level for every landing
ii) a credit card system will be implemented to help streamline this system
iii) the cost of printing sales receipt forms is approximately 10¢ each
iv) mailing costs - all sales receipts will be aggregated and mailed once a week at $1 per mailing
v) some special surveys will be required in addition to the sales receipt system because not all of the minimum data requirements by the FMP's can be realistically obtained through this data collection methodology
vi) cost for credit card system:

credit cards = $0.30 each
machines = $121 ach

Gulf	$ 69,834
South Atlantic	11,061
Caribbean	10,105
Overhead	8,000
	$ 99.0K

plus annual operating costs of $10K

b) cost algorithm

C = A + B + D

where: C = cost of sales receipts per FMP
A = mail costs (no. of dealers * 52 * $1)
B = printing costs (no. of trips * 10¢)
D = cost of credit card system (1 time and annual operating)

Labor and benefits = N/A

7) Logbook Module

a) assumptions

i) logbooks will be mandatory for vessels/boats on a trip basis
ii) the cost of printing each logbook form is approximately 10¢
iii) mailing costs - logbooks will be mailed in monthly at a cost of $0.30/vessel/boat.
iv) some special surveys will be required in addition to the logbook system because not all of the minimum data requirements by the FMP's can be realistically obtained through this data collection methodology.

b) cost algorithm

C = A + B

where: C = cost of logbook system per FMP
A = mail costs (no. vessels X $0.30 X seasonal months)
B = printing costs (no. of trips X $0.10)

No labor and benefits

8) Observer Module

Foreign longline observer program

FY 1980 est. for 20% coverage

166K = project costs

69.8K = 2.5 full time permanent man-years labor
234.9K

Shrimp discards/turtle/groundfish

FY 1980 est. for 60 man-months effort

165K = project costs

40.0K = 1.5 full time permanent man-years labor
205.0K

Total = 439.9K

9) Recreational Module

a) assumptions

i) it is assumed for purposes of this exercise that the National Recreational Survey will not meet the data needs for the FMP's. The current cost of this survey is approximately $1.2 million

ii) individual recreational modules can be developed similar to the commercial if the Vessel Enumeration System is operational so as to establish the sampling universe

b) Cost algorithm

It is believed that a recreational survey in Southeast would require at least $1 million in resources (contract) on an annual basis, which includes data processing.

10) System Development Costs (design of a sampling plan for each FMP for fishery surveys)

a) assumptions

i) there are 19 detailed survey designs required by the commercial sector in the Southeast region.

ii) based on past experience it will take 3 man-months to develop each detailed design.

iii) it is assumed that this survey design would require a Surv y Statistician - GS-12 - $23,087

b) Cost algorithm

Labor cost	$109,763
Man-months	3 X 19 = 57 or 4.75 man-years
Benefits (9.6%)	10.5
Overhead (22.8%)	25.0
Total	$145.2

4. Algorithms Used to Estimate the Cost of Processing Data

The algorithm used to estimate the cost of the various modules was based on overhead expenses, number of records per module and labor costs. The fixed overhead expenses were assumed to be $350K including 4 full time permanents. These costs were for the communications network, equipment and general operating expenses.

The cost to process one record was calculated to be $.15. This was calculated from a 12 cent data entry charge and a 3 cent processing charge per record. Approximately 50% of the data management costs for options 3, 4, and 5 are personnel expenses, while the remaining balance is for data entry and processing.

Cost of Data Collection and Data Management for Each Module

$ K(FY 79$)

	MODULE	LABOR	BENEFITS	OTHER DIRECT	TOTAL	MAN YEARS
	Data Collection					
1)	Port Agent (Vol)	490.6	47.0	114.5	652.1	30.3
2)	Mandatory Monthly Dealer Report	-----	----	30.0	30.0	----
3)	25% Interview	695.8	66.8	158.6	921.2	38.5
4)	Bioprofile (LTD)	-----	----	-----	600.0	30.7
5)	Socio-Economic	99.6	9.6	22.8	132.0	5.6
6)	Sales Receipt	-----	----	143.5	143.5	----
7)	Logbook	-----	----	103.0	103.0	----
8)	Observer Program	83.0	8.3	345.1	436.4	3.7
9)	Recr ational	-----	----	-----	1,000.0	----
10)	Survey Design	109.7	10.5	25.0	145.2	4.8
11)	Credit Card	-----	----	9.9	99.0	----
	Data Management					
1)	Port Agent (base)	183.6	17.6	350.0	551.2	8.0
2)	Monthly Dealer	26.6	2.6	22.2	51.4	2.0
3)	25% Shrimp Interview	26.6	2.6	45.0	74.2	2.0
4)	25% Interview	53.3	5.1	69.9	128.3	4.0
5)	Socio-Economic	23.4	2.2	10.4	36.0	1.4
6)	Bioprofile	53.3	5.1	75.7	134.1	4.0
7)	Logbooks	1,144.8	109.9	1,324.1	2,578.8	88.1
8)	Sales Receipt	237.5	22.1	279.8	540.1	18.5
9)	Observer	12.3	1.2	9.8	23.3	1.1
10)	Bioprofile (600K)	9.6	.9	5.4	15.9	.7
11)	Soft Ware Development	-----	----	-----	300.0	8.5

Final Supplemental:

Some of the actual final cost estimates in the "Fishery Statistics Plan for the Southeastern United States" may be somewhat higher or lower based on management d cisions to increase or decrease amounts for certain FMP's during the review process. The basic cost estimating relationships however are still valid and have actual real-life applications.

APPENDIX C

Detailed Description of Selected Modules

DEALER REPORT

Description. A dealer report is a record of the total purchases of a wholesale fish dealer from commercial and other fishermen. It represents a summary report of the total purchases over a given time period, for example, one month.

Data elements. A dealer report normally includes the following data elements: 1) name and identification of dealer; 2) time period; 3) location of dealer (port); and 4) total pounds and value (price) of fish by commercial category.

Information provided. Total landings and value by commercial category, time period, and port.

Characteristics. A dealer report provides information on total commercial landings, which is useful in managing by quota and in following trends in total catch. Wholesale seafood dealers are licensed by state regulation and their operations are generally well known. Reports from them can generally be obtained successfully by either mandatory or voluntary means. However, in either case, a good deal of personal contact is necessary to ensure completeness and accuracy of reporting. A dealer report system provides information on total landings at a relatively small cost, since individual landings are grouped in a single report and there are relatively few dealers compared to the number of landings. For example, there are approximately 1,000 dealers in the Southeast, so that about 12,000 annual records are generated. Dealer reports alone, however, do not provide detailed informatin suitable for stock assessment or economic analysis because data on individual landings and operations, and area of capture are not reported.

Dealer reports attempt to sample all wholesale dealers and to obtain a measure of the total commercial catch. Because the dealer universe is relatively small, it seems preferable to attempt to collect these data by a total census. Although for some fisheries the commercial catch may not be a majority of the total catch, there is still an advantage of having a complete count of the commercial catch as this can be used as a relative measure of trends in the fishery.

SALES RECEIPT

Description. A sales receipt is a record of the sales transaction between the fisherman and the first purchaser (primary wholesale dealer or other

purchaser). Since it repr sents a single purchase, it usually serv s as a record of a single fishing trip, because in most cases the combined catch of a single trip is sold together to a dealer.

Data lements. A sales receipt normally supplies information on:

1. date of sale
2. name and identification of seller
3. name and identification of purchaser
4. quantity (weight or number) of fish by species and commercial category
5. value of fish
6. port of landing

Additionally, and at extra effort, information may be collected on area of fishing, fishing effort, type of gear, and vessel identification.

Information provided:

1. total landings by species and species groups
2. total number of trips
3. landings of individual trips
4. assignment of trip effort to landings

Characteristics. Compatible with accepted business procedures. The sales receipt can serve as a useful business record to both the seller and purchaser, if it is properly designed.

Requirements to implement:

1. Printing of dealer reports (multiple forms)
2. Issuance to each seafood dealer
3. (for mandatory reporting) State legislative action to require dealer reports by all wholesale seafood dealers. Commercial fishermen who sell to consumers should be considered wholesale seafood dealers and licensed accordingly.
4. Data processing personnel and equipment to process receipts. An estimated 12,000 records annually (1,000 dealers x 12 months).

Cost factors. the major costs of a dealer report system are 1) personal contact and follow up with dealers and 2) data processing of the reports.

LOGBOOK

Description. A logbook is a record of individual fishing operations and activities maintained by the fisherman. It usually reports daily or more frequent (haul) results.

Data elements. A logbook normally supplies data on

1. date of operation
2. name and identification of fisherman
3. name and identification of vessel
4. fishing area (depth/loran readings)
5. time fished

6. estimated catch (weight or number) by species of each unit fishing operation (set or haul of a net)
7. gear type

Additionally, data may be required on date left port, date returned, landing port, and buyer.

Information provided. Catch and effort by specific area and restricted time period.

Characteristics:

1. The logbook provides detailed statistical data which is useful and sometimes necessary in stock assessments and evaluating changes in fishing practices, such as shifts in fishing area and changes in fishing gear.

2. Collection of logbook data requires record keeping by persons who may not normally record such detailed data. A successful logbook program, whether voluntary or mandatory, requires extensive personal contact. Enforcement is difficult; while penalties can be imposed for failure to report, there is no way to ensure the accuracy of reported information.

Requirements to implement:

1. Printing of logbooks (multiple forms)
2. Publicity program
3. Distribution and collection system
4. Data processing personnel and equipment to process returned logbooks. Logbooks would be implemented on a specific fishery basis.

Cost factors. A logbook system is the most costly module of a fishery statistical reporting system because of the volume of data generated. It appears practical only if considered on a selected fishery basis.

RECREATIONAL

Description. The recreational module is based on special surveys and vessel numeration. The vessel enumeration system includes all boats and vessel registered by state licensing systems and all federally documented vessels.

Data elements. Data elements can be selected as required.

Information provided. Information on economic and social characteristics of the users of a resource and their catches can be obtained.

Characteristics. The vessel enumeration system is based on the state boat registration lists. Experience with this system was gained from the NMFS Survey of the Recreational Billfish and Shark Fisheries conducted in 1978. This experience showed that a vessel enumeration system should 1) identify fishing vessels vs vessels used for other purposes and 2) identify recreational fishing vessels vs commercial fishing vessels. In this way the total population can be stratified so that questions about recreational or commercial fishing can be directed to the appropriate stratum, with a consequent gain in sampling effici ncy.

Conclusions based on a vessel enumeration system apply to the population of boat owners. For example, the catch of grouper and snapper or mackerel from boats could be estimated, but the shore or bridge catch would not be included. In some cases, it would be preferable to make conclusions with respect to the population of salt-water fishermen. Then both boat and shore catches would be included. This would require 1) the licensing of salt-water anglers or 2) sampling the general population via a telephone or mail survey.
Sample survey design can be varied to suit the purposes of the special study. If some information about the population is available, stratified sampling may produce more efficient results than simple random sampling. Information can be collected by direct observation, personal interview, telephone interview, or mail questionnaire.

Requirements to implement:

1. Annual registration of boats and vessels by state and Coast Guard or other appropriate steps to ensure that vessel lists are current.
2. Development of standard questions and data elements to be included on the registration forms of the various states so the data are uniform. In particular, recreational fishing vessels and commercial fishing vessels used in salt water should be identified in the registration process.
3. Automatic processing of data so that information is available in usable form.
4. Design of special surveys, including sample design, questionnaire, and processing and analysis plans.

Cost factors. The NMFS survey of the recreational Billfish and Shark Fisheries conducted over approximately 13 months took approximately five man years and cost $150,000. Approximately 1/3 of the cost was for computerizing the vessel registration lists; this is a periodic cost and does not apply to each survey. There is an annual cost of updating vessel lists.

PORT AGENT

Description. Port agents collect interview data on a selected or random sample design basis to provide necessary information on fisheries and fishery resources. Interviewers contact fishermen, dealers, and processors to obtain data on either a census or survey basis.

Data elements. Interviews normally provide data on:

1. aggregated landings by dealer and by waters
2. aggregated inventories of vessels, employment, and plants
3. fishing effort, fishing grounds, and gear

Information provided:

1. Monthly landings by species by port
2. Annual landings by species by fishing grounds
3. Fishing effort, fishing grounds, and gear by trip

Characteristics:

1. Relatively expensive to implement
2. High accuracy of data
3. Most useful to collect aggregate data on a 100% sample basis or disaggregated data on a partial sample basis.

Requirements to implement:

1. Manpower network distributed in major fishing ports
2. Training in sample survey design and data entry techniques

Cost factors:

1. A network of port agents is expected to be maintained to effectively implement the overall statistical reporting system.
2. Only marginal costs would be incurred having these agents undertake special surveys by interview.
3. The cost of these surveys would depend on their number and extent.

OBSERVER

Description. An Observer Program is provided for under the Fishery Conservation and Management Act. Observers are placed on foreign fishing vessels to collect data and information required by the foreign fishing regulations and may also be used on domestic vessels. Duties of the observers are to make observations on compliance with the regulations and to collect data that will supplement and verify the accuracy of the reports required from foreign vessels. Observers are also used when the required data are of the nature that they cannot reasonably be supplied by the fishermen (e.g., detailed species composition of the catch on a haul by haul basis).
Data elements:

1. catch (weight, number, and species composition)
2. fishing locations
3. fishing time
4. gear type
5. biological data elements on catch
6. environmental data elements

Information provided:

1. catch by haul or other type of fishing operation
2. precise fishing locations
3. catch variability with respect to fishing practices and environmental variables

Characteristics. The observer program provides a check on the validity of data submitted by foreign fishermen and also provides data on specific topics. The type of information is similar to that collected by logbook.

Requirements to implement:

1. Observer personnel, quivalent t 2.0 man-years for each vessel year. Approximately 25% coverage of foreign fishing is anticipated.
2. Program management, pers nnel supervision, and logistical support for field operations.

Cost factors. See Foreign Fishing Observers Manual, SEFC.

APPENDIX D

Conceptual Framework of a Cooperative

State/Federal Statistical Program

I. GOAL

The goal of the regional cooperative statistical program is to establish procedures for data collection, analysis, management and reporting that will provid timely statistical information to facilitate decision making processes in fishery management, development, and research activities in the southeastern United States through the cooperation, consolidation and coordination of the activities of the office of Technical and Information Management Services (TIMS) of the Southeast Fisheries Center (SEFC) and the respective departments of the state and territorial fishery management agencies in the region.

II. OBJECTIVES

Objective 1: To collect appropriate and sufficient fishery statistical information to manage, develop, and conserve the fishery resources found the southeastern United States.

Objective 2: To obtain cooperative statistical agreements with all marine fishery management agencies in the southeastern United States in order to increase efficiency and eliminate redundancy.

Objective 3: To establish compatible data collection, data entry, and data management procedures for fishery statistical information in the southeastern United States.

Objective 4: To provide a computer network which may be used to link all state, territorial and federal management agencies in a common statistical information system.

Objective 5: To provide fishery statistical information to Fishery Management Councils, Fishery Commissions, state, territorial and federal fishery management agencies, and other appropriate user groups on a timely basis.

Objective 6: To document fully the regional cooperative statistical program.

III. PURPOSE

The purpose of this document is to provide a general set of informal policy guidelines for the implementation and maintenance of the regional fishery statistical program. Specifically, the memorandum will provide policy guidance for (1) consistent actions by state agencies and the National Marine Fisheries Service which, in conjunction with the Regional Fishery Management Councils, the Marine Fisheries Commissions, and other interested parties, will contribute to achieving a coordinated, efficient, and effective intergovernmental flow of fishery information, (2) minimizing unnecessary duplication and administrative procedures imposed upon fishery user groups, and (3) meeting specific legal requirements under the Fishery Conservation and Management Act of 1976 (FCMA-76) and other applicable statutes by entering into formal agreement regarding confidentiality of fishery information.

IV. SCOPE

The proposed fishery information system will cover all fisheries within the internal estuarine waters, the territorial sea and the fishery conservation zone contiguous to the coastal States. Priority will be given initially to those fisheries that are under management within the context of a fishery management plan (federal or state) or merit special interest due to their economic or biological importance.

Information will be collected from various sources such as dealer monthly landings reports, sales receipts (trip tickets) for selected fisheries, dockside interviews for selected fisheries, logbooks where required by a fishery management plan, special surveys for recreational, economic and social information, and accessing of license and vessel registration files.

V. BACKGROUND

States in the southeastern United States and the National Marine Fisheries Service have been collecting fishery information for scientific research and regulatory purposes for many years (see "A Fishery Statistics Plan for the Southeastern United States"). However, for much of the past and for many fisheries presently, there does not exist a comprehensive collection program for basic fishery statistics. Moreover, information that had been collected in former years has been characterized by different collection procedures and different computer support systems. This combination of events has often made it difficult, if not impossible to collate, analyze, and disseminate information in a timely fashion.

There have been many changes in the responsibilities and activities of fishery management agencies with the advent of FCMA-76; nonetheless, it is expected that many activities will remain the same. As in the past, States will continue operation of their basic fishery statistics collection programs, such as: (1) licenses and registrations for boats, processors (dealers), and fishermen; (2) fish landings receipts; and (3) catch and effort sampling. The National Marine Fisheries Service and States will continue to collect basic environmental, biological, socio-economic, and fishery resource information in their respective marine and estaurine programs.

In 1977, the TIMS office of the SEFC was formed to coordinate the data collection, analysis and management activities of the southeast region. Also, in 1977, the Southeat Regional Office, TIMS, and the States of North Carolina, South Carolina, Georgia, and Florida joined together to design and implement a cooperative State-Federal regional statistical program for South Atlantic shrimp. Although the system was designed primarily for South Atlantic shrimp, the program collects some statistics for all commercial fisheries and it has been recognized by all participants that the system could serve as a model for an expanded program to collect fishery information for all fisheries in the region. In addition, North Carolina and the Southeast Fisheries Center have been collecting fishery statistics under a memorandum of understanding. These programs have enhanced the maintenance of good working relationships and information exchange at all levels of the participating agencies.

VI. MANAGEMENT STRUCTURE

The major institutions in the southeastern United States which collect fishery statistics are the State management agencies from North Carolina to Texas, Puerto Rico, Virgin Islands, and the National Marine Fisheries Service. It is suggested that state fishery administrators, the NMFS Center Director, and the NMFS Regional Director meet as required to review progress and provide policy guidance in implementing the cooperative statistical program.

Coordination for implementing and overseeing the technical details of the cooperative statistical program can be provided through a technical/statistical committee composed of representatives of the states and NMFS. Areas receiving particular attention by the technical group would be fishery assessment needs, statistical survey design, and design of appropriate computer support systems. After implementation of the system, the technical committee could serve as a focus for user input concerning improvements of the system.

VII. COMPUTER SUPPORT SYSTEMS

The complexity, and the demand for timely information requires that the supporting computer system employ at the earliest possible time, state-of-the-art technology, including use of a data base management system, teleprocessing and telecommunications. Application of this technology will minimize duplication of data storage, minimize application programming (initial and updates), maintain security of data, and promote optimization of computer resources by minimizing training and future conversion

costs. Moreover, from a user point of view, access to the data can be obtained by utilizing query languages and programs that require a minimum of training. The Technical and Information Management Service (TIMS) of the SEFC has the mission of developing a system for building, documenting and maintaining official data bases and designing a terminal network that would provide access to the data by all cooperating agencies.

VIII. ACCESS TO DATA

Section 2 of Public Law 94-265 states it is the policy of the Congress in this act to assure that the national fishery conservation and management program utilizes, and is based upon, the best scientific information available. Further, the act authorizes the collection and use of fishery statistics to achieve conservation, management and development objectives enunciated in the respective fishery management plans (FMP's). Similarly, FMP's prepared for territorial sea fisheries should be based on sound scientific information. The desire to manage fisheries based on the best available scientific information dictates that appropriate personnel have access to data in order for them to provide sound scientific advice to the institutions specifically charged with fishery management. However, access to statistics is constrained by section 303(d) which is reproduced here.

CONFIDENTIALITY OF STATISTICS.

> Any statistics submitted to the Secretary by any person in compliance with any requirement under subsection (a)(5) shall be confidential and shall not be disclosed except when required under court order. The Secretary shall, by regulation, prescribe such procedures as may be necessary to preserve such confidentiality, except that the Secretary may release or make public any such statistics in any aggregate or summary form which does not directly or indirectly disclose the identity or business of any person who submits such statistics.

The issue of confidentiality is complex. Even when data are collected for specific management, research, and development needs, there is a legal requirement to provide confidentiality for data elements. It is extremely important that a systems analysis approach be used to devise a system that provides access to confidential data on the basis of need and permits access to aggregate data by all users.

The policy concerning access to data will be determined in large part by two factors; 1) Whether or not the fishery is being managed by a federal FMP, and 2) The respective legal authorities of the participating agencies. In regard to 1), it is the policy of NOAA to provide confidentiality safeguards to federal FMP's. This will require certain NOAA procedures that will be described in a regional handbook. These procedures and any special state requirements will be incorporated in the individual NMFS-State cooperative agreements.

Policy concerning 2) is easier to describe. The preferred solution is for all participating parties to have equivalent legal authority regarding collection and confidentiality of data. In this case, authorized personnel in each agency would have full access to data. For example, state personnel, who collect data, would be considered Federal agents for purposes of collection and be subject to federal confidentiality regulations.

In the event the State has authority to collect statistics independently of Federal authority, and the state is actively seeking to obtain authority through its legislature to protect the disclosure, and agrees to abide by NMFS disclosure restrictions, the State and NMFS can join in a cooperative agreement to collect statistics.

States having no collection authority of their own will not be permitted to retain copies of the confidential data collected.

Given the framework described above and the fishery development, research, and management missions of the respective agencies, it is agreed that all agencies ascribe to the principle of maintaining the integrity and value of statistical acquisition systems by offering the promise of confidentiality to suppliers of data to the extent authorized by the Federal and State authorities listed in Section XI so as to encourage them to supply accurate and possibly sensitive information. Further, it is agreed that the National Marine Fisheries Service and the respective state agencies shall have access to each other's fishery statistics and fishery data files for the purposes of fishery management, research, analysis, planning, and policy development to the extent permitted by the Federal and State authorities listed in section XI.

States shall have the right to make decisions regarding disclosure of data and information collected under state authority.

Neither party shall disclose data in its possession that were collected under the other party's authority without the other party's permission. In the event data are collected under joint Federal and State authority, decisions regarding their disclosure may be made by either party without the concurrence or agreement of the other if permitted by law.

Nothing contained in this agreement shall limit the right of any party to publish statistics collected under its own authority in any aggregate or summary form which does not directly or indirectly disclose the identity or business of any person who submits such statistics.

Federal and State fisheries data supplied by the respective agencies to the other agency's employees may be published in aggregate or summary form through normal editorial specifications of State, Federal or other journals by mutual consent of the Directors. Each such publication shall acknowledge the original source of such data.

IX. STATE-FEDERAL COOPERATION FOR EFFICIENT DATA & INFORMATION HANDLING

The number of fisheries and fishery management institutions, the scope of the statistical requirements, and the geographic distances involved, requires effective communication among all parties. Communication must exist at all levels and the spirit of cooperation is as essential as the formal NMFS-State agreements that will signify cooperation. Effective communication will be enhanced by thorough documentation, training of personnel, periodic newsletters, computer bulletins, and frequent contact of appropriate personnel of the respective agencies. Specifically, policy guidance will be recommended jointly by the State directors, the NMFS Center Director, and the NMFS Regional Director and disseminated to all parties in order to keep personnel informed of the overall direction of the program. Technical details will be explored in depth by the technical/statistical committee and this information distributed to all concerned parties, particularly those concerned with the daily operations of the program.

TIMS will have the primary operational responsibility to insure effective communication with participants and user groups. This responsibility will require adequate numbers of personnel to thoroughly document capabilities of the computer support system and to transfer this information to all participants. Part of this responsibility will be met by area

coordinators. The NMFS together with the respective state agencies have agreed to develop an informal set of policy guidelines as well as a plan of implementation for the regional cooperative statistical program as soon as possible.

After the policy guidelines and implementation plan have been refined and accepted by the concerned agencies, the next priority will be to establish individual statistical agreements between the National Marine Fisheries Service and the participating States during the remainder of fiscal year 1980 or as soon thereafter as practical. It will be the intent of all parties to begin implementation of the statistical cooperative agreements in fiscal year 1981 although it is realized that full implementation may require up to three years because of federal and state budgeting cycles. Once an individual agreement has been reached and legally approved, the National Marine Fisheries Service and the respective State agency will give immediate priority (within 90 days) to providing computer accessibility to all appropriate State and Federal fisheries statistical data to both agencies' research, administrative, and management personnel. The ultimate objective of timeliness of data access will require that work be done on a schedule that will provide access to the data from 90 percent of the fish landings, monthly dealer reports, vessel interviews, and vessel information data within the previous seven calendar days. This, of course, will depend upon having adequate resources.

From time to time specific fishery data or information not now being collected will be required by both parties in the future. In this case, it is the intention of both parties to make the new data collection requirements or more specific data processing or dissemination requirements a

part of the existing agreement by adding them as appendices at a later date. The agreed-upon procedure for doing so: (1) agreement on specifications of technical requirements; (2) estimation of additional costs; (3) determination of equitable allocation of funding between the State and Federal governments; and (4) the respective Director's agreement to carry out the planned data collection, processing or dissemination.

X. FUNDING POLICY

The costs to be allocated between State and Federal governments for data collection, processing, and dissemination will be negotiated. It is realized that States have primary responsibility for collection of statistics within State waters; whereas, the NMFS has primary funding and collection responsibility for fisheries within the Federal Fishery Conservation Zone. Specific details of funding as well as responsibilities will be negotiated and described in the respective individual State-NMFS cooperative agreements.

XI. LEGAL AUTHORITY AND REFERENCES

A. Federal

1. Fish and Wildlife Coordination Act of 1934; 16 U.S.C. 661
2. Fishery Market News Service Act of 1937; 50 Stat. 296
3. Agricultural Marketing Act of 1946; 7 U.S.C. 1621
4. Farrington Act of 1947; 16 U.S.C. 758
5. Atlantic Coast Fish Study for Development and Protection of Fish Resources, 1950; 16 U.S.C. 951
6. Tuna Convention Act of 1950; 16 U.S.C 951

7. Agriculatural Trade Development and Assistance Act of 1954; 7 U.S.C. 1704

8. Fish and Wildlife Act of 1956; 16 U.S.C. 742(a)

9. Marine Migratory Sportfish Act of 1959; 16 U.S.C. 760

10. Commercial Fisheries Research and Development Act of 1965; 16 U.S.C. 779

11. Atlantic Tunas Convention Act of 1975; 16 U.S.C. 971

12. Fishery Conservation and Management Act of 1976; 16 U.S.C. 1801

B. State

1. Respective State statutes (Described in Individual Cooperative Agreements)

a. Collection authority

b. Confidentiality provisions

c. Authority to cooperate

d. State confidentiality policy statements

XII. REVIEW, AMENDMENT, AND TERMS OF THE INDIVIDUAL STATE-NMFS AGREEMENT

The agreements will be reviewed periodically, but not less than annually, and reconsidered or amended at any time agreed to by the respective Directors of NMFS and the appropriate state agency.

The terms of the agreements become effective upon the signature of the Directors and remain in effect until terminated by: (1) mutual agreement; (2) a 90-day advance written notice by any of the parties; or (3) when specific operational terms are not fulfilled.

XIII. OTHER PROVISIONS

Nothing herein is intended to conflict with current National Oceanic and Atmospheric Administration or state fishery agency directives. If any terms of the individual agreements are, in fact, inconsistent with existing directives of participating Agencies, as determined by the respective Directors, then they shall be invalid, but the remaining terms shall remain in effect.

Should disagreement arise as to the interpretation of the provisions of the individual agreement, or amendements and revisions thereto, which cannot be resolved at the operating level, the area(s) of disagreement shall be reduced to writing by each party and presented to their respective agency heads for appropriate resolution.

APPENDIX E

State/Federal Cooperative Agreements* are in the process of being developed for the following areas:

North Carolina

South Carolina

Georgia

Florida

Alabama

Mississippi

Louisiana

Texas

Puerto Rico

Virgin Islands

The documents, when completed, can be obtained from the Southeast Fisheries Center or the appropriate state agency.

*NOTE: A sample or strawman cooperative agreement is attached.

Cooperative Agreement

Cooperator: Division of Marine Fisheries,
Department of Natural Resources

Program Title: Collection, Analyzing, and Publishing Fishery Statistics for the Southeastern United States

I. Project No. 1 - Title: Collecting, Analyzing, and Publishing Fishery Statistics for the State of

Project Objective:

To establish and maintain cooperative fishery statistics reporting services for through the consolidation and coordination of activities within the Technical and Information Management Services, NMFS, and the Department of Natural Resources, State of , in the collection, analysis, and publication of statistical data relating to fisnery activities and to the production, price, value, movement, stocks, marketing, processing, and other utilization of fishery products and other aquatic living resources of and, through close cooperation in these activities, to avoid duplication of effort and to promote efficiency of operations.

Functional Basis:

The Technical and Information Management Service, Southeast Fisheries Center, National Marine Fisneries Service, United States Department of Commerce, hereinafter referred to as NMFS is charged with the responsibility for a continuing National program for the collection and publication of production and marketing statistics. In the conduct of tne program, establisned in accord with Congressional authority and appropriations, the NMFS is concerned with catch and effort and socio-economic data

collection for state, regional and federal fisheries that are under state, regional and federal fishery management plans.

The , Department of Natural Resources, hereinafter referred to as the DNR has certain responsibilities for the compilation of statistical data concerning fishery activities and to production, processing, and marketing of fishery products within the State of , but is particularly interested in the collection, development, and publication of more detailed information than was formerly provided in the Federal program of reports, chiefly data by fishing areas within the State. The DNR has the necessary authority under appropriate State laws to collect and compile information on fish and shellfish products, which will be mutually valuable to both agencies in the conduct of a joint statistical program.

The NMFS and the DNR, cognizant of their basic authorities and responsibilities, recognize that the goals and objectives of the National and State statistical programs may be most efficiently and economically accomplished by combining their efforts in a joint statistical program. This joint effort will result in the best overall benefit to the people of the United States and residents of this state.

A. Job 1 - Title: Project Management

Objective:

1. Provide a management mechanism for the coordination of DNR-NMFS fisnery statistics collection, analyses, and publication activities within a particular State.

Procedures:

1. The NMFS

   (a) Will authorize a properly qualified Fishery Reporting Specialist or Statistician (hereinafter referred to as the Fishery Statistician in , who will be responsible for the collection and preparation of data required for the joint reporting program, and for statistical information released by his office as NMFS reports.

   (b) It is expected that the NMFS Fishery Statistician in charge of the cooperative program of work in the field office to develop jointly with the Secretary of the DNR, the plans for the state's work program under this agreement; to effectively coordinate and conduct such additional statistical investigations and reports for DNR as may be agreed by NMFS and DNR.

   (c) State employees performing work either supervised in part or coordinated by the Fishery Statistician under this agreement may be receiving all of their compensation from the NMFS or receiving all their compensation from the State Department.

   (d) The salaries of employees paid by NMFS shall be in accordance with the provisions of the Federal Classification Act of 1949, as amended.

(e) The NMFS shall select those employees to be renumerated in accordance with Federal standards and shall supervise and direct the duties and establish work schedules as may be appropriate. It is understood that the Fishery Statistician may provide from time to time, supervision to employees being compensated wholly by the state of .

2. The DNR

(a) Shall recognize the designated official of the NMFS as the federal coordinator concerning the work of gathering, compiling, analyzing, preparing, and reporting the fishery statistics and estimates covered by this cooperative agreement.

(b) Shall provide a properly qualified State Fishery Reporting Specialist or Statistician (hereinafter referred to as the "State Fishery Statistician") who will be responsible for the collection, data entry, analysis, and publication of all data required for the State statistical program and for other data as may be pertinent under this cooperative agreement.

(c) The Secretary of the DNR shall select only qualified employees for the cooperative program.

(d) The State employees shall be under the general administrative and technical supervision of the State Fishery Statistician. However, it is recognized that the NMFS Fishery Statistician may provide technical supervision to port samplers.

(e) State employees are not entitled to any Federal employee benefits or to a continuation of them. It is further understood that payment of salaries by NMFS shall not be considered to extend any federal service privileges or authorities.

3. The NMFS and DNR

(a) Shall make available all statistical information in its possession or available to it collected under terms of this agreement, fishery activities and the production and marketing, processing or other uses of fishery products, including shipments or other movement, stocks and inventories, prices, or any similar types of data secured in connection with the administration of State laws and regulations, which may assist in the proper conduct of the work provided for under this cooperative agreement to the individuals identified herein. Any disclosure of data so acquired shall be subject to federal and state confidentiality provisions.

B. Job II - Title: Computer Hardware Support

Objectives:

1. To provide a regional computer network for the southeastern United States in order that fishery statistics may be collected, analyzed, and reported in a timely manner to facilitate fishery management, development, and research activities.

Procedures:

1. The NMFS and the DNR

   (a) TIMS and State personnel will jointly define data entry, initial edit, data analyses, and data reporting (printing) specifications for the particular state facility.

   (b) TIMS will assist the states by providing computer hardware studies to determine the best way to interface new or existing state computer systems with the Southeast Fisheries Information Network (SEFIN).

   (c) When requested, TIMS will provide training concerning the access and use of the TIMS mainframe computer and the associated SEFIN data files and programs.

   (d) TIMS will provide a list of available training courses to states.

   (e) TIMS personnel will be responsible for interacting with the mainframe computer facility concerning system problems encountered by the States.

C. Job III - Title: Data Collection

Objectives:

1. Plan, implement, and document data collection procedures in order to insure that statistics are collected in a timely manner that insures accuracy while minimizing reporting requirements of the public.

Procedures:

1. The NMFS

   (a) Shall in consultation with the DNR, develop collection procedures that will (1) define the geographical area and identify the population to be sampled within that area, (2) determine the sampling frequency, (3) determine the data elements to be sampled, and (4) determine the flow of data from collection to all anticipated users.

   (b) Shall in consultation with the DNR develop appropriate confidentiality procedures and safeguards.

   (c) Shall document all collection and access to data procedures and distribute same to all employees in the cooperative program.

   (d) All data and information furnished by individual reporters primarily for use in the preparation of estimates and reports or for other statistical summary or analytical purposes in the respective Fishery Statistics Offices shall be assured confidential treatment, and protected against improper or unauthorized divulgence or use. All such individual reports, the listings and tabulations thereof, charts, recommendations, notes, and all other pertinent records or materials in the files of the cooperative fishery reporting services shall be disclosed only in accordance with pertinent regulations of the U. S. Department of Commerce, NOAA, NMFS, State and any other Federal statutes. If, for any reason whatsoever, this cooperative agreement is terminated, the disposition of files and records (or copies

thereof) developed as a result of or incidentally to the cooperative Federal-State program for which this agreement provides shall be determined according to NMFS/NOAA/DOC standards and provisions, State laws and DNR regulations, to the extent that they are consistent.

(e) Mailing lists or lists of field contacts developed and maintained by the cooperative fishery reporting offices, - are to be maintained in a confidential manner according to Federal and State laws and regulations deemed applicable by the respective agencies. Reporter lists shall, in the event of termination and at the time of termination of this agreement, remain the property of the respective offices.

(f) Will furnish such stationery, miscellaneous supplies, equipment, travel funds and other required services as may from time to time be necessary to carry on the regular cooperative work program of the NMFS.

(g) Shall supply the necessary postage and fees paid envelopes for mailing questionnaires, reports, and other official matters of the Fishery Statistician's office, concerning the cooperative work. Nothing in this agreement however, shall prevent the use of envelopes of the DNR, when deemed desirable.

(h) Where desirable in achieving Federal or cooperative program objectives, the Fishery Statistician may authorize and approve travel expenses according to NMFS travel regulations for state employees.

2. The DNR

(a) Shall insure that all data collection and access to date procedures are known and adhered to by state employees.

(b) Insure that the State Fishery Statistician is supervising state employees, coordinating data collection activities including timely and accurate transfer of data to the Fishery Statistician, and periodically meeting with the Fishery Statistician to discuss the operation of the program.

(c) Collect fisheries data through field enumerations at the following ports:

(1)

(2)

D. Job IV - Title: Establishment of Data Entry Including Initial Editing Procedures

Objectives:

1. Plan, implement and document data entry including initial editing procedures.

Procedures:

1. The NMFS

(a) Provide data input forms and procedures including accompanying codes for data entry.

(b) Insure that preliminary edit output is made available to the personnel (State or Federal) who provide the basic data forms in order to verify the accuracy and completeness of data.

(c) Document data entry procedures and provide copies to all appropriate federal and state personnel.

(d) Where appropriate, write the initial edit program(s) suitable for the terminal and document same so that all users know how data are being edited.

2. The DNR

(a) Provide data (raw or edited) to Fishery Statistician according to specified data collection and input specifications.

(b) Provide supervision of data entry procedures wnere appropriate.

(c) Provide copies of documentation of data input procedures to all appropriate state personnel.

E. Job V - Title: Establishment of Necessary Data Management Software (Programs) for Timely and Accurate Processing, Storage, and Reporting of Statistical Information

Objectives:

1. Plan, implement, and document necessary data management software (programs) for timely and accurate processing (final editing, updates), storage and reporting of statistical information so

that a variety of users may utilize statistical information to satisfy fishery management, research and development or other needs as appropriate.

Procedures:

1. The NMFS

   (a) Will jointly with States, plan, develop, implement, and document necessary software (programs) that will be required to edit, store, and utilize statistical information for a variety of needs including, but not necessarily limited to, fishery management, development and research activities.

   (b) Distribute appropriate documentation to selected state and federal personnel in order to keep them fully informed of the capabilities and attributes of the system.

   (c) Periodically meet with state personnel in order to provide them with an opportunity to discuss system improvements.

2. The DNR

   (a) Notify the Fishery Statistician as necessary concerning any errors or inconsistencies that may be caused by the data management software.

   (b) Notify the Fishery Statistician or TIMS in writing of suggested system improvements.

F. Job VI - Title: Report Generation (Output)

Objectives:

1. Provide a variety of routine and special report (outputs) for use by state, federal, private, and Fishery Management Council personnel.

Procedures:

1. The NMFS shall

   (a) Provide appropriate software (programs) to deliver routine reports to states on a regular basis free of charge.

   (b) Document software for routine reports and provide same to participating State agencies.

   (c) Provide special reports (outputs) to states as requested, provided that the costs of the reports are negotiated by the Federal Service and the State Department.

   (d) Encourage states, when technically feasible, to generate their own reports.

   (e) Will have the Fishery Statistician promptly make available to the DNR all statistical reports which are prepared in his office, at the time of or immediately after they are released; also, to make available to the DNR authorized personnel, the files of all special investigations and surveys made in carrying out the additional State program provided for in this agreement.

   (f) Will have the Fishery Statistician inform (within one week) the DNR of all reports, software (programs) and documentation that are available for use by appropriate participating agencies.

2. The DNR

(a) Will have the State Fishery Statistician document software developed by the state for potential use by the NMFS.

(b) Will have the State Fishery Statistician, when technically feasible, generate routine and special reports to satisfy requests by various user groups.

(c) Will transmit computer programming specifications for special state reports to Fishery Statistician for negotiations to determine if NMFS can provide software support. The cost of the software (development or purchase) would be negotiated between the DNR and the NMFS.

(d) Will not publish statistics relating to fish and shellfish production, prices received or paid by fishermen or other data which would conflict with cooperative data reports.

G. Job VII - Title: Documentation of Date Collection, Data Entry, Data Management, and Data Report Generation Procedures of the Cooperative Regional Statistical Program

Objectives:

1. All relevant data collection, data entry, data management, and data generation procedures of the cooperative regional statistical program shall be documented and made available to all participating agencies in accordance with federal confidentiality of statistics provisions.

Procedures:

1. The NMFS

   (a) Shall be administratively responsible for documentation of the cooperative regional statistical program.

   (b) Shall distribute all documentation to participating agencies.

   (c) Shall maintain and update documentation as needed and distribute all changes or updates to participating agencies as required at least twice a year.

2. The DNR

   (a) Shall be responsible for all documentation of state software packages and will provide a copy of same to the Fishery Statistician as required.

   (b) Shall maintain a file of all appropriate state and federal documentation for use as required.

   (c) Shall maintain and update documentation as needed and distribute all changes or updates to participating agencies as required at least twice a year.

II. Project No. 2 - Title: Special Project

Project Objective: (Give objective)

Functional Basis: (Describe how this project related to total program)

III. Access to Data - Title: Definition of Federal and State Confidentiality Requirements.

Project Objective:

All participating agencies are required to abide by respective federal and state confidentiality provisions.

Procedures:

1. The NMFS

   (a) Develop and update confidentiality regulations, procedures, and guidelines.

   (b) Provide them to State Department.

2. The DNR

   (a) Develop and update confidentiality regulations, procedures, and guidelines.

   (b) Provide them to NMFS.

IV. Total Cost Estimates

Projct No. 1: - Contractural Services

Project No. 2: - Contractural Services

V. Experimental Designs:

Copies of experimental designs developed by participating agencies will be mutually agreed upon and fully documented. All participating agencies will receive formal documentation of joint projects.

VI. Professional Personnel

Key State and Federal Personnel will be identified including the Project Leader.

VII. General Conditions of Cooperative Agreement

1. This Cooperative Agreement is to define in general terms the basis on which the parties concerned will cooperate, and may not constitute a financial obligation to serve as a basis for expenditures. Each party will handle and expend its own funds. The responsibilities assumed by each of the cooperating parties are contingent upon their respective authorizations under Federal or State statutes, and upon necessary funds being made available.

2. Both the NMFS and the DNR reserve their respective rights to collect other information than that relating to the joint program of work covered by this agreement.

3. This Cooperative Agreement shall continue in force indefinitely, so long as Congress shall provide the necessary authority and funds for the Federal program of work and the respective state agency allocates funds for this purpose; PROVIDED, however, that this Cooperative Agreement may be terminated at any time by mutual consent, or unilaterally by either party hereto, by giving written notice to the other party not less than 90 days in advance of the desired date of termination.

(Administrator) (State) (State)

Director, National Marine Fisheries Service

United States Department of Commerce