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Cooperative Efforts for Coordination
of Atlantic Coast Statistics

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**Cooperative Efforts for Coordination of
Atlantic Coast Statistics**

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Preface

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This report summarizes the breakout and plenary sessions of the May 8-11, 1995 workshop. For a detailed copy of the workshop proceedings, please contact either Dr. Lisa L. Kline or Dr. Joseph C. Desfosse at (202) 289-6400.

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Executive Summary

In May 1995, the Atlantic States Marine Fisheries Commission and the National Marine Fisheries Service convened a workshop to address the need for a state-federal cooperative statistics program for the Atlantic coast. The workshop was attended by fourteen Atlantic coastal states, the Atlantic States Marine Fisheries Commission, the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, and the Potomac River Fisheries Commission. The main purpose of the workshop was to obtain commitments from the state and federal fishery management agencies to develop and implement a cooperative, unified, coastwide fisheries statistics system for the Atlantic coast. The workshop objectives were as follows:

1. To develop a conceptual definition of what is meant by a "cooperative, unified, coastwide fisheries statistics system";
2. To identify, discuss, and resolve the strategic issues involved in establishing such a system (i.e., to identify the barriers to the development of this program);
3. To discuss and develop a conceptual agreement on strategic options, preferred strategies and priorities for establishing the system;
4. To outline an initial implementation plan; and
5. To develop an implementation process for the program.

Workshop participants provided consensus agreement on the key features and attributes of the system, and the strategic issues and barriers to program implementation. Strategic options were identified to address these barriers and an action plan was developed to implement the program. Workshop participants agreed on the following specific points:

- A better system is required that is more useful to fisheries management, compatible across jurisdictions, and equitable for all agencies and users.
- The concept and the system must be sold to all stakeholders.
- The system will not be cheap, or free.
- A group or committee should be appointed to work on the details of the system.
- The process should be inclusive and participatory.
- The system will be created and operated under a partnership arrangement.

- The agreement should be drafted for signature at the October meeting of the Commission, and the Commission structure should be used to complete the draft. A strawman agreement should be prepared by June.

Workshop participants agreed that the program partners were the fifteen Atlantic coast states, the District of Columbia, the Potomac River Fisheries Commission, the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, the three Atlantic coast Fishery Management Councils, and the Atlantic States Marine Fisheries Commission. The Gulf States Marine Fisheries Commission and the Gulf of Mexico Fishery Management Council will be included as advisory partners.

Workshop participants agreed that a cooperative agreement should be drafted for signature at the Commission's 54th Annual Meeting. A Memorandum of Understanding for the Atlantic Coastal Cooperative Statistics Program (ACCSP) was drafted during May-June 1995. The MOU was reviewed by all program partners during meetings of the Commission's Statistics Policy Committee in July and September, and signed by program partners at the Commission's 54th Annual Meeting held in October 1995 in Charleston, South Carolina.

Participants agreed that the Fisheries Statistics Plan Design Team (PDT) should draft a proposal for the management program, including organizational structure, content configuration, and management. The PDT drafted a Fisheries Statistics Options Paper to address the management and technical issues raised during the May workshop. The options outlined in this document were based on the system requirements criteria developed during this workshop. Specific issues covered in this document include program scope, quality control and assurance, data collection methods, data management, program management, and outreach and public education.

The participants agreed that the Commission's Statistics Policy Committee should provide guidance for preparation of the options papers and the process leading to agreement and establishment of the system. The Statistics Committee provided a review process for the Memorandum of Understanding and the Options Paper. Recommendations on preferred options will be forwarded to the ACCSP Coordinating Council at their initial meeting.

The participants agreed that the Executive Director of the Commission should appoint a small team (three to four members) to develop a marketing strategy. The group agreed that the Director should immediately approach Congress with the concept. The Director should also select a team to develop an outreach plan to gain stakeholder support. A Marketing and Outreach Group was appointed to develop a strategy to gain fishing industry input to the development and implementation of the ACCSP. This group sponsored a Fisheries Statistics Industry Workshop in December 1995 to obtain initial recommendations on the technical aspects of the program, as outlined in the Options Paper.

The program partners for the Atlantic Coastal Cooperative Statistics Program have made several major steps toward implementation of this program. All 23 program partners have

committed to moving forward with a cooperative statistics program through signature of the Memorandum of Understanding. There are still some significant technical issues that must be addressed during the design and development of the program, and major issues dealing with program management that will have to be dealt with in the future as the program is implemented. However, with all program partners committed to fully implement the Atlantic Coastal Cooperative Statistics Program, and with input from the fishing industry, fishermen, and the general public we can cooperatively develop a unified program that meets the needs of fishery managers, fishermen, and the public.

Introduction

Atlantic coast state and federal fishery management agencies have historically collected data on the status and trends of fish populations and the fisheries that harvest them. However, due to inconsistencies in the way data are collected and managed, it is often difficult for fisheries managers to develop effective management strategies. Often separate datasets cannot be integrate to provide a reliable interpretation of actual fishery status. Duplication of sampling effort can also provide for undue burden on fishermen who may be required to report to multiple state and federal agencies and regions.

During the past several years, the Atlantic States Marine Fisheries Commission (Commission) has attempted to coordinate state and federal data collection efforts and to improve the technical aspects of these programs. However, it has been recognized by state and federal management agencies that without policy level attention, recommendations on technical matters are rarely implemented. In 1994 the Chairman of the Commission appointed a Statistics Policy Committee to evaluate the potential for a coastwide unified program for the collection of fisheries statistics on the Atlantic coast. The Statistics Policy Committee developed a Fisheries Statistics Vision Statement and Resolution which were adopted by the Commission at the 53rd Annual Meeting in October 1994.

The overall goal of the Statistics Vision Document was to implement a cooperative, unified Atlantic Coast marine fisheries statistics program among state and federal marine fisheries agencies, and to provide a common forum for all agencies to plan, coordinate, and evaluate marine fisheries data collection and data management activities. The Atlantic States Marine Fisheries Commission identified the following attributes that should characterize this program:

- The program will result in a cost-effective, dependable and accurate data base in which the general public, fishermen and fisheries managers have confidence.
- The program will be a cooperative coastwide effort between all Atlantic coastal states from Maine through Florida, the regional fishery management Councils, the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, and any other state or federal agency involved in the collection, compilation, and management of marine fisheries statistics.
- The program will incorporate data collection activities on both commercial and recreational fishing sectors to provide the general public, fishermen, fishery managers and stock assessment biologists the best available scientific technical data needed for effective management.
- The program will ensure the timely communication of recreational and commercial statistics for utilization by the general public, fishermen, state, federal, and regional

fishery agencies and Councils in the fishery management process.

- The program will avoid duplication of sampling effort between state and federal data collection programs, thereby providing for more effective use of state and federal funding sources.
- The program will pursue long-term funding for continuation and expansion of a coastwide data collection system.
- The program will ensure compatibility and continuity of data between all state and federal data collection programs.

The Resolution for a Cooperative State-Federal Statistics Program reviewed the critical need for accurate and timely fisheries statistics to effectively support fisheries management decisions. Due to the shared authority and jurisdiction for management of many fish stocks by state and federal management agencies cooperative data collection and management programs would improve efficiency, reduce duplication, maximize use of limited funding, reduce the burden on participants in the fisheries, and provide the best available scientific data and access to these data in a timely fashion. The resolution resolved that the Atlantic States Marine Fisheries Commission will work cooperatively with the NMFS, the USFWS, the Regional Fishery Management Councils and other interested parties to implement a cooperative unified Atlantic Coast marine fisheries statistics program among state and federal marine fisheries agencies consistent with the attached Statistics Vision Document, and strongly encourage the states and the federal agencies to participate as partners in this effort. The resolution further resolved that the Commission will work cooperatively with the NMFS, the USFWS, and the Regional Fishery Management Councils to develop an implementation plan for such a cooperative fisheries statistics data collection and data management program which meets the shared needs of both state and federal fisheries management agencies; and, that the Commission, and the Atlantic coastal states from Maine through Florida, will work cooperatively with the NMFS and the USFWS to develop funding initiatives to achieve the shared vision of a cooperative fisheries statistics data collection and data management program.

The Commission's Fisheries Statistics Vision Statement and Resolution provided the impetus for the Atlantic coastal states, the federal fishery management agencies, and the Commission to begin development and implementation of an Atlantic coastal state-federal cooperative statistics program. This report provides an overview of activities conducted during 1995 to design and implement the Atlantic Coastal Cooperative Statistics Program.

Atlantic Coastal Cooperative Statistics Policy Workshop

**May 8-11, 1995
Charlotte, North Carolina**

Overview

In May 1995, the Atlantic States Marine Fisheries Commission and the National Marine Fisheries Service convened a workshop to address the need for a state-federal cooperative statistics program for the Atlantic coast. The workshop was attended by fourteen Atlantic coastal states, the Atlantic States Marine Fisheries Commission, the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, the Potomac River Fisheries Commission, and the three east coast Regional Fishery Management Councils (see Attachment A for a list of workshop participants). The main purpose of the workshop was to obtain commitments from the state and federal fishery management agencies to develop and implement a cooperative, unified, coastwide fisheries statistics system for the Atlantic coast. The workshop objectives were as follows:

1. To develop a conceptual definition of what is meant by a "cooperative, unified, coastwide fisheries statistics system";
2. To identify, discuss, and resolve the strategic issues involved in establishing such a system (i.e., to identify the barriers to the development of this program);
3. To discuss and develop a conceptual agreement on strategic options, preferred strategies and priorities for establishing the system;
4. To outline an initial implementation plan; and
5. To develop an implementation process for the program.

The workshop was held from the evening of May 8, 1995 through mid-day on May 11, 1995 in Charlotte, North Carolina. Morning and afternoon breakout sessions, each consisting of about eight participants, were held on May 10 and 11. Three different breakout groups were conducted during each session, with each breakout group addressing the same topic. A brief plenary session was held to share each group's results with all participants, and to identify similarities and differences among the groups (see Attachment B for workshop agenda).

The objective of the May 9 morning breakout and plenary sessions was to conceptually define and clarify the term "a unified, cooperative Atlantic coast marine fisheries statistics program". This involved identifying the key attributes and features of the system. The goals

of the May 9 afternoon session were to identify, define, discuss, and assign priorities to the principal strategic issues, including practical barriers associated with creating a unified, cooperative Atlantic coast marine fisheries statistics program. The goal of the May 10 morning session was to identify and discuss potential high level strategies to develop and implement an Atlantic coast state-federal cooperative statistics program. The goal of the May 10 afternoon session was to develop draft action plans using the key features and attributes, key strategic issues, and preferred strategies as a policy framework and guide. The objective of the final plenary session was to address those issues that needed to be resolved prior to adjournment of the workshop, and to develop an action plan for implementing a coastwide statistics program. This report summarizes the results of the May 8-11, 1995 Fisheries Statistics Policy Workshop.

Key Features and Attributes

The objective of the May 9 morning breakout and plenary sessions was to conceptually define and clarify the term "a unified, cooperative Atlantic coast marine fisheries statistics program". This involved identifying the key attributes and features of the system. Each breakout group provided the following information for the plenary session:

1. Identification of the key features of the program, with a clear definition of each feature;
2. Attributes associated with each key feature; and
3. A visual representation of the components of the system and their interrelationship.

Five general categories of key features were identified by workshop participants: 1) **system requirements**, 2) **system structure**, 3) **system operations**, 4) **system planning**, and 5) **data requirements**. With respect to **system requirements**, the participants recognized the need for cooperation, timeliness, and acceptability. Workshop participants agreed on the following list of key features and attributes for a unified, coastwide, cooperative marine fisheries statistics program:

- Cooperative
- Timely
- Acceptable
 - Fishermen's data must remain confidential
- Cost-effective
 - Affordable
 - Must meet all user's needs
- Enforceable
- Accessible
- Compatible
- Non-duplicative
- Simple
 - System must be easily understood by all partners and affected parties
 - User friendly
- Automated
- Flexible
 - Must accommodate regional differences in fisheries
 - Must be able to evolve
 - Must be able to accommodate change at all ends throughout the system

- Should be modular -- to allow the addition of system components
- Must utilize state-of-the-art technology
- Universal/comprehensive
 - Must be coastwide
 - Must include all jurisdictions as program partners
- Provides real-time data
- Provides high-quality data
 - Provides a certain level of precision
 - Incorporates auditing program checks and balances
 - Utilizes a statistically valid data scheme
 - Utilizes common definitions and standards on a coastwide basis
 - Provides comprehensive data collection
 - Program must be credible to all users

Workshop participants identified several features involving **system structure**, in relation to the functioning, staffing, and oversight for the program. Workshop participants agreed that the coastal states, the federal agencies, fishermen and dealers must all be directly involved in the functions of the program. The program will require an oversight body, possibly a board of directors, and a program staff. All participants recognized the need for long-term, stable funding for successful implementation and operation of the program.

Workshop participants identified several issues involved in **systems operations** that will need to be addressed for successful implementation of the program. These issues include the development of mechanisms for data collection, management, and access; determination of quality assurance and quality control standards; and identification and adoption of protocols to ensure confidentiality of data.

Workshop participants identified **system planning** as essential to adequate design and implementation. System planning must be a cooperative effort on the part of all program partners, and should include a five-year plan with periodic review and updates. A separate funding plan will be required to ensure long-term, stable funding for the program.

Workshop participants attempted to address the **system data requirements**, including data quantity; the need for social, economic, and biological information, as well as catch, landings, and effort data; the need for gear characterization information; and information on saltwater participation. Many participants suggested that these issues needed to be addressed in greater detail by state and federal personnel with technical expertise in these areas.

Strategic Issues and Barriers to Program Implementation

The goals of the May 9 afternoon session were to identify, define, discuss, and assign priorities to the principal strategic issues, including practical barriers associated with creating a unified, cooperative Atlantic coast marine fisheries statistics program. Specific objectives included:

1. Identification of the strategic issues that are inherent in establishing the program.
2. Definition of issues.
3. Discussion of the implications of each issue.
4. Assessment and ranking of issues to determine the relative importance of each issues.

The strategic issues from the breakout sessions were consolidated into five major categories: 1) **system configuration**, 2) **system content**, 3) **system management**, 4) **system funding**, and 5) **cooperative planning and management**. Issues addressed in **system configuration** included those dealing with organization, structure, and technical capabilities of the system. Specific issues included:

- Who can access the data?
- How will the system be coordinated with other systems?
- Should data maintenance be centralized or decentralized?
- How do we assure accessibility?
- How do we manage change within existing programs and staff?
- Who makes decisions relative to what data will be included?
- What is the sampling design?
- How do we deal with the different data needs of different groups?

Issues dealing with **system content** involve data input (types and sources), data quantity, and data quality. Specific issues included:

- What data will be included in the system?
- How will the data be reported?
- How do we ensure the validity and confidentiality of the data?
- What data structures need to be developed?
- How much data is enough?
- How much quality do we need in the data?
- How do we simplify the reporting requirements and reduce the reporting burden?
- How do we ensure timeliness in data collection and availability?

- What types of data should be included (fishery-dependent, fishery-independent, biological, sociological, economic)?
- What will be the reporting frequency?
- What data will be disseminated?
- What data will be analyzed?
- What level of data (raw versus analyzed) will be provided and to whom?

Issues dealing with **system management** related, for the most part, to who manages the system, and what types of management actions and responsibilities are required. Specific issues included:

- Who will determine priorities?
- How can we best improve data management?
- Who will ensure that the data is collected?
- Who will collect the data?
- Who will enforce mandatory reporting requirements?
- How will the program be enforced?
- Should the system be centrally managed or dispersed?
- Who should be the system managers and what are the stakeholders' roles?
- Who develops the plan?
- Who ensures system implementation over the long-term?
- What exactly do we mean by "management" (i.e., oversight, coordination, control, data processing only, forms, and system requirements)?
- Do we need a Board of Directors, and oversight committee or some other management mechanism?
- How will decisions regarding the system be made?

System funding issues involve payment and funding for the program and how those decisions are made. Specific issues included:

- Who will make decisions regarding resources, including personnel and equipment?
- Comparison of cost of the system as compared to the present system?
- How do we apportion costs among the partners (Federal and States agencies, and users)?
- How do we evaluate costs of higher levels of information (landings versus catch)?
- How do we determine the cost-effectiveness of the system?
- Are there other data systems to which this can be compared in terms of cost?
- How do we pay for the system (existing resources, new resources, predetermined formula)?
- How do we identify new and consistent funding sources?
- What is the likelihood of the States being able to obtain funding?
- What is the likelihood of using alternate funding sources (i.e., Fish and Wildlife Foundation)?
- Will funds be redirected from other statistical gathering programs or will other

- statistical programs be merged into this one?
- Should we pursue user-derived, fully-dedicated funds for this program (i.e., user fees directly dedicated to the program)?

Issues addressed in **cooperative planning and management** involve increasing state-federal cooperation, obtaining buy-in from other partners and stakeholders, and development of a method of marketing the program. Specific issues involve:

- Is the program a State-Federal partnership or a contract?
- Is there a commitment for a cooperative program?
- Can we achieve a cooperative State-Federal program?
- How do we deal with varying levels of participation?
- How do we ensure buy-in by State legislatures and the Congress?
- When and how do we include the Gulf States and other regions?
- How do we sell the program to harvesters and consumers?

Identification of Strategic Options

The goal of the May 10 morning session was to identify and discuss potential high level strategies to develop and implement an Atlantic coast state-federal cooperative statistics program. The specific objectives of this portion of the workshop were:

1. To identify and discuss alternative strategies or potential methods for addressing the issues raised in previous sessions, and begin to establish a cooperative statistics program.
2. To analyze the alternatives in terms of the key attributes that the groups identified in the May 9 morning session. Analysis of the strategies also included addressing any other important factors that had not already been identified. Those factors include such items as effectiveness, practicality, feasibility, acceptability, and affordability.
3. To choose the preferred alternatives to pursue.

Workshop participants agreed on several major strategic options to address the issues identified in previous sessions. All participants recognized the need for early and significant participation of stakeholders among the industry, the public, and state and federal legislatures. Strategic options were grouped under the following five goals: 1) **cooperative agreement**, 2) **system management**, 3) **system content**, 4) **system configuration**, and 5) **system funding**.

The first goal related to the establishment of a **cooperative agreement** for all program partners to sign. Some of the options considered under this goal were development of a cooperative agreement, and ensuring proper delegations of authority. The agreement should ensure equitable participation and include development of stakeholder support. The following outlines the major strategic options developed under "Establishment of a Cooperative Partnership":

- Develop a cooperative agreement
- Contrast the proposal with the present system
- Ensure equity in participant status
- Ensure proper delegations of authority
- Obtain stakeholder and Congressional support

Strategies for determining **system content** were discussed in the context of data quantity and quality, and uses of the data. Options should address all data needs, types of data, and identify demand for the data. Automation strategies, and concerns about validation and verification of data were also discussed. The following outlines the major strategic options developed under "Determine System Content":

- Determine quantity, quality, and uses of base level data and need for new data
- Determine customers
- Determine all data needs
- Set data and quality standards
- Establish data types
- Determine how to deal with unreasonable mandates
- Determine how to automate the reporting system at the dealer level
- Determine how to validate and verify data

Strategies related to **system management** addressed the structure of management and the organization of the system. Centralization or decentralization were addressed, as were possible alternatives for limiting or expanding program scope. Workshop participants discussed legal requirements, program coordination, and roles of a governing board and technical committees. The following outlines the major strategic options developed under "**Provide for System Management**":

- Determine how to structure management and organization of the system (i.e., develop charter, Memorandum of Understanding)
- Determine how much and what to centralize
- Identify legal requirements and impediments
- Establish a governing board ("corporate management structure")
- Establish a mechanism for program coordination
- Structure, organize, and establish technical boards and committees
- Determine program scope
- Determine data management structure and how best to maintain confidentiality

Strategies related to **system configuration** involved identification of participants, establishment of technical groups, and determination of what data to collect and include in the system. The following outlines the major strategic options developed under "**Determine System Configuration**":

- Determine management structure
- Determine participants
- Establish technical groups
- Determine what data to collect and incorporate in the system

Discussions on **system funding** involved the need to inventory existing data collection programs and determine current program costs. Workshop participants agreed that some resources will likely have to be redirected, and overlaps must be eliminated or minimized. New or additional funding sources will need to be identified. The following outlines the major strategic options developed under "**Provide Funding for the System**":

- Determine program cost
- Inventory existing programs and resources
- Analyze existing resources and programs
- Redirect resources; reduce/eliminate overlap and duplication; assess cost saving options
- Coordinate existing programs and resources; obtain commitments
- Identify the need for new or additional resources
- Identify potential sources of new or additional resources
- Obtain stakeholder support for additional resources
- Obtain additional resources

Identification of Action Plans

The goal of the May 10 afternoon session was to develop a draft action plan using the key features and attributes, key strategic issues, and preferred strategies as a policy framework and guide. Workshop participants addressed the following objectives:

1. Identify the principal action steps that would be required to implement each major strategy;
2. Discuss and identify the relative roles and responsibilities of the various partners -- Federal agencies, States, the fishing industry and the public;
3. Assign target dates to the principal action steps or major project phases; and
4. Document policy issues, technical barriers, logistical concerns, or other matters that emerge from the discussion that will require high-level resolution.

Each breakout group developed a draft action or implementation plan based on the identified strategic options: 1) **establish a cooperative agreement**, 2) **provide for system management**, 3) **determine system content**, 4) **determine system configuration**, and 5) **provide for system funding**. Each breakout group added a fifth category related to **obtaining stakeholder support**. The results of these sessions showed greater disparity in approaches than earlier sessions. The following is a summary of the action plans developed by each of the breakout groups (i.e.; red, blue, and green).

The red group approach was to appoint three-member teams to draft strawman proposals for each of the five goals. The proposals would be reviewed at the June and July meetings of the Commission. Under this approach there would be no steps taken toward development of steering committees or governing boards until a later date. Although the approach assumed commitment to the partnership concept, it postponed any considerations of a formal agreement until after the strawman proposals had been reviewed. The approach proposed a start-up date for the cooperative program of January 1, 1998.

The green group envisioned a more vigorous approach. Workshop participants would identify the system participants during the final plenary session. A group would be selected to draft a cooperative agreement to be prepared by August 15, 1995, with final signing scheduled for October. The participants would establish a governing board during the plenary session, and would designate staff to support the board. A plan for the structure and organization of the system would be agreed to by all program partners at the spring Commission meeting. At the plenary session, the participants would also establish a group to develop a strategy to obtain stakeholder support.

The blue group developed an approach similar to the green group. A five-member team, nominated by the participants and named by the Executive Director of the Commission, would draft proposals for the system's organizational structure. The first draft would be completed in thirty days, and final approval would be obtained at the fall Commission annual meeting. The group would create a permanent board of directors to oversee the implementation process. Three existing technical groups of the Commission would provide the five-member task team with an inventory and assessment of existing programs, resources, and data capabilities.

In the final plenary session, the participants addressed those issues that had to be resolved prior to meeting adjournment. Participants reviewed the three action plans proposed by the breakout groups, and adopted a plan that incorporated some elements of each alternative. The participants affirmed their commitment to a cooperative program and agreed that the proper arrangement would be some form of partnership agreement. Participants also identified the program partners, and agreed to include several ex officio observers for the system. The participants established milestones and completion dates for steps to initiate development of the cooperative system.

Workshop Results and Conclusions

Follow-up Action Items

Workshop participants reached consensus on the following action items to lead to implementation of an Atlantic coast state-federal cooperative statistics program:

1. Workshop participants agreed on the following specific points:
 - A better system is required that is more useful to fisheries management, compatible across jurisdictions, and equitable for all agencies and users.
 - The concept and the system must be sold to all stakeholders.
 - The system will not be cheap, or free.
 - A group or committee should be appointed to work on the details of the system.
 - The process should be inclusive and participatory.
 - The system will be created and operated under a partnership arrangement.
 - The agreement should be drafted for signature at the October meeting of the Commission, and the Commission structure should be used to complete the draft. A strawman agreement should be prepared by June.

2. The participants agreed that the program partners were the fifteen Atlantic coast states, the District of Columbia, the Potomac River Fisheries Commission, the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, the three Atlantic coast Fishery Management Councils, and the Atlantic States Marine Fisheries Commission. The Gulf States Marine Fisheries Commission and the Gulf of Mexico Fishery Management Council will be included as advisory partners.

It was emphasized that all States should have equal status whether or not funds are equal. It was also concluded that all states needed to sign the cooperative agreement.

It was emphasized that, at some time, the system will have to be broadened to include the Gulf States. At this time Florida will have to participate in different data management systems because of its coasts on the Atlantic and the Gulf.

3. A cooperative agreement or memorandum of understanding should be drafted for signature at the Commission's 54th Annual Meeting to be held in October 1995 in Charleston, South Carolina. The document should be drafted prior to this meeting to allow legal review by all program partners. Participants agreed that the program should be coordinated with current initiatives underway in the Gulf region.

Participants agreed that a five-member team, nominated by the parties, and appointed by the Executive Director of the Commission, will draft the cooperative agreement. The nominations should reach the Executive Director by May 19, 1995. The Director will canvass the State members for volunteers.

4. Participants agreed that the Fisheries Statistics Plan Design Team should draft a proposal for the management program, including organizational structure, content configuration, and management. The group should draft a set of options papers to be ready for review at the Commission meeting in Philadelphia on July 24. The options papers will be designed to show the key decision points. The report from this workshop should provide guidance as to the desires and intent of the program partners. An inventory of existing data collection programs is currently underway and will be available for this process.
5. The participants agreed that the Commission's Statistics Policy Committee should provide guidance for preparation of the options papers and the process leading to agreement and establishment of the system.
6. The participants agreed that the Executive Director of the Commission should appoint a small team (three to four members) to develop a marketing strategy. The group agreed that the Director should immediately approach Congress with the concept. The Director should also select a team to develop an outreach plan to gain stakeholder support.

Memorandum of Understanding

The Memorandum of Understanding (MOU) for the Atlantic Coastal Cooperative Statistics Program was drafted during May-June 1995 by a drafting team comprised of state and federal members. The drafting team consisted of the following personnel: Dr. William Hogarth (NMFS), Mr. Willard Cole (USFWS), Mr. Phil Coates (MA), Mr. Ed Irby (FL), Mr. John H. Dunnigan (ASMFC). The MOU was reviewed by all program partners during meetings of the Commission's Statistics Policy Committee in July and September, and signed by program partners at the Commission's 54th Annual Meeting held in October 1995 in Charleston, South Carolina.

The MOU has been entered into by the 23 participating marine fisheries management agencies on the Atlantic coast, with the intent to design and implement a cooperative state-federal marine and coastal fisheries statistics program that meets the needs of fishery managers, scientists, and fishermen. The MOU provides for the scope of the program, specific goals and objectives to be accomplished under the program, commitments of the program partners, and the basic organizational structure for program management.

Atlantic Coastal Cooperative Statistics Program (ACCSP)

Signatory Partners

Connecticut Department of Environmental Protection

District of Columbia

Delaware Division of Fish and Wildlife

Florida Department of Environmental Protection

Georgia Department of Natural Resources

Maine Department of Marine Resources

Maryland Department of Natural Resources

Massachusetts Division of Marine Fisheries

New Hampshire Department of Fish and Game

New Jersey Division of Fish, Game and Wildlife

New York Department of Environmental Conservation

North Carolina Department of Environment, Health, and Natural Resources

Pennsylvania Fish and Boat Commission

Potomac River Fisheries Commission

Rhode Island Division of Fish, Wildlife and Estuarine Resources

South Carolina Department of Natural Resources

Virginia Marine Resources Commission

Atlantic States Marine Fisheries Commission

National Marine Fisheries Service

U.S. Fish and Wildlife Service

Mid-Atlantic Fishery Management Council

New England Fishery Management Council

South Atlantic Fishery Management Council

ATLANTIC COASTAL COOPERATIVE STATISTICS PROGRAM

This Memorandum of Understanding is entered into by the state and federal agency partners in order to design and implement a cooperative state-federal marine and coastal (estuarine, anadromous, catadromous) fisheries statistics program that adequately meets the needs of fishery managers, scientists, and fishermen. The partners recognize their mutual interdependence in compiling fisheries dependent and fisheries independent data bases that meet their short-term and long-term information needs, and the partners commit to each other their best efforts towards designing and conducting a program to address these needs in an efficient, practical manner.

Section One. Preamble

For decades, state and federal fisheries agencies throughout the United States have collected data on the status and trends of specific fish populations and the fisheries that harvest them. However, even with all of the information that has been collected, it is often difficult to develop sound recommendations to fisheries managers because of the inconsistencies in the way data are collected and managed. Numerous individual data sets often cannot be integrated to represent actual fishery status in larger geographical areas (such as state, regional, or coastwide levels). In addition, the fragmented nature of data collection and management places undue duplicative burdens on fishermen reporting to multiple state and federal agencies and regions. Clearly, an integrated multi-agency program, using standardized protocols for reporting compatible information, would lead to more efficient and cost effective use of current federally and state funded data collection and management programs. An integrated program would decrease burdens on the fishing industry while meeting the needs of fisheries managers whose job is to protect/conservate public trust resources.

The need for accurate and timely statistically valid data on the harvest of fisheries resources has become a major concern for state and federal management agencies as well as the fishing public. To address this concern, the Atlantic States Marine Fisheries Commission (ASMFC) adopted a Vision Statement and Resolution for an Atlantic Coast Coastal Cooperative Statistics Program (ACCSP) at their Annual Meeting in Delaware in October, 1994. As a follow-up to determine levels of commitment and the best possible approach the states and federal agencies desired to take, a Statistical Policy Workshop was held in Charlotte, North Carolina on May 8-11, 1995.

This Memorandum of Understanding (MOU) is based on the outcome of this workshop and confirms the intent of the states (Maine-Florida), Potomac River Fisheries Commission, District of Columbia, National Marine Fisheries Service (NMFS), US Fish and Wildlife Service (USFWS), ASMFC, the Mid-Atlantic Fishery Management Council (MAFMC), the New England Fishery Management Council (NEFMC) and the South

Atlantic Fishery Management Council (SAFMC) to develop and conduct an integrated fishery statistics program.

A cooperative partnership of state and federal agencies for statistical data collection and information management represents the best possible approach to avoid duplication of effort, reduce overall costs, promote education of resource users, and provide a more complete base of information for formulating management policies, strategies, and tactics for shared resources. Accurate and timely statistical data are necessary to achieve optimum national public benefits from the use of fishery resources along the Atlantic Coast.

The signature of agency officials on this MOU in no way obligates the signatory partners to provide personnel or funds for planning or implementation of the ACCSP unless specifically agreed to in subsequent obligatory documents.

Section Two. Background

Catch and effort statistics are fundamental for assessing the effects of fishing on stocks of living marine resources. Information on total catch, fishing effort, and seasonal and geographical distribution of catch and effort is required to develop rational management policies and plans. Accurate and timely catch statistics, along with associated biological, social, and economic data, are required to provide management agencies with the information necessary for the wise use of fishery resources. Statistics on both recreational and commercial fisheries are needed by management agencies to assess the status of stocks and to develop and monitor fishery management plans.

In 1976, the Magnuson Fishery Conservation and Management Act (MFCMA) created regional fishery management councils and greatly increased the involvement of state and federal agencies in the conservation and management of fishery resources. The MFCMA mandates a national fishery data management program and directs that fishery management plans (FMPs) be prepared by the regional councils or the Secretary of Commerce for resources that are in the U.S. Exclusive Economic Zone or federal waters. Similarly, the Atlantic States Marine Fisheries Commission prepares FMPs for interjurisdictional fishery resources occurring along the Atlantic Coast.

The landmark passage of the Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA) in 1993 enables the states mutually and cooperatively to manage those interjurisdictional species for which there is an interstate fishery management plan (FMP) in place through the ASMFC. This places even more burdens on the states to obtain catch and effort data as they develop and implement these FMPs, not only to manage the resource, but to remain in compliance with FMPs and avoid imposition of federal moratoria on harvest.

Interjurisdictional management of Atlantic coast fisheries is clearly necessary due to the transboundary distributions of many coastal marine fish stocks. Movements of fish

stocks between state and federal jurisdictional boundaries complicates the collection of reliable harvest statistics and development of state and federal FMPs for effective management throughout the geographical range of the fishery resource. Integration of data collected in separate jurisdictions will provide more useful knowledge for state and federal fisheries managers for overall management of fishery resources. Accurate information about fishing and other resource uses is also needed by state, federal, and local government agencies to determine the biological and economic impacts of land and water use decisions.

Currently, there are insufficient coordination, organization, resources, and public outreach among existing state and federal data collection programs to meet today's demands for catch and effort statistics for recreational and commercial sectors of Atlantic coast marine fisheries. Current responsible and mandated management of coastal and marine fishery resources necessitates the utilization of data on all aspects of these fisheries with public knowledge and participation in data collection. To properly assess the status of a fishery, multiple data collection programs may be required and day-to-day interagency coordination between these programs and the public is essential. The identification of data needs for stock assessment and fisheries management, and the coordination among collection programs to provide these data, is necessary to provide the means for the responsible agencies to manage fishery resources in a more holistic manner for the benefit of all the public.

Due to rapidly changing stock conditions, within-season regulatory changes and catch quotas have become common fishery management strategies. Timely and accurate harvest information for both recreational and commercial fisheries is required to determine the need for and effects of these management measures. With many commercial fishery resources presently managed under a quota management system, timely and accurate data is also essential for close monitoring of catch quotas throughout the fishing season to prevent overharvesting.

Section Three. Historical Programs

Individual state and federal management agencies have conducted numerous statistical surveys to provide information on commercial and recreational fisheries for management of marine fisheries within their jurisdictions. Programs to collect statistical information on marine fisheries began in the late 19th century, and in the 1950s improved local programs were instituted to collect catch and effort statistics for commercial and recreational fisheries. The NMFS conducted the Salt-Water Angling Survey in 1960, 1965, and 1970 and a 1973-1974 study of participation in marine recreational fishing in the Northeastern United States.

Federal fresh and saltwater angling surveys have been conducted every five years (1960 to the present) by the U.S. Department of the Interior through its National Survey of Hunting, Fishing, and Wildlife-Associated Recreation. The National Marine Fisheries Service has conducted the Marine Recreational Fisheries Statistics Survey (MRFSS)

annually since 1979. State fisheries management agencies on the Atlantic coast have also conducted a variety of recreational fisheries surveys, either as enhancements to the MRFSS or as independent surveys, to provide information to address state-specific management issues or to increase the accuracy and precision of regional and state catch and effort statistics.

Federal programs for the collection of commercial statistics include the Northeast Fisheries Science Center weigh-out program (General Canvass data) and the NMFS logbook and permit program. The Southeastern Cooperative Statistics Program (CSP) involves 10 states and/or territories through cooperative agreement with National Marine Fisheries Service. The CSP initially included three types of fishery statistics: (1) general canvass data, monthly summaries of all species caught and landed; (2) trip data for the shrimp fisheries, and (3) bio profile and the trip interview program (TIP) to provide trip, gear, effort, biological information on selected commercial fisheries. Recreational Fisheries Information Network in the Southeast (RECFIN) and Commercial Fisheries Information Network (COMFIN) are additional cooperative programs in the Gulf of Mexico and Southeastern United States.

Section Four. Data Deficiencies

In response to the Atlantic Coastal Fisheries Cooperative Management Act and the recent increase in fishery management information requirements, all management agencies on the Atlantic coast have recognized the shared essential need to improve their overall data collection programs. Cooperative efforts to identify specific problems have revealed the following major deficiencies, common to both commercial and recreational fisheries statistics programs with no priority implied:

1. State and federal data bases are not always compatible or continuous over time or area;
2. Some duplication and field sampling conflicts still occur among different surveys;
3. Improvements in the estimation of fishing effort and catch for many sectors and geographical levels of the fisheries are needed;
4. Significant fisheries for molluscan shellfish and crustaceans, as well as fisheries for anadromous, catadromous, and tidal freshwater fishes, are not covered regularly or at all;
5. Information on highly migratory species, "rare-event" catches, and tournament catches is not sufficient to adequately determine the impact of marine recreational and commercial fisheries on the resources;

6. Better information on length frequencies and catch-at-age by time/area strata is needed for the level of statistical confidence required by decision-makers and the precision required by stock assessment scientists;
7. Information about discarded catch, bycatch, and the disposition of landed catch, including consumption, has not been verified or routinely collected in many surveys;
8. Social and economic data on marine fisheries is very limited and, for many fisheries, nonexistent;
9. The ability to access and analyze most marine fishery survey data bases is severely limited;
10. There is no common forum for concerned agencies on the Atlantic coast to plan, coordinate, and evaluate marine fisheries data collection and data management activities;
11. Fishermen, fishery agencies, and dealers are often required to complete several types of data forms, logbooks, trip tickets, etc. on each trip;
12. A clear explanation of the need for a unified cooperative statistics program, including aspects of confidentiality of individual datasets or components should be communicated to the fishing industry and the public;
13. Quota based management programs are not receiving data in a timely matter;
14. Data collected may not be verified, thus compromising its utility.

Section Five. Purpose

Having determined that there is an urgent shared and compelling need for improved statistical data on fisheries of the Atlantic coast of the United States, the partners in this MOU confirm their intent to establish an Atlantic Coastal Cooperative Statistical Program (ACCSP). This program is intended to coordinate present and expanded marine fisheries data collection and data management activities through coastwide cooperative planning, innovative uses of statistical theory and design, and consolidation of appropriate data into an integrated database system.

Thus, the ACCSP is intended to provide overall coordination of both recreational and commercial data collection programs. The use of both recreational and commercial statistics in the overall fishery management process, including stock assessments and the drafting of fishery management plans, dictates the need for a fully accepted unified approach to provide coastwide coordination of all aspects of marine fishery data collection and management.

Section Six. Proposed Program

Through commitments outlined in Section Seven, the Atlantic Coastal Cooperative Statistics Program will become an integrated coastal and marine fisheries statistics system. In its collection, maintenance, and distribution of data, ACCSP will, to the extent required by the users of the data, be cost effective, dependable, precise and verifiable. Using the resources and unique expertise of each of the partners, ACCSP will be an integrated approach to all coastal and marine fisheries statistics -- inshore and offshore, commercial and recreational - along the entire Atlantic coast. ACCSP, as appropriate, will incorporate other programs throughout the nation.

Goals and Objectives

- GOAL 1:** To plan, manage, and evaluate a cooperative coordinated cost effective, dependable, non-duplicative and accurate state-federal marine fisheries data collection program for the Atlantic coast in which the general public, fishermen and fisheries managers have confidence.
- OBJECTIVE 1:** To establish an Atlantic Fisheries Statistics Coordinating Council and an Atlantic Fisheries Statistics Operations Committee consisting of MOU signatories or their designees to develop, implement, monitor, and evaluate the program.
- OBJECTIVE 2:** To complete during the first year an Implementation Plan that outlines policies, priorities, data quantity and quality, strategies, oversight, enforcement and protocols for the program.
- OBJECTIVE 3:** To identify and develop available fiscal resources to achieve the Implementation Plan.
- OBJECTIVE 4:** To distribute ACCSP and Implementation Plan information to cooperators, stakeholders, partners, affected fishermen and interested parties.
- OBJECTIVE 5:** To conduct ACCSP and Implementation Plan review every five years of operation to evaluate the ACCSP's success in meeting needs of Atlantic coast fisheries managers, the general public, and fishermen.
- GOAL 2:** To undertake a unified state-federal marine fisheries data collection system for the Atlantic coast, including both commercial and recreational sectors, to

provide to the general public, fishermen, fisheries managers and stock assessment biologists the best scientific and technical data needed for effective management on a timely basis.

OBJECTIVE 1: To identify the components of recreational and commercial fisheries (modes, gears, areas, etc.) and the required data priorities for each component.

OBJECTIVE 2: To identify data elements (environmental, biological, sociological, economic) required for each fishery component.

OBJECTIVE 3: To identify and determine standards for data collection, and accessibility, including statistical, training, confidentiality, precision, sampling design, and quality assurance and quality control standards.

OBJECTIVE 4: To identify and evaluate the adequacy of current programs to meet ACCSP requirements.

OBJECTIVE 5: To coordinate, integrate, and augment, as appropriate, data collection efforts to meet ACCSP requirements.

OBJECTIVE 6: To evaluate and recommend innovative data collection technologies, including automation.

GOAL 3: To establish and maintain an integrated cooperative coastwide fisheries data management system among all Atlantic Coastal states from Maine to Florida, the regional fishery management councils, the National Marine Fisheries Service, the US Fish and Wildlife Service and other state or federal agencies involved in the collection, compilation, and management of marine, estuarine, anadromous and catadromous fisheries statistics.

OBJECTIVE 1: To identify the locations and administrative responsibilities for an ACCSP data management system.

OBJECTIVE 2: To evaluate the current hardware, software, and communication capabilities of Program partners and make recommendations for support and upgrades.

OBJECTIVE 3: To design, implement, and maintain a marine fisheries data management program to accommodate fishery management/research and other needs (e.g., trade and tourism).

OBJECTIVE 4: To develop standard protocols and documentation for data formats, input, editing, precision, quality control, storage, access, transfer, dissemination, and application.

OBJECTIVE 5: To identify and prioritize existing historical databases for integration into the centralized database.

OBJECTIVE 6: To evaluate and recommend innovative, cost-effective information management technologies.

OBJECTIVE 7: To develop confidentiality protocols that govern access to confidential data.

GOAL 4: To support the continued development and operation of a national system to collect, manage, and disseminate marine fisheries information for use by states, councils, interstate commissions, and federal marine fishery management agencies using the existing regional programs as building blocks.

OBJECTIVE 1: To provide input to long-term national program planning.

OBJECTIVE 2: To promote consistency and compatibility among regional programs over time.

OBJECTIVE 3: To pursue long-term funding for continuation and expansion of all existing coastwide, and ultimately, a national statistics system.

Section Seven. Commitments of the Parties

The partners to this Memorandum of Understanding hereby affirm their mutual understanding and agree to use their best efforts to take the following steps:

1. To carry out their mutual intent to design and implement a single, integrated coastal and marine fisheries statistics program for the Atlantic coast.
2. To work together to coordinate current and future expanded coastal and marine fisheries data collection, management, and informational activities through coastwide cooperative planning, innovative uses of statistical theory and design, and consolidation of appropriate data into a useful database system.
3. To use the resources of their agencies, to the extent practical, in a manner consistent with the ACCSP that avoids duplication and that mutually supports the efforts of other parties to carry out the cooperative coastwide statistics system.

4. To collectively pursue, through state and federal government and other avenues that may be available, funding initiatives to support the ACCSP.
5. To pursue interagency agreements, cooperative agreements and grants (Financial Assistance Awards) and/or contracts to fund approved projects, subject to the availability of funds and in accordance with applicable agency administrative policies and procedures.
6. To take steps necessary to fully participate in the institutional arrangements for program organization and implementation listed in Section Eight and Nine upon signature of the authorized official of that agency.
7. To modify this agreement at any time by mutual agreement of the partners.
8. To support the participation of other appropriate agencies with fishery management or research authority by mutual agreement of the partners.
9. To pursue steps to involve fishermen and the public in the ACCSP established under this agreement.
10. To take all steps necessary to maintain the confidentiality of existing or newly created data in conformance with applicable laws, rules and regulations.

Section Eight. Program Organization and Implementation

A. Atlantic Fisheries Statistics Coordinating Council. There shall be an Atlantic Fisheries Statistics Coordinating Council (hereafter: Council). The Council shall oversee the design and implementation of the ACCSP, establish policy to guide the Program and the partners participation therein, and be the final decision-making authority for any issue related to the program raised by any of the partners. The Council members, who shall represent the policy levels within their agencies with the ability to make policy commitments therefore, shall be: one voting representative of each signatory partner, plus three (3) additional nonvoting representatives from NMFS. The Council shall make its decisions by consensus where possible, or by majority vote. The Council shall elect its Chair and Vice Chair.

B. Atlantic Fisheries Statistics Operations Committee. There shall be an Atlantic Fisheries Statistics Operations Committee (hereafter: Committee). The Committee shall act as an executive committee for the Program, and oversee on a routine basis the operations of the ACCSP. It shall be the responsibility of the Committee to take whatever steps are practical to ensure that the policies of the Atlantic Fisheries Statistics Coordinating Council are carried out, and to refer any policy issues, questions or problems to the Council. Committee members will be appointed by the Council. The Committee shall make its decisions by consensus where possible, or by majority vote. The Committee shall elect its Chair and Vice Chair.

C. Staff Support. The Atlantic States Marine Fisheries Commission, the National Marine Fisheries Service, and the U.S. Fish and Wildlife Service shall agree on the appropriate method of providing support staff and executive secretarial services to the Council and the Committee established under this Section, subject to the approval of the Council. Responsibility for the day-to-day coordination, planning and implementation of tasks associated with the program shall be the responsibility of all of the partners, under the guidance of the Council and the Committee.

Section Nine. Other Provisions

1. Nothing herein is intended to conflict with any requirement of any state or federal law, nor with any state, federal, council, commission, Department of the Interior or Department of Commerce regulation, policy, or directive. If terms of this Memorandum of Understanding are deemed to be inconsistent with the policies or programs of any partner hereto, then those specific terms shall be deemed not binding on that partner.
2. The signature of agency officials on this Memorandum of Understanding does not legally obligate their respective agencies to provide personnel or funds for planning or implementation of the ACCSP unless specifically agreed to in subsequent obligatory documents.
3. Where used in this Memorandum of Understanding, the term "state" includes the fifteen Atlantic coast states, the Potomac River Fisheries Commission, and the District of Columbia.
4. Any disagreement concerning the responsibilities of any of the partners under this Memorandum of Understanding shall be resolved by the Atlantic Fisheries Statistics Coordinating Council.
5. Any partner to this Memorandum of Understanding may terminate its involvement upon 90 days written notice to the other signatory agencies partners through the Chairman of the Atlantic Fisheries Statistics Coordinating Council.
6. Any revision or amendment to this Memorandum of Understanding may be made upon approval of 2/3 of the members of the Atlantic Fisheries Statistics Coordinating Council.

Fisheries Statistics Options Paper

The Fisheries Statistics Plan Design Team (PDT) was tasked at the May 8-11, 1995 Fisheries Statistics Policy Workshop to draft a proposal for the management program, including organizational structure, content configuration, and management. This group drafted a document to provide options to the management and technical issues raised during the May 8-11, 1995 Fisheries Statistics Policy Workshop, using the workshop proceedings as guidance. The Fisheries Statistics PDT was comprised of the following state and federal personnel: Dr. Lisa L. Kline (ASMFC), Dr. Joseph Desfosse (ASMFC), Mr. Joseph Moran (SC), Dr. John Merriner (NMFS), Mr. Charles Anderson (MA), Ms. Maury Osborn (NMFS), Mr. John Mason (NY), and Mr. Ron Lukens (GSMFC).

All policy level selections of recommendations are based on the System Requirements criteria developed during the May planning meeting held in Charlotte, North Carolina, 8-11 May 1995. Decisions will be based on whether or not they meet these criteria.

System Requirements

- Cooperative
- Timeliness (provides real-time data)
- Acceptable (data remain confidential; reduces burden on industry)
- Cost-effective (affordable; meets all user needs)
- Enforceable
- Accessible
- Compatible
- Non-duplicative
- Simple (easily understood by participants and affected parties; user-friendly)
- Automated
- Flexible (accommodates regional differences; able to evolve; able to accommodate change; modular to allow piggy-backing of components; state-of-the-art technology)
- Universal/comprehensive (coastwide; all jurisdictions participate)
- High-quality data (certain levels of precision; incorporates auditing; statistically valid; common definitions and standards; complete collection of data; credible)

In some cases the system attributes may be contradictory (i.e. simple and compatible may conflict with flexible; cost-effective may not be state-of-the-art), and therefore one attribute may take precedence over another.

The program should be designed as one that covers most fisheries, yet is flexible, and allows the addition of modules. Additional modules can be added to the base to improve accuracy; to monitor fishery components that are not amenable to broad-based coverage; to gather specialized data on an infrequent basis; to gather more detailed biological, social or economic data; and to meet any other specialized need for information. The base program should collect a core of data that is essential for stock assessment and fisheries management.

Definition of terms follows ASMFC Special Report No. 33 "Acronyms, Abbreviations and Technical Terms Used in ASMFC Fishery Management Programs"

I. Program Scope

A. Fishery-Dependent versus Fishery-Independent Data.

where: Fishery-dependent data is information collected directly from the fisheries, both commercial and recreational.

Fishery-independent data is information gathered independent of the fisheries through direct or indirect sampling of the stocks.

Additionally, the PDT would categorize programs with at-sea observers on fishing vessels as fishery-dependent. Conversely, a fishing vessel could be hired and used in a fishery-independent survey if the vessel is operated according to the scientific procedures developed for the survey.

Data collection activities for both fishery-dependent and independent components need to be designed to produce accurate information (lack of bias). In some cases, bias can occur due to limited sampling frames (fishing license exemptions) or due to limited resources. Where bias is known to occur, special studies need to be designed and conducted periodically to quantify the levels of bias. Adequate levels of precision (how much uncertainty exists about an estimated number) will depend on many factors, including management strategies.

It is recognized that in most cases separate data collection programs are needed to collect fishery-dependent and independent data. The current PDT is more familiar with fishery-dependent programs. If the choice is made to include fishery-independent data collection programs, a separate PDT should be established to develop specific options for the fishery-independent data collection component of the program. Development of fishery-dependent and independent aspects of the program (data management, quality control policy, program management, etc.) could then be done in an integrated fashion.

1. Program includes both dependent and independent data.

Advantages:

- Unified approach to vast majority of data collection efforts supporting fisheries management.
- Able to make priority recommendations for allocating resources for all programs.
- Facilitate integration of dependent and independent data for stock assessment and fisheries management purposes.
- Can build onto existing programs (i.e. SEAMAP, RecFIN, Northeast Groundfish Survey, etc.).
- Integrated data management system.
- Unified effort in seeking funding for all marine resource management needs.

Disadvantages

- May be too complex and big a task to deal with all the data collection programs at once.
- May require a longer time frame to plan and implement, unless each is developed on an independent parallel path.

2. Program includes fishery-dependent data only.

Advantages:

- Basic planning and/or needed information already exists in some areas for both commercial and recreational fishery-dependent data collection programs from which to build (Development of common definitions, delineation and quantification of existing fisheries, inventories of existing programs, workshop recommendations, etc.).
- Focus on fishery-dependent data collection only may reduce the burden on the industry sooner.
- A successful base program may be developed faster which can then be used as a model for developing, funding and implementing later additions to the program.

Disadvantages

- Does not initially result in holistic planning process for all data collection programs.
- May detract from fishery-independent programs (e.g. apportioning of available resources).

The PDT did not include an option for only fishery-independent data based on discussions at the planning meeting in Charlotte.

B. Include all marine resources or a selected list of jointly managed species.

Should this program include programs for all marine resources, including species that are not interjurisdictional and are managed by individual states (shellfish and some crustaceans), internationally managed species (tunas managed by NMFS and ICCAT), and/or subject to authorities other than fishing statutes (marine mammal and endangered species bycatch)? In order to have a modular program, the core data collection programs should be broadly-based and designed to monitor the majority of species. Base data collection programs can not be species-specific programs while at the same time contain the attributes specified for the program (cost-effective, non-duplicative, etc.). In some cases (pulse fisheries, rare occurrences) supplemental sampling or programs may be needed to provide baseline or more intensive information.

1. Program includes all living marine resources (finfish, crustaceans, shellfish, live rock and corals, marine mammal and endangered species bycatch, and internationally managed species).

Advantages:

- Unified approach to data collection.
- Integration of all marine resources data for stock assessment and management purposes.
- Integrated data management system.
- Able to make priority recommendations in allocating resources for all programs.
- Unify efforts in seeking funding for all marine resource management needs.

Disadvantages

- May be too complex and big a task to deal with all the data collection programs at once.
- May be more difficult to implement due to conflicting or lacking legislative authorities and responsibilities.
- May be more difficult to recommend future priorities for allocating people and money if only one of the partners has a need for monitoring a certain fishery.
- Would require a longer time frame to plan and implement, unless data collection programs for major groups are developed on independent parallel paths.

2. Include only a selected list of marine resources.

Advantages:

- Ability to concentrate shared resources on selected marine resources that are of concern to all partners.
- No need to delegate data collection authorities or deal with legal issues of responsibility.
- Simpler decision-making when allocating priorities.

Disadvantages

- May inappropriately encourage design of species-by-species or fishery-by-fishery data collection and management programs.
- Does not provide a holistic approach to managing living marine resources.

C. For fishery-dependent programs, include commercial and recreational fisheries or only one or the other.

** It is at this level and below that a parallel list of options would be needed for fishery-independent program components.

1. Include both commercial and recreational.

Advantages

- Unified approach to fisheries-dependent data collection efforts supporting fisheries management.
- Only way to understand the whole picture of the impacts of fishing on marine resource stocks.
- Integration of data collection activities may be possible in some areas, such as collection of data from charter and head boats.
- Integration of fisheries-dependent data for stock assessment and management purposes.
- Integrated data management system.
- Can build on existing programs (RecFIN(SE), TIP, etc.).
- Basic elements already exist in the South Atlantic programs.
- Would be able to make priority recommendations for allocating resources for all fishery-dependent programs.
- Necessary for allocating fishery resources to users who value them most.

Disadvantages

- Design and implementation may be more complex and will take more time and resources.

2. *Only commercial or only recreational.*

Advantages

- Start program and solve problems faster by focusing resources in only one area.
- If only commercial programs are the focus, the critical problem of reducing the reporting burden and duplication on the industry could be addressed faster. There is some reporting burden in recreational fisheries, particularly with charter and head boats, but generally less burden than currently exists for the commercial sector.
- A successful base program may be developed faster which can be used as a model for developing, funding and implementing later additions to the program.

Disadvantages

- Problems in the unchosen component may not be solved as soon.
- May lead to a false perception that one type of data is less important than the other.

D. Include monitoring of all catch, harvest, or landings.

Catch is the total number or weight of fish captured, including both fish which are retained and discarded.

Harvest is the number or weight of fish caught and kept for immediate use (bait, food) or brought to shore.

Landings is the number or weight of fish brought to shore.

For this discussion, "fish" may represent any marine organism. The definition of catch includes those fish released alive. The PDT decided to include fish that are discarded dead in the definition of harvest to make that level equivalent to all non-cryptic fisheries mortality.

Monitoring catch provides the highest level of resolution and amount of information. It is also the most expensive. If the standard for the program is to monitor catch, this may mean that monitoring at that level will be considered for all species, but priorities, needs, and resources will determine actual implementation. It implies that data collection programs would be designed to make collection of all catch data possible in a modular fashion. This level of monitoring is essential for formulating management regulations and for accurate stock assessments which are based on catch-at-age models.

Only two options were developed: catch and harvest (landings are part of harvest), or landings only. This is because the type of program developed to monitor harvest (monitoring discards in definition) could also monitor catch (with an increase in cost/effort), while programs to collect data on landings only could be quite different.

1. All catch and harvest.

Advantages

- Holistic approach.
- Allows collection of bycatch data.
- Essential for complete modelling of catch-at-age.
- Necessary for accurate stock assessments.
- Allows for better modelling of fishermen's targeting behavior and decisions re: discarding, high-grading, etc.

Disadvantages

- Extremely difficult and expensive to obtain verified data on fish released alive, and discarded dead for most fisheries.
- May place additional burden on industry due to increased costs and intrusiveness (more items to report, need for observers).

2. Landings only.

Advantages

- Simplest to obtain with the lowest cost.
- Least burden on the industry.
- Less costly.

Disadvantages

- Incomplete data for accurate stock assessments, and formulation and evaluation of management strategies.
- Limits scope of management decisions that can be made.
- May further reduce credibility of management.

E. Minimum standards of raw data collection levels for catch and effort data.

Combinations of 1) the maximum aggregate of time acceptable for reporting raw catch and effort information (catch/effort within multiple day trips, trip data, monthly summary data), and 2) reporting unit (independent observer, fisherperson, vessel, or dealer) determine which data can be collected, and may determine the accuracy of the data. The use of "time" here means how long it took to obtain a certain amount of catch or to apply fishing effort, issues dealing with how often data is collected or mailed in and put into the

database will be dealt with in the data management system category. Choice of the options in D, current and future management strategies, and stock assessment models used will guide this choice. All levels of resolution may be obtained through a variety of census or sampling techniques and do not mandate the use of either voluntary or mandatory logbooks. If all partners can agree on a minimum level of resolution, individual partners or groups of partners would be free to collect data at a higher level of resolution. Lower levels of resolution generally require the least burden on the industry and cost the least, therefore those factors are not mentioned specifically in advantages and disadvantages. (These "choices" should be not be thought of as discrete choices, but as reference points on a continuum)

1. Highest level of resolution: Each gear/fishing area combination within a trip reported by at-sea observers onboard fishing vessels.

Advantages

- Most accurate data on catch, including discards.
- Allows for collection of any trip-related information.
- Level of resolution needed for gear and area allocations.
- Level of resolution for stock assessments that stratify by gear and/or area (sharks, tunas, swordfish, shellfish).
- Provides detailed information for modelling fishermen's behavior.

Disadvantages

- May be impractical or impossible on some boats (private recreational boats, small commercial vessels).
- Places the most burden on industry (room/board, insurance costs, etc.).

Core Data:

Most accurate estimates of effort (i.e. number of minutes per individual trawl tow)
Total units (vessels and people) operating in each fishery
Target species for the gear and area
Pounds (or numbers) caught by species by gear/area/time
Accurate assessment of pounds (or numbers) discarded dead
Accurate assessment of pounds (or numbers) discarded live
Length of trip (shore to shore)
Individual gear/area fishing times

2. High level of resolution: Each gear/fishing area combination within a trip reported by fishermen (This is the level currently required in the Northeast groundfish logbooks).

Advantages

- Minimum level of resolution needed for gear and area allocations.
- Minimum level of resolution needed for stock assessments that stratify by gear and/or area (sharks, tunas, swordfish, shellfish).
- Allows for collection of some trip-related information.
- Provides detailed information for modelling fishermen's behavior.

Disadvantages

- Places burden on industry.

Core Data:

Total number of trips/effort by gear and area
Total units operating in each fishery
Target species for the gear and area
Pounds (or numbers) caught by species by gear/area
Estimate of pounds (or numbers) discarded dead
Estimate of pounds (or numbers) discarded live
Length of trip (shore to shore)
Individual gear/area fishing times

3. Medium level of resolution: Trips (shore to shore) by reporting unit.

Advantages

- Adequate level of resolution for most stock assessments (excluding pelagic species).
- Minimum level of resolution for limited entry, ITQ's, and quota management.
- Allows for collection of some trip-related information.
- Provides some information for modelling fishermen's behavior.

Core Data:

Total number of trips per month by species
Total units operating in each fishery
Target species for the trip
Pounds (or numbers) landed by species by trip
Estimate of pounds (or numbers) discarded dead
Estimate of pounds (or numbers) discarded live
List of all gears used on the trip
List of all areas fished on the trip

Length of trip (shore to shore)
Total fishing time

4. Lowest level of resolution: Monthly reports by reporting unit on total landings by species, and total trips (shore to shore).

Advantages

- Easiest, least costly (status quo in some cases).

Disadvantages

- High risk of inaccurate assessments.
- Higher risk for management.
- No opportunity to collect discard data.
- Limited information/ability to model fishermen's behavior.

Core Data: Pounds (or numbers) landed by species by month by dealer, county, gear, area and distance from shore.
Market and grade categories when they apply
Total trips

(Collecting no data may be considered the lowest level)

F. Include biological data.

Inclusion of biological data collection in the program does not necessarily mean separate sampling programs, nor does it imply 100 percent coverage of all fisheries. Priorities and needs will shift by species, or species groups through time. If included, obtaining biological data for all partner's needs may lead to competition for scarce resources (often more a problem of time available on deck or at the dock rather than funding). Supplemental sampling may be added to existing data collection programs where and when appropriate. In some cases though, additional programs may be needed.

Advantages

- Data are critical for proper stock assessments.
- Often can be collected concurrently with catch and effort data.
- Sampling designs and data entry programs already exist in the south Atlantic (i.e. TIP program).

Disadvantages

- Startup or enhancement costs may be necessary and high in some cases.
- May increase burden on some parts of the industry.

continue to decline or will not be managed wisely.

Advantages

- Necessary for proper allocation and management of the resource for the most benefit to the states and the Nation.
- Mandated by the Magnuson Act.
- Required by Federal and some state regulations and statutes to prepare Economic Impact Statements and cost-benefit analyses.
- Provides fisheries managers with data necessary to make defensible management decisions.
- ASMFC Charter mandates consideration.
- Listed as a priority area in ACFCMA.
- Baseline data can be collected with the addition of a few questions on existing commercial and recreational surveys.

Disadvantages

- Difficult to obtain in-depth analyses (i.e. lengthy, time-consuming questionnaires sometimes requesting sensitive data).
- May lead to some perception of invasion of privacy and respondent resistance.

Core data: Participants at the ASMFC Workshop on Socio-Economic Data and Analysis for Recreational Fisheries Management reviewed current data collection activities and identified high and low priority data elements for annual data collection programs. The list was recommended and adopted by the Commission's Marine Recreational Fishery Statistics Committee and has been reviewed by the Committee on Economic and Social Sciences. That Committee categorized the data elements into six broad categories: 1) economic value and demand, 2) disposition of catch, 3) socio-demographic, 4) trip-related, 5) attitudinal, and 6) expenditure. In addition, high and low priority data elements not currently collected by the MRFSS were identified for future inclusion in the survey. The Northeast Data Needs Workshop and the Southeast Cooperative Statistics Committee also addressed economic and social data needs.

H. Include social data.

Inclusion of social data collection in the program does not necessarily mean separate sampling programs, nor does it imply 100 percent coverage of all fisheries at all times. Priorities and needs may shift by species or species group through time. For a short list of basic core data, supplemental sampling may be added to existing data collection programs where

appropriate. However, detailed social data may be necessary, which leads to long forms and questionnaires, and additional programs may be needed.

Advantages

- Necessary for proper allocation and management of the resource for the most benefit to the states and the Nation.
- Mandated by the Magnuson Act.
- Required by Federal and some state regulations and statutes to prepare Social Impact Statements.
- Provides fisheries managers with data necessary to make defensible management decisions.
- Necessary to assess cultural and social effects of government regulation.
- May be used to predict compliance with management strategies.
- ASMFC Charter mandates consideration.
- Baseline data can be collected with the addition of a few questions on existing commercial and recreational surveys.

Disadvantages

- Difficult to obtain in-depth analyses (i.e. lengthy, time-consuming questionnaires sometimes requesting sensitive data).
- May lead to some perception of invasion of privacy and respondent resistance.

Core data: See discussion under economic data.

I. Sampling versus census.

No matter what level of resolution or what type of data (catch, harvest, or landings), the actual data (catch and effort, biological, economic, or social) can be collected through a variety of census (i.e. logbooks, dealer reports, computerized reporting such as Vessel Position Systems, permit systems) or sampling methods (i.e. at-sea observers, shore-side interviews, aerial surveys of effort). Census methods generally imply self-reporting of some sort, while sampling is usually conducted by trained personnel. One option is to select a mix of census and sampling methods. That option could vary in so many ways that it was impossible to list all of the possible advantages and disadvantages. Instead, some basic advantages and disadvantages of census versus sampling methods are contrasted.

In general, both methods carry some level of burden on the industry, although some sampling methods may carry a large burden, i.e. high sampling levels with at-sea observers. Census methods may cost more to print and process the paper work, and if not properly implemented they may cost more to

enforce compliance and to verify data quality. In addition, the current push to reinvent and downsize government (and lessen red tape), restrictions on data collection opportunities are increasing. In the Federal arena, there are Presidential mandates to reduce public reporting burdens, including a requirement for a 50% reduction in the number of existing reports, and implementation of more stringent rules regarding the approval of existing and proposed data collection efforts. The push to downsize government and reduce public burden may also take place at the State level. Also, in general, census methods may require more clerical, key-punch, and administrative FTE's to deal with pushing the paper, while sampling methods will require more scientifically trained FTE's. This may have major long-term implications in the staffing composition of marine resource agencies.

1. Census methods.

Advantages

- Provides complete coverage of an entire fishery.
- May be the only possible way to collect data for ITQ management.
- Places responsibility on the industry for the privilege of harvesting publicly-owned resources.

Disadvantages

- Places burden on industry.
- Impractical/impossible for private boat and shore-based recreational fisheries.
- May require additional enforcement efforts in some areas to ensure compliance.
- Will require validation to ensure quality of the data and lack of bias.
- May require some major investments in hardware and data-entry effort and staff to process the data.
- May be impractical for collecting biological data.
- May require special sampling design to collect adequate social and economic data.

2. Sampling Methods.

Advantages

- May result in a more accurate picture of the fishery, since sampling can be designed to eliminate bias and obtain a representative sample of the population.
- Probably the only practical way to monitor recreational

- fisheries, except for the charter and headboat sectors.
- May be less of a burden on the industry.
- May result in staffing with more scientifically trained personnel.

Disadvantages

- May be more complex and harder to understand how estimates of total catch and effort are made (expansion of estimates).
- Can not be used for limited entry or ITQ monitoring.
- Requires variance estimation.
- May increase costs due to staffing with trained personnel.
- Requires large sample sizes to decrease variance and increase confidence in the estimates.

J. Vessel/dealer registration/permitting databases.

There are two issues to be resolved concerning vessel/dealer registration and permitting: 1) one-stop shopping to reduce burden on the industry, and 2) integration of databases. As the choice flows from completely separate permitting and database systems to a system with separate forms but integrated databases, to a system with a single form and a single database, there is a sliding scale of decreases in cost after implementation, a decrease in burden to the industry, an increase in the ability to track fleet movements, a decrease in duplication, and an increase in difficulty of implementation. The PDT felt that the development of the option for a single permit/single database was unrealistic at this time because of permitting authorities and revenue sharing issues, although it may become feasible at some future time.

1. Separate permits/forms and separate databases by all entities.

Advantages

- Status quo, no changes therefore no extra costs.

Disadvantages

- Duplication of data across databases.
- Burden on industry.
- Difficult/impossible to track fleet movements.
- Difficult/impossible to track individual vessel movements.

2. Separate permits/forms with integrated databases.

Advantages

- Improved sampling frame for a variety of data collection programs.
- Improved ability to track fleet movements.

- Improved ability to track individual vessel movements.
- Responsible authority can still maintain ownership of their own database, but those who need access can share information.
- May eliminate need for vessel operating units survey.
- May eliminate boat and shore survey.

Disadvantages

- Does not reduce burden on the industry (duplicate forms).
- Requires development and coordination by a system manager.
- Startup costs may be necessary.

Core data needed:

Vessel name
 Vessel registration number
 Vessel owner name and address
 Vessel owner's social security number (?)
 Permit types

Useful data:

Vessel length
 Vessel tonnage
 Primary port of landing
 Engine/power category
 Vessel age
 Hull material

II. Quality Control and Assurance

A. Develop and adopt written quality control standards and procedures for all programs.

Written quality control standards would be the minimum standards covering specific aspects of data collection and management. Standards and procedures would specify: proper survey design and analyses to test assumptions; standardization of as many procedures as possible, including definitions; thorough written documentation of procedures, data bases and analysis systems; survey results and operational performance results; training and supervision; specific quality control checks at each step in the process of conducting a survey or operating a self-reporting system; and communication and coordination.

Advantages

- Encourage and ensure consistency between programs and management units.
- Ensure minimum levels of standards.
- Ensure consistency of results to allow trend comparisons among

geographical areas and over time.

- Reduce bias due to survey methodologies, by individuals conducting a survey, or by self-reporting individuals.
- Improve timeliness of data availability and increase efficiency.
- Maintain data base integrity to ensure its utility to researchers and managers.
- Allow reproducibility of results.
- Ensure confidence in programs by both users and the public.
- Increase confidence in stock assessments and fisheries management decisions.

Disadvantages

- Costs to develop procedures.
- May increase costs to bring existing programs up to the minimum standards.

Besides written and approved quality control standards and procedures for all programs, the following major policy standards need consideration for inclusion in the program.

B. Require verification for some or all self-reported data.

Verification can be applied to self-reported data through a variety of methods that may or may not cause an increased burden on the fishing industry. Some common methods include, but are not limited to, audits, spot checks by observers, aerial surveys, and cross checks between reporting systems. The amount of verification will depend on available resources and the methods chosen. One option may be to choose a policy to require verification where there is doubt about the validity of the data or when the data are being used for particularly controversial management.

Advantages

- Ensures accurate data.
- Encourages accurate reporting by an entire fishery.
- Increases confidence in the data.
- Increases confidence in management decisions.

Disadvantages

- May increase costs.
- May be manpower intensive (i.e. sea sampling).
- May impose additional burden on industry.
- May be difficult or expensive to design and implement verification process, depending on the system being verified.

- May irritate industry or individuals that are audited or spot-checked due to the perception that they are not trusted.

C. Require self-reporting systems to include timely compliance tracking and reporting procedures.

Advantages

- Provides a measure of the quality, bias, and completeness of self-reported data.
- May provide a measure of industry support.
- May identify areas where improvements in educational outreach and enforcement are needed.
- Provides documentation of fishermen who do not comply.
- May reduce risk in management process.
- May increase confidence in stock assessment and fisheries management decisions.

Disadvantages

- May increase costs.

D. Require estimates of variance be provided with some or all estimates?

In programs where sampling is used (as opposed to census methods), a point estimate is usually made. That point estimate is the center point of an estimate of the range of possible values, usually defined as plus and minus 1.96 times the proportional standard error (PSE). The range that is usually chosen is the 95 percent confidence limit. For example, the Marine Recreational Fisheries Statistics Survey (MRFSS) estimated the 1994 striped bass harvest in the North Atlantic to be 103,000 fish with a proportional standard error of 10. This meant that fishery managers were 95 percent certain that the number of striped bass harvested was between 83,400 and 122,600 fish. It is desirable to know the variance (represented as the PSE) and resulting confidence limits in order to assess the risk in management decision-making. In most cases, existing sampling programs routinely generate variance estimates; however a few survey programs do not. The cost of generating variances is generally in up-front development of the proper equations by a statistician and programming work to incorporate those equations in the estimation procedures. A requirement for variances is unlikely to increase any burden on the industry except perhaps by revealing a need for higher sample sizes in some cases.

Advantages

- May increase confidence in data and management, especially when quotas and allocations are being decided.

- May reduce the risk of making bad management decisions.
- Improve understanding of the data by all parties.
- Publication of variances may reveal weak survey designs and/or inadequate sampling.

Disadvantages

- May increase sample sizes.
- May increase costs.

E. Require and define goals for minimum levels of precision for sampling programs.

These goals may be based on the type of fishery, level of fishing activity, life history characteristics, de minimis standards, geographic ranges (i.e. increased precision for animals at the edge of their range will be much harder and more expensive to obtain), and management strategies (quotas require more precision than managing by bag and size limits). The ASMFC workshop on precision and timeliness (Spec. Rept. No. 44) provided a consensus on needed precision for MRFSS estimates for five species and provides a basis that can be built upon. Further evaluation and definition of precision levels may need to be referred to a technical committee, prior to policy level approval.

Advantages

- Encourage and ensure consistency between programs and management units.
- May be used to encourage adequate levels of monitoring by all partners in the program.
- May reduce risk in management process.
- May increase confidence in stock assessment and fisheries management decisions.
- Helps define the minimum level of sampling that is necessary which can be useful in obtaining funding, planning, and allocation of resources.

Disadvantages

- Unrealistic goals may be unreachable.
- May increase costs.

F. Require metadata databases be developed for some or all catch and effort databases.

Metadata is defined as information on environmental perturbations, economic and social trends, changes in fishing regulations, changes in technology, and general trends that affect fisheries and fishery resources. Reasons for

inclusion of metadata are: 1) complexity, length and scope of surveys may make proper use of the data more difficult; 2) loss of institutional memory and; 3) interpretation of long-term trend data. Long-term trends are influenced by various factors and understanding of the major changes in those factors is necessary for better interpretation of the trends.

Advantages

- Vital to understanding trends.
- May reduce risk in management decision-making.
- Will reduce reliance on institutional memory which can vanish at any time.
- May increase public confidence in data and management decisions.
- Makes data more understandable to scientists, managers, industry, and the public.
- May deter misinterpretations of the data.

Disadvantages

- Up-front investment in data-base development and implementation (although relatively small).
- Long-term requirements for maintenance and routine up-dates (although relatively small).

G. Require validation of data element quality in all data collection programs.

Data quality checks are automated programs that are run when data are entered into a database and can include such checks as species range, outlier analysis, allowable values, accurate coding, and cross-checking of variables. This standard of quality control should not increase the burden on the industry except for follow-up checking of inaccurate data. Costs include development of computer programs and staff time to determine and make the appropriate corrections.

Advantages

- Encourage and ensure consistency between programs and management units.
- May reduce risk in management process.
- May increase confidence in stock assessment and fisheries management decisions.
- Provides a check of observers who collect data.
- Can provide information about the quality of self-reported data and identify trouble spots for compliance.

Disadvantages

- May increase costs.
- May be difficult to obtain corrected information for self-reported data.

III. Data Collection

The PDT deferred outlining options in this category until a later time when the issues of scope and quality control standards have been determined. Decisions on scope and standards will dictate what data collection programs should be kept the same, modified, discontinued, or developed from the ground up and implemented. For the most part, data collection programs are of a technical, detailed nature and should be put before technical committees once program scope, etc. have been resolved. The inventories of existing programs will provide basic information for judging the current system against a desired system which is outlined by the program scope and quality control standards decided upon.

IV. Data Management

A. Amount of centralization.

The PDT discussed some of the possible options for housing and distributing the data and delineated three categories: decentralized, distributed/integrated, or centralized data systems. Decentralized management systems means that all of the databases are separate and may be different (different software type, variables, codes, etc.). Each agency maintains its own databases, and even within an agency databases may be different. This is the status quo. Scientists performing stock assessments or other analyses and summaries must assemble all the pieces of data and try to make them compatible. **(Although we have defined these as three separate choices, they should in fact be viewed as a continuum, with different degrees of centralization possible between these "reference points")**

A distributed data management system means databases are integrated with each other. The databases may be similar (software, variables, codes), or they may be different. If they are different, programs or software tools are used to convert them into a common database when queries are performed. This type of system can also allow databases to be related to each other, i.e. link up information on a logbook database to information on a vessel registration system. The databases may be on separate computers but would be networked to allow integration. For example, in a distributed system, Northeast commercial data could reside on the NMFS Woods Hole mainframe, Southeast data could reside on the Miami machine, yet someone in NMFS headquarters or in a State office could perform a query that automatically linked the two databases together to obtain total Atlantic and

Gulf coast commercial bluefish landings. Staff in the Northeast and Southeast are responsible for maintaining and updating their own databases. This type of integration requires a wide area network and development of transformation programs. It also requires good communication between database managers to ensure transformations and summaries of the data are adapted as databases are modified. This is the system that NMFS is implementing with the IT-95 computer system.

A centralized database means that all data collected under the Program would exist on a central database with formats that maintained identical variable names and codes across databases. A distributed/integrated database system may be transformed into a centralized system. Individual agencies could maintain their own databases but would supply duplicates to a centralized "official" database, which would be the source of data from more than one agency and for stock assessments. Good communication would be required to ensure that individual state databases and the centralized database stay exactly alike as data are updated. A centralized database would have to be made accessible to all partners and thus would require a wide area network. A centralized database is similar in many ways to the old mainframe computer environments. The major difference is the development of software systems allowing relational use of databases.

Except for the choice of status quo, whatever choice is made will dictate that computer capabilities will have to be upgraded in order to meet the demands of the system and the needs of the customers.

1. Decentralized.

Advantages

- No new costs, no changes to implement.

Disadvantages

- Untimely data access, inconsistent, incomplete, incompatible.
- Stock assessments may be difficult and not as good as they could be.
- Providing data to researchers and scientists is often not a high priority of database managers and may cause delays.

2. Distributed/integrated.

Advantages

- Allows for individual ownership and maintenance of the data, while being a part of the overall system.
- Designed around core pieces of data.

- NMFS (which was nominated for primary data management responsibility during the Charlotte workshop) is implementing this type of system.
- Allows easy access and use of the data by scientists and other approved users.
- Allows some flexibility among agency databases.
- Some of the newer software tools greatly increase the ability to create, maintain, and access this type of system.

Disadvantages

- If communication between database managers is not established and maintained in a rigorous fashion, the ability to convert and relate databases may be compromised.
- Security issues need to be developed and implemented to ensure appropriate access to data (i.e. ensure proper access to confidential data).
- May be difficult to design the database to function for both updating and query reporting.
- Remote use may slow performance for local users.

3. Centralized.

Advantages

- Allows for individual ownership and maintenance of the data, while being a part of the overall system.
- Less overhead in terms of conversion programs and software.
- One entity is responsible, and therefore accountable, for the maintenance, access, security, and adequate resources after receipt of data from collection agencies.
- Allows easy access and use of the data by scientists and other approved users.
- Allows some flexibility among agency databases.
- Easier to manage queries from outside the system.

Disadvantages

- May have large, duplicative data storage requirements.
- May be an expensive operation for just one entity.
- May require a high degree of effort to ensure that centralized databases are the most up to date, depending on lag time allowed for updating.
- If communication between database managers is not established and maintained in a rigorous fashion, the ability to convert and relate databases may be compromised.

- Security issues need to be developed and implemented to ensure appropriate access to data (i.e. ensure proper access to confidential data).

The PDT identified a primary goal of this issue and that is whatever type of system chosen must provide the customer(s) with the most up to date database as possible. The PDT suggests that a technical committee should be appointed to examine the details/options once the decision is made to upgrade the present situation (if there is no centralization then this is a moot point).

B. Timeliness of Data Entry and Transmission.

A base level that would cover most fisheries could be decided upon at the beginning of the program with flexibility to provide certain reports at desired time intervals. For example, monthly data reports should be adequate for the majority of existing programs that are not currently managed under a quota or ITQ system. Some quota managed fisheries may require quicker turnover rates, most likely on a weekly basis, while ITQ's may require daily data reports.

C. Data Access (issues of confidentiality, at what level is summarized data provided).

This issue was deferred until after decisions on the data management system and centralization are made. Much of this will be determined by existing confidentiality statutes and regulations. No matter what data management system is chosen, confidentiality can be ensured through a system of passwords. This topic may also be addressed in the Cooperative Agreement.

D. Data transfer.

This issue is dependent upon the earlier decisions concerning centralization of the system and timeliness. If the system chosen has some degree of integration and there is a desire to speed up data transfer, then the PDT suggests that each customer/partner would need access to the Internet at full band width (if the average person with a home PC can have this capability then this should be easy to attain at this level).

E. Innovative technologies.

There will be a continual need to evaluate and possibly update the program due to innovative technologies. A technical committee could be appointed to oversee and advise on these matters.

V. Program Management

Most, if not all, of the program management issues that were discussed during the Statistics Policy Workshop could not be answered or addressed by the PDT until other Policy-level decisions were made. The PDT decided to just list these issues/questions so that they could be revisited in the future.

A. Enforcement of continued participation by partners.

The possible need to enforce continued participation in the program by all partners was discussed at the May 8-11 Workshop in Charlotte, NC. The PDT compiled a list of options that were voiced during the Workshop.

1. Do nothing.
2. Might not be able to enforce participation.
3. Use peer pressure.
4. Make it a compliance issue under ACFCMA.
5. Change State and/or Federal legislation to allow enforcement.
6. Link participation to funding priorities under ACFCMA.

B. How to ensure continuity in data collection if a partner can not meet its responsibilities.

The need to ensure continuity in data collection by all partners and fill gaps left by partners unable to meet their responsibilities was also discussed at the May 8-11 Workshop in Charlotte, NC. The PDT compiled a list of options that were voiced during the Workshop.

1. Change State and/or Federal legislation.
2. Transfer authority to another body.
3. Reprioritize needs and funding.

The PDT felt that many of the management issues could not be resolved until the system design was determined. Some of these issues may be addressed in the Cooperative Agreement. However, these issues will all require policy level input and decisions. The following is a list of those questions that came up in the May 8-11 Workshop in Charlotte, NC.

Who will determine management standards?

Who will set priorities?

Who will set communication channels?

Who will set accountability standards?

Who will make decisions relative to what data will be included now and in the future?

VI. Outreach and Public Education

Outreach and public education is essential to the issue of enforcement of reporting (by the industry) by ensuring public acceptance of the program. The PDT suggests that these issues should be referred to the Outreach Strategy Work Group.

Fishermen and the general public need to be kept apprised of changes in the program, data collection methodologies, and the need for their participation to assist in collection of accurate data to monitor stock status.

The issue of enforcement of reporting requirements should be deferred until after the data collection system is designed. Enforcement of reporting will be dependent on the specific methods of data collection. Law enforcement personnel (possibly the Commission's Law Enforcement Committee) should be directly involved in these discussions. This committee has previously expressed its willingness to cooperate in this program.

Recommendations on the Specific Technical and Management Issues

Statistics Policy Committee

The Fisheries Statistics Options Paper was presented to the Commission's Statistics Policy Committee in July and September 1995. The committee provided the following consensus recommendations:

- Include both fishery-dependent and fishery-independent programs, however, focus initial efforts on addressing problems with fishery-dependent data collection programs.
- Include all living marine resources.
- Include both recreational and commercial data collection programs.
- Design the program to allow collection of catch and harvest information, where possible.
- The minimum level of sampling resolution should be trip reports by gear and area, however, the program should be designed to accept higher levels of resolution, where possible.
- Include biological data in the program design.
- Design a system to accommodate the collection of economic and social data to the best of program partners ability.
- Design a system that incorporates both sampling and census methods of data collection, depending on the specific fisheries being targeted.
- Design a system with multiple forms, or a single form and integrated databases.
- Design a system with quality control and assurance standards and protocols for all phases of the program.
- Design a system to verify self-reported data.
- Design the system to include timely compliance tracking and reporting procedures.
- Require variance estimates for all data.
- Require minimum levels of precision for all sampling programs.

- Design a metadata database.
- Include validation of data element quality in the program design.
- The Statistics Committee directed Commission staff to put together a working group of computer experts to provide options for the design of the computer system. The options should focus on an integrated distributed system, but probably not all the way to complete centralization.
- Timeliness issues should be considered in the context of the reporting requirements for specific species under management.
- Issues involving confidentiality should be considered in conjunction with data accessibility and transfer issues.

Fisheries Statistics Industry Workshop

**December 11, 1995
Alexandria, Virginia**

The Commission's Executive Director appointed a Marketing and Outreach Workgroup comprised of the following state and federal members: Mr. Steven Driscoll (NH), Mr. Ed Irby (FL), Mr. Al Guimond (ASMFC), Mr. Gil Radonski (ASA), Mr. Willard Cole (USFWS), Mr. John H. Dunnigan (ASMFC), Dr. William Hogarth (NMFS), Mr. David Keifer (MAFMC), and Ms. Tina Berger (ASMFC). On December 11, 1995 the Fisheries Statistics Marketing and Outreach Workgroup sponsored an Industry Workshop in Alexandria, Virginia to obtain input from industry representatives on the design of the Atlantic Coastal Cooperative Statistics Program. Industry representatives were designated by the individual state partners and the regional Fishery Management Councils (see Attachment B for list of industry representatives).

Fishing industry input was provided on the intent of the MOU, the program scope and organization, and goals and objectives of the program, as outlined in the Atlantic Coastal Cooperative Statistics Program MOU. Representatives provided input on problems with the current system of data collection as viewed by both the recreational and commercial fishing industry. Input was also solicited on the technical aspects of the program design, as outlined in the Fisheries Statistics Options Paper. Fishing industry representatives provided several recommendations for the design and implementation of the Atlantic Coastal Cooperative Statistics Program.

- Industry supports inclusion of both fishery-dependent and fishery-independent data collection programs in the ACCSP.
- Industry supports inclusion of all living marine resources in the program, however, the emphasis should be on recreationally and commercially important fisheries.
- Industry supports the inclusion of both recreational and commercial data collection programs, stressing the importance of equitable reporting standards and burdens for both fishing sectors.
- Industry supports collection of catch information, while recognizing the increased cost and burden on the fishing industry.
- Industry supports the highest levels of sampling resolution possible.
- Industry supports the collection of biological, catch, and effort data as the highest program priorities.

- With reservations, industry supports the collection of economic and social data. Further clarification of the types and use of economic and social data is necessary. Methods for evaluating commercial and recreational values need to be developed. Methods of collecting economic information from alternative sources (i.e.; dealers, processors, bait/tackle shops) should be evaluated.
- Given budgetary and hiring constraints, industry supports the highest level of sampling coverage. However, industry expressed greater concern with frequency and timeliness of reporting.
- Logbooks should be based on regional fisheries. Enforcement of mandatory reporting is essential. Industry suggested that coastwide mandatory reporting may be necessary. Increased attention must be given to collection of data from the recreational fishing sectors. Coastwide licensing and mandatory reporting of recreational fishing should be evaluated. Sampling methods and the level of data collection should be based on the specific needs of managed fisheries.
- Industry agreed that registration and permitting databases should be part of the overall program and supports a program that reduces duplication of reporting requirements.
- Quality control and verification are essential aspects of the program. A clear distinction must be made between verification and enforcement.
- Industry strongly supports compliance tracking and recommends that lack of compliance be linked to licensing or permitting renewals.
- Industry supported the development of a metadata database and further suggested a more formal usage of anecdotal information generated by the fishing industry.
- Computer systems at the state and federal level, and between fishermen and fisheries agencies, should be compatible. Computer system design should include state and federal data management personnel, as well as outside consultants. Cost/benefits of other models should be evaluated.
- Timeliness issues must be considered for fishermen reporting requirements, information dissemination, information use and integration into the management process, and development of protocols for use, distribution, and cessation of confidential information.
- Industry suggested that efficiency of data accessibility and transfer could be increased through increases in computer literacy and access. Information dissemination to user groups must be in a timely manner. New technologies need to be evaluated.

- Fishing industry must be an essential component in development of this program. Workshops should be held for specific fishing industry sectors. Fishing industry input needs to be at all levels, both policy and technical.
- Fisheries managers need to increase trust and credibility with fishermen, and need to increase the level of professionalism with which they treat fishermen.
- The educational process must include all segments of the commercial and recreational fishing industries. The program, and the information to be collected through the program, needs to be marketed and sold to the fishing industry prior to program implementation. Use of fishermen, such as charterboats and headboat captains, to provide education to average fishermen should be evaluated.

Attachment A

List of Participants

Atlantic Coast Fisheries Statistics Policy Workshop May 8-11, 1994

Workshop Participants

Andy Kemmerer	Southeast Regional Office, NMFS
Brad Brown	Southeast Fisheries Science Center, NMFS
Jon Rittgers	Northeast Regional Office, NMFS
Allen Peterson	Northeast Fisheries Science Center, NMFS
Richard Roe	Office of Research and Environment, NMFS
Richard Schaefer	Office of Fisheries Conservation and Management, NMFS
Richard Sisson	Rhode Island Fish, Wildlife and Estuarine
Jack Travelstead	Virginia Marine Resources Commission
Dennis Spitsbergen	North Carolina Division of Marine Resources
David M. Cupka	South Carolina Department of Natural Resources
Susan Shipman	Georgia Coastal Resources
James Geiger	U.S. Fish and Wildlife Service, Northeast Region
Penn Estabrook	Maine Department of Marine Resources
John H. Dunnigan	Atlantic States Marine Fisheries Commission
David Keifer	Mid-Atlantic Fishery Management Council
Robert Mahood	South Atlantic Fishery Management Council
Douglas Marshall	New England Fishery Management Council

Willard Cole	U.S. Fish and Wildlife Service, Southeast Region
John Nelson	New Hampshire Fish and Game
Phil Coates	Massachusetts Division of Marine Fisheries
Ernest Beckwith, Jr.	Connecticut Department of Environmental Protection
Gordon C. Colvin	New York Department of Environmental Conservation, Marine Resources
Steven Herb	New Jersey Division of Fish, Game and Wildlife
Charlie Lesser	Delaware Division of Fish and Wildlife
A.C. Carpenter	Potomac River Fisheries Commission

Observers

William Hogarth	Office of Fisheries Conservation and Management
Steve Driscoll	New Hampshire Governor's Appointee, Atlantic States Marine Fisheries Commission
Maury Osborn	Fisheries Statistics Division, NMFS
Ron Lukens	Gulf States Marine Fisheries Commission

Fisheries Statistics Plan Design Team

Paul Diodati	Massachusetts Division of Marine Fisheries
Charlie Anderson	Massachusetts Division of Marine Fisheries
Terrence Smith	Northeast Fisheries Science Center, NMFS
Joe Moran	South Carolina Department of Natural Resources
John Mason	New York Department of Environmental Conservation, Marine Fisheries
Lisa L. Kline	Atlantic States Marine Fisheries Commission

Joe Desfosse

Atlantic States Marine Fisheries Commission

Facilitation Team - Department of Commerce Decision Analysis Center

Charlie Treat
Bill Woodhead
Gwellnar Banks
Howard Neviser
Loren Casement
Patty Grasso
Rick Korink

Attachment B

Fisheries Statistics Policy Workshop Agenda

**May 8-11, 1995
Charlotte, North Carolina**

Monday May 8

6:00 - 7:00 Opening session -- welcome, workshop objectives, introductions, logistics

Tuesday May 9

9:00 - 10:00 Concept definition work groups
11:30 - 12:15 Concept definition plenary session
12:15 - 1:30 Lunch break
1:30 - 3:30 Issue identification and discussion work groups
4:00 - 5:00 Issue discussion plenary session
5:30 - 6:30 Hospitality hour (informal)

Wednesday May 10

9:00 - 11:00 Identification and discussion of strategic options (work groups)
11:30 - 12:15 Strategic options plenary session
12:15 - 1:30 Lunch
1:30 - 3:30 Initial plan development work groups
4:00 - 5:00 Initial plan development plenary session

Thursday May 11

9:00 - 12:00 Plenary session to affirm concept, goal and strategy agreements, establish an implementation process, and define next steps

Attachment C

List of Designated Industry Representatives and Participants of the December 11, 1995 Fisheries Statistics Industry Workshop

Maine	Pat Keliher (recreational) Jeannette Bubar (commercial) Dennis Frappier (dealer)
New Hampshire	Brad Cook (charterboat) Alan Vangile (commercial)
Massachusetts	Gerald Poyant (headboat) Frank Mirarchi
Rhode Island	Jim O'Malley (commercial)
New York	Mary Bess Phillips (commercial) Charles Johnson (recreational)
New Jersey	Gary Dickerson (recreational) Steve Carnahan (commercial) Charles Bergmann (dealer) Ray Bogan (headboat/charterboat) Nils Stolpe (attendee)
Delaware	Shirley Price (recreational) Clyde Roberts (commercial)
Maryland	Edward O'Brien (charterboat) Betty Duty (commercial)
Virginia	Ernest Bowden (commercial) Richard Moughan
North Carolina	Joey Daniels (commercial) Richen Brame (recreational) Bob Peele (commercial)
South Carolina	James Green (commercial) Mike Glaesner (recreational)

Georgia

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Steve Swanburg (commercial)
George Patterson (recreational)

MAFMC

Nelson Beideman
Ray Bogan

ASA

Mike Nussman
Andrew Loftus (attendee)

NFI

Neils Moore

